

**THE EX "PARCO GEOMINERARIO DELLA SARDEGNA"
(UNESCO GEOPARK) AS A LOCAL SUSTAINABLE
DEVELOPMENT TOOL
A COMPARATIVE ANALYSIS**

Master thesis by
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INDEX

<i>Abstract</i>	3
<i>New trends and theories in Mining Heritage management</i>	4
Protection of Mining Heritage	5
From industrial to contemporary society	7
<i>Mining Heritage and Local development in the study case of Sardinia</i>	14
1. The evolved cultural district of Sardinia	14
2. The ex "Parco Geominerario della Sardegna" (Unesco Geopark). A local sustainable development tool	16
Description of the park	17
The management plan	19
SWOT analysis	22
Results of the analysis	31
Understanding the results	32
<i>Interviews about the study case in Sardinia</i>	34
1. Tarcisio Agus	34
2. Salvatore Cherchi	46
3. Giampiero Pinna	54
4. Nicoletta Piras	62
5. Paola Atzeni	67
6. Paolo Fadda	75
Summary of the interviews	80
<i>Experiences managing industrial cultural heritage</i>	83
1. Great Copper Mountain, Falun (Sweden)	83
2. Zollverein Coal Mine Industrial Complex, Essen (Germany)	89
3. The Copper Coast UNESCO Global Geopark, Waterford (Ireland)	96
Conclusions	101
<i>Conclusions</i>	103
<i>Bibliography and Sitography</i>	110

ABSTRACT

Taking into account the new trends in the theories of geography of art, culture led development and local sustainable development, I will try to analyse how the Parco Geominerario della Sardegna" (Unesco Geopark) has worked until now and the objectives of the future. Recalling Sacco, Ferilli Tavano Blessi (2015)'s island division into Cultural Evolved Clusters, it will be the starting point for analysing the management plan of the park. It will follow some interviews about the past and the future of the park and successively the summary of three European experiences, in particular in the countries of Sweden, Germany and Ireland, that will try to offer a gaze into other attempts towards this direction.

To conclude I will analyse the vision of the park as a sustainable development tool and some sparks to support this vision.

This chapter aims at introducing the new trends in the management of mining heritage and how they can be inserted in the new theories of sustainable development and culture-led development. Cultural heritage is sometimes officially recognized by legal documents, international treaties, and national documents. It can be either conventions at international (UNESCO, ICOMOS) or national (laws of national states, authorities of monument care) level. The most important international document is the Convention on the Protection of the World Cultural and Natural Heritage, approved by the UNESCO General Conference in Paris in 1972, which defines what can be considered as heritage (cultural, natural, mixed...). At the national level, cultural heritage is in various ways protected by the laws of the different countries (UNESCO November 1972)

Mines have been an important basis for the development of our societies and in particular industrial societies. After their disclosures, their conversion brought the focus on the vision of the mines as heritage and a possible way of tourism. Of course, when they close there are invariably negative impacts, especially because of the decline in the economic activity and its resultant loss of employment (Conlin and Joliffe, 2011, pp 3).

The first possibility, apart from the abandonment of the sites, is transforming the mines into attractions, even though it will never replace the level of economic benefit or replace the job loss created by the previous economic situation offered by the mines (Conlin and Joliffe, 2011, pp 3). Moreover, it can represent an alternative for the community, and the development of tourism. It can follow the creation of traditional community-based museum that preserves and celebrates local heritage. Further in the process have been created mining routes to support this type of heritage (Conlin and Joliffe, 2011, pp 3; 242).

Indeed, mining heritage is considered a universal, important and growing typology of heritage under the protection of UNESCO Global Geopark Networks, European Geopark Network and so on (Conlin and Joliffe, 2011, pp 3).

Industrial heritage tourism forms a different subset of the wider field of heritage tourism (Edward and Lurdes i Cott, 1996 Conlin and Joliffe, 2011, pp 72). It is concerned with the remnants of the past that are associated with primary (extractive) or secondary (manufactory) economic histories, and it is typically associated with the past of the working class' (Timothy 2007:xiii in Conlin and Joliffe, 2011, pp 72) (Elspeth Frew in Conlin and Joliffe, 2011, pp 72). Mines are strongly linked to the history and culture of a local region, particularly when the site

has existed for many years and it was a major local employer, as the examples I will describe in the following chapters.

Their protection can result into direct and indirect benefit for the community, especially with the creation of revenues, it can help economic diversification and creation of alternative employment (Conlin and Joliffe, 2011, pp 3). The activity of visiting areas of mineral occurrence and production can also be identified as a form of special interest or niche tourism (Novelli, 2005 in Conlin and Joliffe, 2011, pp 4) called **geotourism** (Hose, 2005 in Conlin and Joliffe 2011, pp 4).

Moreover, nowadays this process of rethinking mines can take development beyond the more traditional notion of museum, creating sustainable opportunities for the communities. (Conlin and Joliffe, 2015: 4). And also, mines and quarries as industrial heritage would seem to have greater success if they are part of a wider range of tourism attraction in the territory (Edward and Lurdes i Cott, 1996, pp 72). In their publication *Mining Heritage and Tourism*, Conlin and Joliffe (2011) provide many case studies from all over the world to demonstrate the possibilities of using the mining remains for tourism (Jelen, 2018, pp 98).

Protection of Mining Heritage

From the early 1970 the concept of **heritage**, in general, has been a growing focus for tourism. Its main definition is “*all things inherited*” (Conlin and Joliffe, 2011, pp 131). According to Brisbane (1996) the broad classification of tourism attraction that has been classified as heritage include “a diverse range of subjects: landscapes, music, theatre, clothing, architecture... and more contemporary association with past industry” (Jones and Flynn, 2010 in Conlin and Joliffe, 2011, pp 131). Williams (1998)’s typology of heritage attraction are very similar: artistic, socio-cultural, built, transport, history, landscape, science, military and industrial attraction (Conlin and Joliffe, 2011, pp 10). The concept of industrial heritage-based tourism as we know it today was born in France. Particularly in the late 1960s to early 1970s in the form of “**eco-museum**” that focused on industrial working practices and community life (Verbekke, 1999 in Conlin and Joliffe 2011, pp 132). Following the French success, throughout the 70s, other countries followed. The success of this particular type of heritage was often attributed to European policy focus on these types of initiatives and funding available at that time (Ball, 2000 in Conlin and Joliffe, 2011, pp 137). After the 70s this concept of industrial heritage was adopted by government policies for regeneration across a broad range of western industrial nations, with the

aim of increasing the local economy wellness after experiencing socio-economic problems following the decline of heavy industry (Jones and Flynn, 2010 in Conlin and Joliffe, 2011, pp131-132).

Mining heritage is often preserved, managed and interpreted by national park agencies and enjoyed by tourists and locals. However, Frost and Hall (2009) pointed out that as natural parks are generally intended to protect natural values, the inclusion of cultural heritage is often problematic, with the tendency to ignore cultural heritage (Frost, 2011 in Conlin and Joliffe, 2011, pp 97). According to Frost (2011), national park managers cannot simply use previously developed interpretation: their challenge is to develop new interpretation and to find the balance of emphases between natural and cultural landscape (Frost, 2011, pp 99)

According to UNESCO (2008) a geopark is “*a nationally protected area containing a number of geological heritage sites of particular importance, rarity or aesthetic appeal*”. These sites are usually part of an integrated concept of protection, education and sustainable development (Flecha, Knupp, Lohmann, Liccardo, 2011 in Conlin and Joliffe 2011, pp 195).

Moreover, UNESCO Global Geoparks are defined as single, unified geographical areas where sites and landscapes of international geological significance are managed with a holistic concept of protection, education and sustainable development. In using its geological heritage, in tandem with other aspects of the area’s natural and cultural heritage, Global Geopark has a number of specific focus areas: natural resources, geological hazards, climate change, education, science, culture, women, sustainable development, local and indigenous knowledge and geo-conservation (Dempsey, 2019, pp 37).

The main purpose of the parks is preserving geological heritage sites for future generations (*conservation*), educating the general public about the geological landscape and environmental matters (*education*), providing research facilities for geoscientists, and ensuring sustainable development (*tourism*). Size and function of geoparks are usually large enough to allow for economic activities and include a sufficient number of geosites with important geological features able to stimulate economic development. Geoparks can also include archaeological, ecological, historical or cultural features. The regional impact of a geopark is that theoretically improves human living conditions and the rural environment, strengthens identification of the population with their neighbourhoods and triggers cultural renaissance, stimulating the creation of innovative local enterprises, small businesses, cottage industries and new jobs that generate new sources of revenues and geotourism products (Eder and Patzak, 2004 in Conlin and Joliffe, 2011, pp 195). There are different networks and institutions that protect and promote this type of heritage, for example:

- **Global Network of National Parks** by UNESCO tries to promote and coordinate heritage preservation focusing on the geological one, integrating more centre of activities like Man and Biosphere programme (MAB), World Heritage Centre and World Network of Biosphere Reserves. The basic idea of the geopark model is the need to integrate geological, historical and cultural heritage with environmental resources in a development process based on local communities and their economic activities.
- **ERIH**, or the European Route of Industrial Heritage, is the tourism information network of industrial heritage in Europe. The network is run by the ERIH association, which has more than 300 members in 27 countries. Regional Routes introduce in more detail the industrial history of landscapes, which were particularly influenced by industrialization. They work as linkages for European industrial history and their common roots. In 2019 ERIH was certified as a "*Cultural Route of the Council of Europe*".
- **European mining heritage network** that promotes cooperation, exchange of ideas and experiences between mining heritage associations.

From industrial to contemporary society

The shift into post-industrial societies has brought the repositioning of heritage (also mining heritage) and culture as engines of social innovation, economic development and urban regeneration (Della Lucia & Franch, 2015; Go & Trunfio, 2014; Hall, 2004; Lazzeretti, 2004; Sacco, Ferilli, & Tavano Blessi, 2014; Scott, 2010 in Della Lucia and Trunfio, 2018, pp 1). From the 70s culture started to be seen as a functioning tool in urban regeneration policies, especially for cities and region searching for economic alternatives, that developed in the service sector (culture, tourism, finance and banking...). This trend aimed at helping the Marshall's Industrial district and the old idea of Fordist industrial towns, considering now the role played by culture and knowledge, towards a new form of economic development called "Culture Driven" (Richards and Wilson, 2007, pp 4-5). The term 'cultural industries' was coined in the 1940s by Horkheimer and Adorno (1972), with a critical meaning against the commodification of art: cultural industries were seen, in this sense, as producers of repetitive cultural products for capitalist mass consumption. Afterwards, 'cultural industries' became a more inclusive concept of culture, and in the 1980s the Greater London Council (GLC) began to use the term to refer to cultural activities outside the public funding system (O'Connor, 1999 in Richards and Wilson 2007, pp 5). With the boom of multimedia in the 1990s, there was the transformation of 'cultural industries' into the "creative industries": new emerging sectors of cultural production, such as multimedia and

software production, the audio-visual industries, architecture and design could not fit into the traditionally defined sectors of the cultural industries (Ratzenböck *et al.* 2004 Richards and Wilson 2007, pp 5). This shift from cultural to creative industries is not merely an addition of new sectors. Indeed, by combining the ‘arts’ with industrial production, the creative industries concept also challenges previous dichotomies between high and popular culture or elite and mass culture (Cunningham and Hartley, 2001 Richards and Wilson 2007, pp 6). The term ‘creative industries’ was apparently first used by the UK Creative Industries Task Force (CITF)), defining creative industries as ‘*those activities which have their origin in individual creativity, skill and talent, and which have a potential for wealth and job creation through the generation and exploitation of intellectual property*’ (CITF 2001: 5 in Richards and Wilson 2007, pp 5). This new trend places culture at the beginning of the productive process and creativity as engine of this change, calling districts or cities “creative”. Many urban renovation projects have planned and are planning to build creative cities and quarters, able to attract tourists and creative workers. Art and culture are considered an important driver to create a “creative atmosphere”, able to favour the development of the “Economy of Knowledge” and to move toward a “Cultural Economy” in opposition to the industrial one.

Creative industries became into the categories of the creator of employment and economic impact. Because of the problem of defining creativity, Richards and Wilson (2007) tried to identify it as: a product, experience, innovation, a marketing strategy, an industry sector, a social development strategy, but also a landscape, problem-solving, a blanket term for heritage and cultural tourism, and more abstractly as difference, diversity and a challenge to identity Richards and Wilson 2007, pp 16). The key ideas mainly utilized in creative development and strategies for constructing an image of the creative city are summed up by Vanolo (2006):

- The ‘buzz’, i.e. scenes with people, especially when meeting and chatting, with a special attention towards situations of multi-ethnicity.
- The local art scene, referring both to ‘official’ and more ‘popular’ forms of art.
- Nightlife, both in the case of fancy restaurants and other places for young and trendy people.
- Public spaces, natural environments and parks, together with outdoor sport situations and landmark buildings.
- Representations of high-quality education, both for young people and professionals, widely considered as an essential element of urban competitiveness (Vanolo 2006 in Richards and Wilson, 2007, pp17).

It can be summarized with the creation of a 'cosmopolitan' atmosphere.

The main theorists are the sociologist Richard Florida, the economist Michael Porter and the Nobel Prize Amartya Sen.

Florida (2002) talked about a creative class able to impulse this creativity: the basis of economic advantage has shifted away from basic factors of production, such as raw materials or cheap labour, towards human creativity. Cities and regions therefore have to develop, attract and retain creative people who can stimulate innovation and develop the technology-intensive industries which empower economic growth. He tried to measure the level of creativity, creating correlations between indices of what have been described as the 'three Ts' of economic growth: *talent* (measured by the percentage of residents with a bachelor's degree), *tolerance* (percentage of the population that is foreign-born) and *technology* (employment in high-technology industries). These indices did not completely match with reality because even countries that rated very low, as Italy, are actually famed for design, fashion industries and so on. Later studies showed the risk of gentrification in the cities because of creative classes, the possible creation of a classist society and the fact that development would therefore be "outside" the local community without involving it (Richards and Wilson, 2007, pp 10).

Porter (1998) explained that the concentration of the creative people in a place/district/region/city makes more competitive the agglomeration and offers to it competitive advantages. Unfortunately, Porter did not take in consideration the role of locals in this type of urban (re)generation, while Amartya Sen talked about the capability approach and model, able to create the capabilities of the local people. Capability may be improved by not only financial investments, but by building the capacitation of the local people making them able to understand their problems and weaknesses. Nevertheless, it needs to avoid parochialism.

Richards and Wilson (2006) identify a number of reasons why creativity is now more popular than "traditional" cultural approaches to development (Richards and Wilson, 2007, pp 15):

- Culture is often associated with 'high culture', which has a traditional, staid image. The cultural sector is not perceived as being very flexible or dynamic.
- The creative sector is broader than the cultural sector alone, covering more sub-sectors and having a greater total value and employment impact.
- The creative sector is closely linked to innovation and change.

- The creative industries include many more aspects of visual consumption (advertising, cinema, design, fashion, video games).
- Women often play a key role in the development of the creative industries (Richards and Wilson, 2007, pp 15).

However, developing the new, fashionable, dynamic creative product is not as simple as adding the word ‘creative’ to a place name. Successful creative development is a complex process, which needs to recognize the delicate relationship between past, present and future, between high and popular culture, and between space and place (Richards and Wilson, 2007, pp 24).

Nowadays more and more locations want to promote “clusters” and creative activities, that are important not only for the local economy but because it can work as a magnet for the creative class and to develop a creative image. It’s producing important changes in the way in which ‘cultural tourism’ is produced for, and consumed by, tourists (Richards and Wilson, 2007, pp 16).

Creative Tourism

Culture and tourism have always been linked as means of increasing jobs and in many cases, the development of culture and tourism went hand-in-hand, because cultural facilities became an important showcase to attract tourism, and tourists contributed the money which supported the expansion of culture (Richards and Wilson, 2007, pp 3).

Cities and regions are using the combination of creative hardware (infrastructure/spaces for creative production, consumption), orgware (sectors, industries, clusters, policies, governance) and software (atmosphere/ambience, fashion, quality of life, perceived diversity, ‘vibrancy’) to develop a range of experiences for tourists as well as residents, structured following three basic types of tourism experience (Richards and Wilson, 2007, pp 20):

- a) Creative spectacles, activities that form the basis of more passive tourist experiences as spectacles (i.e. production of creative experiences for passive consumption by tourists).
- b) Creative spaces, enclaves populated by cultural creatives able to attract visitors (often informally at first) due to the vibrant atmosphere that such areas often project (e.g. Down Under Manhattan Bridge Overpass – DUMBO – in Brooklyn).
- c) Creative tourism, active participation by tourists in creative activities, skill development and/or creative challenge can form the basis of tourist experiences, which can also imply

a convergence of creative spectacles and creative spaces (Richards and Wilson, 2007, pp 20).

In addition, cultural and tourism bodies impulse this type of development with projects as UNESCO's Cultural Tourism Programme, cultural tourism developments funded by the European Union and the White House Report on Cultural Tourism in the USA). Cultural tourism became a 'good' form of tourism, widely viewed as sustainable and supporting local and creativity. In the 1990s with a greater supply of cultural attractions, there was a strong competition between destinations for cultural consumers, stimulating the creation of more distinctive and more impressive cultural developments. It started an increasing problem of 'serial reproduction' (Harvey, 1989 in Richards and Wilson 2006, pp 1) or 'McGuggenheimization' (Honigsbaum, 2001 in Richards and Wilson 2007, pp 1) of culture, and creativity appeared to be the answer (Richards and Wilson 2007, pp 1).

In this field of creative tourism, the emphasis shifted from tangible to intangible culture: an example can be the experience of an exchange of knowledge and skills between host and guest, the desire of tourists to form relationships with 'locals' with the use of Couchsurfing, Airbnb and other new forms of accommodation (Richards, 2014, pp 11).

New market niches of the creative tourism are according to Richards and Wilson (2006;2011):

- Religious tourism (Griffin and Raj 2012)
- Gastronomic tourism (Hjalager and Richards 2002; OECD 2012)
- Language travel (Correia 2011)
- Wellness and spa tourism (Smith 2009)
- Spiritual and holistic tourism (Norman 2012)
- Volunteer tourism (Wearing 2001)
- Creative tourism (Richards and Wilson 2006)
- Educational tourism (Abubakar *et al.* 2014).

All of these emerging niches are related to a greater or lesser extent of *experiential* content of tourism products and services: using for example augmented reality. It is a technology that allows digital content to be shown on our view using the camera of a smart phone or a tablet. The user can view the real world enhanced with additional 3D graphics on its field of vision (Richards, 2014, pp 11). It can have more cultural tourism applications, including reconstructing monuments to their original state and animating the experience. An example is Google Glass, that marks a shift from using hardware provided by the cultural site itself to the accessing of content by users with their own devices

(Richards, 2014, pp 11). As Neuhofer (2014, pp 90) explains, such “*Technology enhanced experiences are characterised by the factors of instantaneousness and real time, constant social interconnectedness, consumer independence and control, a sense of experimentation and playfulness, information intensity, territorial discovery and serendipity at the same time*” of heritage sites (Richards, 2014, pp 11).

This can produce a more locally driven, fair and arguably more 'authentic' form of cultural tourism. In the field of cultural tourism, there is a shift away from static museums and monuments towards more interactive and intangible experiences (Richards, 2014, pp 31). The point is to use the creative potential of tourism to create new possibilities not just for the tourists, but also for local communities.

All of the trends identified above point a shift in the geography of cultural tourism, away from a narrow concentration on sites and tangible heritage towards a broader consumption of intangible heritage, image and identity.

As Nuccio and Pedrini (2014) explained, we can synthesize three historical steps:

1. culture 1.0 - corresponds to the growth of the industrial society and artistic patronage.
2. The second step - culture 2.0 - witnesses the mass productions' rise in the arts, where cultural and economic values co-exist in a parallel evaluation framework (Throsby 1999).
3. In the latest phase of this step, the term creative industries seemed to set up the case for a profitable cultural economy (Scott, 2000; Florida, 2002; Pratt, 2004; Amin and Thrift, 2007). Culture 3.0 is characterized by two main processes: the switch from passive cultural audience to active cultural practitioners and the pervasive diffusion of culture in many social and economic practices (Sacco, Ferilli e Tavano Blessi 2009; 2013) (Nuccio and Pedrini, 2014, pp 123).

In this new scenario the traditional Cultural Heritage itself is not anymore, the main driving factor, but the social capability to translate it into a driver of diversity: it should give the chance to local people to compete in the global economy. Indeed, scholars argue that even arts which are usually considered 'minor' or 'marginal' in the cultural production, are actually able to activate processes of construction and reconstruction of the so-called 'social value', acting as relational goods and, therefore, source of social innovation (Nuccio and Pedrini, 2014, pp 123).

As these scholars observed is not a single event that generates these effects, but the continuous presence of cultural participatory activities. Moreover, they presented some Italian experiences in disadvantaged contexts: an island (Sardinia), an urban periphery (Scampia, Naples), a mountain area (Apennines, near Bologna).

The Sardinian example is *LIBEROS*, that in Sardinian language means both ‘books’ and ‘free’ and explain the spirit of an initiative. This idea involves editors, writers, booksellers, librarians and readers in a virtuous circle, especially after Sardinian publishing industry crisis. Apparently, in the average, in Sardinia, there are more readers than Italy and are common Literature and poetry festivals like ‘Island Stories’ in Gavoi and ‘September of poets’ in Seneghe. The project involved twenty-three Sardinian municipalities with 240 members in the independent book supply chain, 116 of which are based on the island, seven in the other parts of Italy and three work from abroad (Spain, Germany and Chad). *Liberos* was created to “*connect people who live in difficult and isolated areas with lack of development*”. In 2012 the project won the 100k Euros first award of *CheFare!*, a new brand national funding initiative in the culture industry.

To sum up, many scholars pointed out that culture is important not only because it is a fundamental value of civilization, production of values and capabilities (Sen 1999), but also because it represents a key resource for sustainable economic growth. As the Brundtland Report (1987, pp 41) defined sustainable development as “*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*”. Indeed, it requires intergenerational and intragenerational equity. Consequently, the creation of the geopark pose itself in line with this type of objectives: sustainability must be environmental and social in a long-term and this approach is strictly connected to the definition and objectives of the geoparks.

Especially after the last financial crisis, as Nuccio and Pedrini (2014) explain, consensus grew over the main contribution of art and culture to the local development paradigm to promote innovation (Bakhshi and McVittie, 2009 in Nuccio and Pedrini 2014, pp 126) and system-wide horizontal integration of diverse activities (Sacco, Ferilli e Tavano Blessi, 2015 in Nuccio and Pedrini 2014, pp 127) where culture is both medium and goal. In the next chapter I will apply the notion of a possible Cultural Evolved district in Sardinia, presented by the scholars Sacco, Ferilli, Tavano Blessi (2015) because they pointed out the starting conditions of the territory and share the same objectives. Successively, I will analyse the ex-Geopark *Parco Geominerario della Sardegna*.

MINING HERITAGE AND LOCAL DEVELOPMENT IN THE STUDY CASE OF SARDINIA

1. *THE EVOLVED CULTURAL DISTRICT OF SARDINIA*

My starting point is the application of the new theories, mentioned in the previous chapter in Sardinia, and the division of the island into clusters according to Sacco, Ferilli, Tavano Blessi (2015). The scholars divided the island into cultural districts that do not overlap with the four/eight provinces¹. The characters of Sardinian Cultural Capital according to the scholars are:

- Two main towns with over 100.000 inhabitants (Cagliari, Sassari)
- De-population trend
- De-industrialization trend
- Diffused environment and Cultural Heritage.

The goal should be improving investments on:

- Research and Development
- Innovation
- New technologies
- Building an open and social inclusive society
- Improve the social awareness of the quality of the life (post-materialistic).

Sacco, Ferilli e Tavano Blessi (2015) individuated some models to study, specifically in Ireland, Scotland, Finland and Galicia (Spain) that present these characteristics: they are “regions” without important industrial traditions, with a strategic tradition of the agricultural economy and culture and a high quality of a diffused Cultural Heritage.

The main drivers of the possible cultural districts should be:

- Innovation-driven entrepreneurial class and politicians;
- Quality and knowledge of the local human capital;
- Infrastructural equipment;
- Quality of the scholastic and university training;
- Local governance interest in cultural development;

¹ In 2012 a referendum decided to delete the four new provinces which were added 10 years before, going back to have some of the old ones (Nuoro, Oristano, Sassari) and new ones (Citta metropolitana di Cagliari and Sud Sardegna).

- Awareness of the local identity and of its need to be translated in new modern languages.

Two strategic characters of the “10 Evolved Cultural Districts project” would be the quality and placement of the Cultural Heritage and Cultural production (cultural homogeneous characters of the cultural goods) and road networks, that means how close they are to main road networks.

Sacco, Ferilli e Tavano Blessi (2015) divided the island into these 10 Districts with their own focus and strength:

1. Cagliari
Metropolitan district
2. Sulcis-Iglesiente (Carbonia-Iglesias ex Province)
Museal district mainly involving Industrial Archeology
3. Ogliastra
Natural and Food Heritage
4. Marmilla-Sarcidano (Campidano ex province)
Traditional art craft
5. Sassari
Museal district on the quality of life
6. Alghero (Sassari Province)
Industrial design and fashion
7. Bosa (Oristano Province)
Bio and rural typical productions
8. Olbia
Touristic innovation
9. Nuoro
New sustainable touristic cultural district
10. Oristano
Architectural Historical Patrimony

The district can be described for how they should work in the system:

A - as Attraction districts, with an intense aggregation of cultural offer and better economic equipment. Their role is being the attractor of the domestic and foreign interest.

B - as Specialized districts with strong character of its Cultural Heritage. Equipped with museums, creative industries, architecture, artcraft production, food, archaeology.

C - as Connecting districts, which are able to create links among the previous two kind of districts.

Moreover, the scholars individuated 7 strategic goals of future Sardinian polices:

1. Sustainable capacitation (to reduce the loss of human capital and to develop the remaining)
2. Economy of knowledge
3. Tradition as renovation (to bet on the immaterial capital and skills)
4. Creativity and young people (to attract young creative workers, ex. Local residences for artists)
5. Centrality of the Mediterranean culture
6. Contemporary culture (to translate Cultural Heritage to modern language)
7. Social inclusion (to improve a new internationalized society and culture)

This will be the starting point through which I will analyse the "Parco Geominerario della Sardegna" (UNESCO Geopark) as a possible local sustainable development tool. I will offer a comparative analysis with three other World Heritage Sites (one of them is a geopark as well) that tried to work as engine for sustainable development. It will try to show positive ideas and sparks for the vision of the geopark as a support for locally based development process and most importantly that the park can be shaped around community priorities and be embodied in the lives of local people (Sacco, Ferilli and Tavano Blessi, 2015, pp 223-250).

2. THE EX "PARCO GEOMINERARIO DELLA SARDEGNA" (UNESCO GEOPARK). A LOCAL SUSTAINABLE DEVELOPMENT TOOL

Mining extraction has always existed in Sardinia from the Nuragic period around 2000BC. A large scale specialization has been developed during the modern age, thanks to the mining industry under the Savoy Kingdom during the 18th Century. In the 1950s, the Sardinian mining structures attracted North European capital and it was the beginning of the formation of a large-scale industry and of a consistent specialized working class. Unfortunately, the exploitation of the mines had a really colonial character, especially at this stage. 1/10 of the population from the island was working on this sector at the end of the 19th Century. Nevertheless, the internal market was not able to sustain the birth of a modern extractive industry because of the low population density and the persistence of the rural

economy. Moreover, foreign capital controlled all the mining sector and the raw materials were allocated back to the European markets. Low entrepreneurship and lack of economic differentiation have the reduced multiplier effects on the regional scale. Apart from this, mining has represented an impressive modernization opportunity for Sardinia, supporting workforce mobility flows at national and international level. In 1862, one-third of the Sardinian workforce in the mining sector was composed of people from abroad and at the end of the same decade three quarters of the 9000 people workforce of the regional mining sector was from Sardinia. In a few years, mining contributed to knowledge exchange, innovation in lifestyle and in the self-representation of rural Sardinian people. On the local scale mining has resulted in the consolidation of the specialized expertise and a revolutionary shift from farmhand working conditions to the mines salary where territories started to experience internal mobility in search of better working opportunities and the highest salary (Perelli, Pinna and Sistu, 2011, pp 203-213).

It created a strong mining identity and reterritorialization of the region as for example the new-born city of Carbonia, that was created for supporting this specific activity. The new 12,000 inhabitant city was built in less than 300 days, ready to host the 90% population of only men. Mining has seen social protests even under the most anti-democratic political phases and under the fascist regime (1922-1943). After the fascist regime, Carbonia became one of the core cities of miners' fights and workers' social claims, under the communist party. During the transition from the productive phase until the contemporary attempts of heritage preservation the subregion has experience a big loss of identity and economic stagnation (Perelli, Pinna and Sistu, 2011, pp 203-213).

Already from 1960s until 1975 the new industries were not able to absorb the workforce, provoking stagnant economic growth and depopulation growth. In 2001 there was the official creation of a Geopark and the inclusion in the related UNESCO list, even though the first attempts to develop something for locally based development started already in 1975.

The following paragraph will describe and analyse the park to give an idea of what has been achieved until now (Piano di Gestione Preliminare dei Siti Minerari Prioritari, 18 November 2015, pp 1-120).

DESCRIPTION OF THE PARK

The Parco Geominerario della Sardegna (Italy) was born in 2000 after the Law 23 December n 388. (art. 114, comma 10). It was approved by the president of the region on the 9th March 2004. In 2007 the Consortium of the park developed with the Università degli Studi di Cagliari a support plan, a

project in different areas of activities and a strategic plan. The study aimed at planning a series of initiatives to improve the living conditions of the population in the areas of the Park. It is based on information from official sources, indirect analysis and previous studies by the Park. The methodologies implied are *desk research* through the collecting and analysis of data, a field analysis through data collected directly from the park and principal stakeholder from the territories involved. The first phase is based on the collection and analysis of economic and social characteristics of the territories hosting the park, but also about information about strategies and plan in the areas.

The second phase conducted a SWOT analysis to define criticalities in the park. The same analysis has been formulated after analysing the need of the interest holder.

The third phase analysed analogue experiences as the one of the park, to verify the possibility of success of similar initiatives in different contexts, remembering the need of analyse administrative and financial constraints of the two realities to programme the interventions and actions in the future.

This plan has not been modified since 2009 because of elements like:

- a. The economic crisis after 2008 that spread up in Europe, showed itself even deeper in national and local context. It particularly stroked the most sensitive local territories that in Sardinia that were bounded with mines and slowed down all perspective of development until now.
- b. The different management of the sites where some of them showed a relative success and show the need of finding an urgent solution.
- c. the Consorzio del Parco Geominerario or PGM is still not strong as it should be and with the administrative complexity and unavailability of the heritage hinder the development of the park and the territories.

Main steps of the evolution of the park

- 23 sept. 1997, proposal for the recognition of the park within the Italian Commission and Italian Government to UNESCO
- 24 oct- 12 nov 1997 UNESCO Conference
- 10 dec. 1997 programme from RAS (Regione Autonoma della Sardegna) with Ministro dell'Ambiente, Ministero per i Beni e le Attività Culturali e per il Turismo, Ministro dell'Industria published in G.U. on 1st June 1998.
- 30 july 1998 UNESCO recognized the park

- 30 sept. 1998 UNESCO, Italian government, Ras o Sardinia Autonomous Region, EMSA (Sardinian Mining Authority), University of Cagliari and Sassari undersigned “Carta di Cagliari” for the acknowledgment of the international values of the “Geological, Mining, Historic and Environment Park of Sardinia”
- Jan-sett 1998 Dossier UNESCO
- 23 dec. 2000 Decreto ministeriale, law 388 and institution of the Mining Park of Sardinia
- 16 oct. 2001 Institution of the park as Geomining and historical park of Sardinia. The management is under the Consorzio. It is composed by Ministero dell'ambiente e della tutela del territorio, dal Ministero delle attività produttive, dal Ministero dell'istruzione, dell'università e della ricerca, dal Ministero per i beni e le attività culturali, dalla regione autonoma della Sardegna, provinces e Comuni of the park, Universities of Cagliari and Sassari.
- 9 mar 2004 Emission of the Charter “Statuto del Consorzio del Parco geominerario storico e ambientale della Sardegna” (Piano di Gestione Preliminare dei Siti Minerari Prioritari, 2015, pp 6).

THE MANAGEMENT PLAN

Methodology

The socio-economic analysis of the territories of the park analyse demography, educational level and job market, and production system. The demographic data source is DEMOISTAT in the period 1991-2014. The data form tourism is divided into offer and demand and in the plan is described the difference between Italian tourists and not foreigners (Piano di Gestione Preliminare dei Siti Minerari Prioritari, 2015, pp 8).

Characteristics of the areas

The Geomining and historical park of Sardinia was born with **Decreto of the Ministero dell’Ambiente e della tutela del territorio** of the 16th October 2001 on the Law n 388/2000. The park itself is atypical because of the discontinuity of the distribution of the areas, that spread all over the region appear far away from each other. Some other mines and mining sites have not been included in the park and even though present a high scientific value, they haven’t received any attention so far compared to the other “priority sites”.

According to the Decreto and the Management Plan (2015), the park involves more or less the 20% of the regional territory, and creates 8 areas of interest:

1. Monte Arci (Oristano)

It has extension do 612 km² and involve all Oristano province, it was one of the first settlement in the island because of the oxidian in Monte Arci.

2. Orani- Guzzura -Sos Enattos (Nuoro)

The area has an extension of 671 and it is entirely in the province of Nuoro, where the material found are feldspat, marble and granite.

3. Funtana Raminosa (Nuoro, Oristano, Ogliastra, Cagliari)

It is an area of 501 km² in the provinces of Nuoro, Oristano, Ogliastra, Cagliari.

4. Argentiera-Nurra-Gallura (Sassari)

It is known for field of lead, zinc and silver and with an extension of 771 km².

5. Sarrabus-Gerrei (Cagliari, Ogliastra)

It has an extension of 1.373 km² in the provinces of Cagliari and Ogliastra. Known for its field of lead, zinc and silver and the presence of Mediterranean Maquis.

6. Sulcis; (Sulcis iglesiente, Medio campidano, Cagliari)

It is the biggest area of the park with 2.137 km² and the most representative area of the park because it its extension and variety of mining activities.

7. Iglesiente (Sulcis Iglesiente, Cagliari)

This area extends for 574 km².

8. Guspinese-Arburese (Medio campidano, Cagliari)

This area covers 931 km² of the region and it is peculiar it granitic system of Monteneddu, Monte Arcuentu and granitic complex of Arburese, vast coastal areas and the minerary complex of Montevecchio-Ingurtosu (Piano di Gestione Preliminare dei Siti Minerari Prioritari, 2015, pp 9).

These 8 areas cover 7.571 km², more or less 28% of Sulcis, and 18% of Serrabus-Gerrei. According to UNESCO regulation mining parks of the IGGP (International Geoscience and Geoparks programme) have to be part of one systematic area with only one continuous border. To apply this rule, all the activities about enhancement of the park have to be extended to all the Sardinian territory under the RAS (Regione Autonoma della Sardegna)² according to the delibera 34/10 of the 02.09.2014 and agreements on 28th July 2014.

Analysis from the plan

Data collected

The Centro Ricerche Economiche Nord Sud (CRENoS) of Università degli Studi di Cagliari and Sassari in September 2008, developed the study of a socio-economic plan for the Geological, Mining, Historic and Environment Park of Sardinia, starting its study in 2006. It is important to look at the date after 2008-2009 because of the important economic crisis at national and, most importantly, at local level to see an important decrease of tourism in the region.

We can see that in hotels the presences in total in 2009 were 8.243.072, in 2010 8.311.799, 8.298.152 in 2011 and 7.683.900 in 2012, 8.072.722 in 2013. We can observe that in 2012 there is the historical minimum in the period taken into account and after 2013 the numbers start to stabilize around the pre-crisis levels.

In 2014 tourism in the island has grown around 10%, with 14,40% of foreigners more and 7,27% of arrivals in total more.

Table 1. Visitors who paid for sites in IGEA (Source: table 5, data from IGEA October 2015 in Piano di Gestione Preliminare dei Siti Minerari Prioritari, 18 November 2015, pp 27)

	2010	2011	2012	2013	period	2014	2015	Notes
PORTO FLAVIA	13729	13216	13224	11336	Jan-sept	-	18078	4-12 april, may-august, 3-20 oct ³
GALLERIA HENRY	8416	7665	8351	6991	Jan - Sept	-	7387	19 july-4 th oct

² Autonomous Region of Sardinia

³ In 2020 visitors arrivals reached around 18.000, probably because in search of social distancing and greater access's control due to the COVID-19 pandemic. This consideration can also be extended to other Cultural Heritage sites of the areas and the Cammino Minerario di Santa Barbara, today extended more than 500 km.

GROTTA SANTA BARBARA (Iglesias)	5106	5385	5229	4398	Jan-Sept	-	0	Closed for working
VILLAMARINA (Iglesias)	1306	1200	1565	514	Apr – June	All closed	1058	4-12 april (716) May only by booking
MUSEO MACCHINE (Iglesias)	489	370	521	213	Apr - July	-	0	Only on easter period combined with Porto Flavia
FUNTANA RAMINOSA (Gadoni)	998	797	473	621	March – Sept.+ Nov.	-	0	closed
MONTEVECCHIO (Anglosarda)	4379	4221	3651	3360	March-September	-	0	closed

SWOT ANALYSIS

SWOT technique helps to represent and schematize **S**trengths, **W**eaknesses, **O**pportunities, and **T**hreats in a territorial context or a development plan. It analyses the context and information in different thematic themes. According to the Piano di Gestione Preliminare dei Siti Minerari Prioritari (2015, pp 35-40)

Strengths:

- After the crisis, tourism confirms the tendency of constant growth especially pushed by development politics and addiction of new services connected to it. Mining tourism seems to be consolidated trend all over the world. During the years 2014-2015 we see a constant growth of the interest for the mining heritage. Although information is still not fully available it shows an impulse of interest.
- Differentiation in the typologies of touristic offers in the areas of the park that should satisfy more targets, to enhance the quality of life both in coastal and in inland areas. Mining sites are seen as a booster for touristic offer.
- Closeness to already famous touristic pole like Alghero, Cabras, Carloforte, La Maddalena, Muravera, Pula, Teulada, Villasimius.

Weaknesses:

- The aging of the population, together with really low schooling levels of the new generation hinders the development and future of some communities. Sardinia is one of the last regions in Europe for high skilled human capital, but even lower is the index in the areas of the park.
- Professional figures connected with marketing and management are lacking. The index of unemployment is higher than in other parts of the region and Italy.
- Moreover, economic development declined after the closure of all the activities bounded with industries. The end of these activities was not substituted by any other activities that created a huge gap in the population. Also, there wasn't and there is not a plan for measures taken to reclaim and many areas show to high environmental risk. This could hinder new projects and entrepreneurial possibilities for the areas around the park.

Unfortunately, tourism for how much it can help it is concentrated in the coastal areas, in addition the lack of services for tourists is what hinders development the most.

Opportunities

The park is considered in all institutions and at all level an optimal booster for the region and the areas. The "Piano Sulcis" aims at introducing measures to reclaim the territories after industrial activities and give impulses for a socio-economic development. These areas represent new possibilities, especially with human capital to not forget and lose those type of competences and history.

The focus now is planning new activities to rehabilitate areas and architectonic complex joint with cultural fruition of these areas. These areas are at the moment not used but together with high rated landscape zone free of human hand, they can create sustainable tourism.

Moreover, the fact that the region is now on the list of Geoparks of UNESCO can increase the numbers of tourists in the island and the areas of the park. In this sense attractor sites can fight depopulation especially in some areas of the park (Sarrabus-Gerrei, Marmilla, Sulcis Iglesiente, ...) that are suffering the drought.

Threats

Administrative organization and the presence of different local and national entities can compromise the results and limit the action. It is important to consider what can be done by any of them for the future. The park and its areas are highly dependent to the public resources, low entrepreneurship and different types of public founding. Also, the touristic offer is not organized and well-coordinated: important services for the tourists are still lacking, for example information points, restaurants, mobility facilitations and of course all the other services connected to tourism.

The economic situation until 2014-2015 has seen a reduction of wellness in the region and especially after the crisis of the industrial industries, where it hindered even more the economic development.

In the management plan, through the analysis of visitors, revenues/income and expenditures and the way they change, the Consorzio elaborated 3 possible scenarios. This analysis takes into account 5 years to develop three different hypotheses where it can change:

- The micro-management of the areas
- General action of the park from above, national and regional level.

Scenarios

The plan (Piano di Gestione Preliminare dei Siti Minerari Prioritari, 2015, pp 41-88) has created three possible scenarios to understand the possible future(s) of the park.

Scenario 1

The first scenario is the one who analyses the situation and the parameters as they are, as if no new action would be taken. The parameters taken into account are structures, number of visitors and the relationship between income and expenditures. In the next five years the cultural offers is supposed to be stable, while the demand should have a tendency to grow because of exogenous factors. The Geopark and Associazione Parco-Comune are totally in charge of the management. The cost of managements is supplied by IGEA, in a possible agreement with Parco-Comune – Region taking as an example Galleria Henry (Buggerru). The lack of management has to be compensated with public resources (funding).

Scenario 2

The first year presents the same developments as the scenario 1. More demand and offer will be added during the second year. After the 1st year, more demand drives to sustain the cost of investment, and

using these resources to add new activities to museums and introducing a cumulative/ joint ticket, comprehensive of more structures.

These investments will produce more propriety availability, that in the next five years will result into a major number of incomes because of the possible opening of restaurants, bookshop, artisanal shops. The offer will increase but still not developing all potentialities, especially because it is missing a strategic Plan of marketing to develop and enhance the comprehensive structure of the Park.

The park is in charge of all the mining structures and structures connected to it (like bookshops and bars), but all the other types of service like restaurants, conference hall, and so on will be in charge on privates. As in the scenario 1 IGEA is in charge of the rehabilitation and safety work of the sites. This type of organization should diminish the deficit (shortfall) created between offer and demand and be in line with the principal museums in Europe.

Scenario 3

This scenario aims at developing a plan for marketing to increase significantly the number of visitors through the promotion of the cultural heritage of the park and coordination of the structures in the offer.

The first year is in common with all three scenarios, maintaining the status quo. In the second year, there is the possibility that the scenario 2 develops some investments to increase the cultural offer and structures of the park. From the second year there is the proposal of a combined ticket to access more structures and sites of the park. The variation of the offer should impact residents, but the main rise should be visible in the number of tourists.

The organization of the structure and services connected to it should be in the hand of the Associazione (50% Park and 50% Comune) while all the others into private's hands.

Management of the main sites as focus points

The management plan realized an analysis of the main sites studying their valorisation in a short and medium period with the creation of the three scenarios. This analysis developed into the identification of some main areas of interests: some of them correspond to the areas of the park and some others do not. The main idea is to point the attention to some heritages sites that work as places of interests, or attractors, for the areas and territories around them. Also, the analysis took into account the

association present in the territory. Here the Table 9 in the Piano di Gestione Preliminare dei Siti Minerari Prioritari pp 44:

Areas	Manager	Places of interest	Other cultural heritage
MONTE ARCI	ASSOCIAZIONE CICO (Ente Parco, Pau, Masullas)	Sennixeddu/Museo dell'Ossidiana, Pau; GeoMuseo Monte Arci, Masullas	Parco naturale Monte Arci, Cava di ossidiana di Conca Cannas;
ORANI GUZZURRA - SOS ENATTOS	COMUNI DI LULA ORANI E IGEA	Miniera di Sos Enattos, Lula;	Museo Nivola and its "Iniziativa itineranti", Orani (Associato al PGM); Cave Talco, Orani;
FUNTANA RAMINOSA	ASSOCIAZIONE CULTURA DEL RAME (Comune di Gadoni ed Ente Parco)	Miniera di Funtana Raminosa, Gadoni;	Miniera di Corongiu San Sebastiano, Seui; Miniera di Ingurtipani, Seulo; Guided tours for visiting Nuraghi and more archeological sites connected with the "Trenino Verde". ⁴
SARRABUS GERREI	ASSOCIAZIONE GERREI (Villasalto, Armungia, Goni, Ballao)	Miniera di Su Suergiu, Villasalto;	Miniera di Corti Rosas, Ballao; Museo Etnografico, Armungia; Geosito di Peinconi, Goni;
SULCIS	ASSOCIAZIONE CICC (Ente Parco e Comune di Carbonia) ASSOCIAZIONE MINIERA DI ROSAS	CICC-Centro Italiano della Cultura del Carbone; Museo dei PalaeoAmbienti Sulcitani. PAS/Martel, Grande Miniera di Serbariu, Carbonia Villaggio Miniera Rosas	Sirai, Carbonia; Fabbrica del Cinema, Carbonia; Miniera di Orbai, Villamassargia; Isola Ecologica del Mediterraneo, Carloforte;

⁴ The Trenino Verde della Sardegna ("the Little Green Train of Sardinia" in English) is a rail tourism service operated by ARST in the island.

	(Ente Parco e Comune di Narcao)		
IGLESIENTE	COMUNE DI IGLESIAS E IGEA	PortoFlavia, Miniera San Giovanni Miniera– Grotta Santa Barbara, Galleria Villamarina/Bellavista Iglesias); Villaggio Minerario Normann (Gonnesa). Monteponi: (Iglesias).	Laveria Lamarmora Galleria Ornella Museo delle Macchine da Miniera, Nebida – Masua, Iglesias; Pozzo Baccarini Laveria Idina Villa Stefani, Gonnesa; Archivio Storico Minerario Foresteria / Affresco di Aligi Sassu Asilo Renzo Sartori Pozzo Sella, Monteponi-Iglesias; Museo dell'Arte Mineraria e Museo dell'Istituto Minerario, Iglesias; Geosito sezioni tipo Campo Pisano/Cabitza, Iglesias; Geosito del Carbonifero di San Giorgio, Iglesias; Cammino Minerario di Santa Barbara
IGLESIENTE	IGEA, Comuni di Buggerru ed Ente Parco	Galleria Henry (Buggerru)	Tempio di Antas - Fluminimaggiore Miniera di Gutturu Pala, Fluminimaggiore; Sezioni tipo della Formazione di Fluminimaggiore, di Monte Argentu e Portixeddu;

GUSPINESE ARBURESE	Comune di Arbus e Guspini, IGEA	Miniera di Montevecchio (Guspini) Galleria Anglosarda	Miniera di Ingurtosu, Arbus; Piscinas, Arbus; Geosito Basalti colonnari, Guspini; Monte Arcuentu Funtanazza
NURRA	Comune di Alghero e Comune di Sassari	Miniera dell'Argentiera	Parco di Porto Conte (interamente incluso nell'area del PGM) Parco dell'Asinara Miniera di Calabona, Bosa; Parco di Tramariglio
GALLURA	Comune di La Maddalena	Cave di Cala Francese Cave romane	Parco Naturale di La Maddalena Numerosi siti geologici e geomorfologici

The majority of the places of interest are managed by IGEA S.p.A as the personal in charge of rehabilitation. The plan proposes to give their concession to the Comuni. The reason is to allow them to be used for tourism purposes and remove all the costs linked with security of the sites and so on. Moreover, the plan highlights the importance of finding resources from Bilancio della Regione Autonoma della Sardegna with annual transfer to guarantee the opening of the sites during the time, their maintenance and custody for tourism. Even in this situation, the maintenance service will be in charge of IGEA S.p.A. This is really important because it is the body who has a better knowledge of the sites and the skill for their maintenance.

Other examples in Europe have shown the importance of the employment of ex miners as tour guides and the fact they represent an attractive itself for the sites. These operators should be requalified with special education to gain this type of competences.

The maintenance under RAS (Regione Autonoma della Sardegna) will be necessary to cover all the cost to keep the sites open continuously, this is a high expense that impacts considerably the financial

reports. It's shown that this cost endangers the economic sustainability. The Consorzio del parco minerario and Comuni will be in charge of the direct managements of the mining sites, especially the Consorzio should focus on the coordination of the various sites and the activity of promotion.

The model proposed is the Accordo di Programma Quadro (APQ) between RAS⁵, Comuni and Consorzio del Parco. It will define:

- Interventions to be realized, specifying costs and means;
- Operators in charge of each intervention;
- Financial sources for each intervention;
- Task of every worker involved and eventual substitute in case of late, default and inactivity;
- Procedures in case of conflicts between the participants in the agreement.

This instrument allows immediate beginning of the work.

Instruments for the promotion

The way to promote the park according to the plan will be:

Single booking centre (Centro unico di prenotazione in italian o Cup): the tourist can book all the mining heritage sites promoted by Consorzio del Parco by calling this centre. The booking will be available in Italian or English. This service will offer information about timetables, costs of other types of service and so on.

Online booking: this service will be promoted by Consorzio del Parco to all the mining site to rationalize all the costs of service. This system will be in charge of payments, print the ticket and eventually connect it with the stay services and more services.

Promo and commercialization: the advertisement will promote the product "PARK". It aims at showing homogeneous image of the mining sites as a unique unity and distinguishable entity. Following the best practice methods, used in international analysis of the sites and in qualitative interviews, it is possible to recognize 3 possible types of demand:

1. Cultural use: it aims at discovering the mining sites and surroundings in their cultural point of view;

⁵ Regione Autonoma della Sardegna (Autonomous Region of Sardinia)

2. Environmental use: it aims at acknowledging and visiting the more dislocated sites, surrounded by nature;
3. Touristic-recreative use: normal stay, that can be a seaside stay, in which there is also a part of environmental and cultural use.

The plan highlights the relevance to join innovation and interdisciplinarity in offering the heritage sites to the public. Nevertheless, Comuni and Parco should look at what are the other characteristics of the areas. It is important to consider not only the typical beaches' tourism but also other categories like bikers, moto bikers, caravan tourism, trekking and horseback riders, university students, congressists, hikers, school tourism and so on (different niches of tourism). Beach tourism is particularly important and may be seen as the main target, at least at the beginning. It should produce agreements of the Parco and Comuni with seaside operator to attract tourism fluxes as the Comune di Pula has already done with "Rotta dei Fenici".

Ticket price: Some proposal according to benchmarking were:

- Free for pre-school kids
- Reduced-price for over 65, people with disability and groups under 20 people
- Junior card
- Super-programme (mining visit, mining museum and in situ attractions)
- Annual tickets (kids and families)
- All-in ticket (superprogramme and food)
- Family ticket (2 adults and a maximum 3 kids, every more member has an additional charge)
- Group over 10 have 10 % discount
- Compact option (reduced visit of the sites)
- Junior ticket for schools
- Schools and didactic laboratories of one full day can vary according to the month between 13 euros and 20 euros
- Ad hoc programmes and activities for a specific age range (minitours)
- "Edu-tainment" programme and possibility of learning while playing and having fun.

Promotional instruments

- Advertising materials such as publications, gadgets, posters, promo materials for schools and universities, advertising on television and radio at national and international level, banner on websites and so on;

- Advertising in tourism, environmental, cultural and arts fairs;
- Offers with low cost flying companies (Fly & Mine, Drive & Mine) at national and international level. Ad hoc programmes should include mines in their offers. The advertisement of this offers should be in the websites of the companies;
- *Handheld* software using ParcoTag: (following the example of Parco Colline Metallifere Grossetane) using a barcode or CR code in posters. It can work with smartphones and allows to download all the info about the park. The code should be in every visible areas of the park, showing texts and photos. The barcode should be printed in t-shirts and gadgets given to tourists to promote the park.
- In situ advertisement: multimedia instruments should have interactive function and be situated all over the park.

RESULTS OF THE ANALYSIS

According to the table 19 (Piano di Gestione Preliminare dei Siti Minerari Prioritari, 2015, pp 112) in the Plan:

Competences	Costs of production	Profit	Total	Percentage
Park	€ 1 258 248,70	€ 479 017,97	- € 779 230,72	97,52%
Comuni	€ 32 061,88	€ 12206,03	- € 19 855,85	2,48%
Total	€ 1 290 310,58	€491 224	- € 799 086,58	100%

According to this table revenues (€ 491 224) are much less than the expenses (€ 1 290 310,58), and the results is a loss of -799 086,58.

The break-even point will be reached at € 1.058.805,63, showing the need to double the demand to reach the point of covering at least the revenues (Piano di Gestione Preliminare dei Siti Minerari Prioritari, 2015, pp 120).

UNDERSTANDING THE RESULTS

The analysis shows that mining heritage can be insert in public cultural heritage category because as well as this type of heritage, the park registers and shows a loss and the need to receive also different type of founding (private projects, sponsorships and public founding). To explain this, we need to understand not only financial value but also economic value of cultural heritage: it can be derived from its direct and indirect use and non-use. (Serageldin 1999; Allen Consulting Group 2005 in *The Value of Heritage: Summary Report*, pp 11-14). The economic value can be direct and indirect, as its capacity to produce directly or indirectly wellness for the community.

According to *The value of heritage: Summary report*, January (2018) the non-use value can be its **existence** as far as a certain community values its existence and is willing to invest on it for own use; **option** because this community might consume the heritage services at some future time and decide to invest on them, and **bequest** is when community wants to preserve the heritage to future generations and are prepared to commit resources for its protection. It is often referred as non-market values, as it can't be traded and easily assigned a price. Many of the sociocultural values can be categorised as non-use values ad usually they can be expressed as economic values to the community or the individual's willingness to pay to protect, conserve and buy them.

The economic (total) values of public cultural heritage need to count also their non-use value, and that usually cannot be quantified and therefore monetized. Usually when public investments have shortfalls is because they don't consider the non-use value of cultural heritage.

This is the example of the park, and even though it is visible to count the amount of deficit it produces, it is necessary to overview the economic results in toto. Unfortunately, the understanding of all the non-use values (existence, option and bequest) is a long process and takes time, because it can't be quantified in a short period. In any case, the geopark needs of course a long-term vision. Nevertheless, it is important to consider that the park and its places of interests can bring short-medium economic wellness from people visiting the areas. This will produce an added value in the economic chain of the areas and more availability of revenues at a local level.

It is important that the economic chain and local production are sustainable, because the past economic activities from mines and industries already represent an important negative influence in the territories. Indeed, Perelli, Pinna and Sistu (2011) already highlighted the importance and the need of a territorial recovery.

In this view the geopark can be considered as an important tool to local sustainable development, that remembering the theories quoted in the first chapter, represent a possibility of territorial decontamination but also a shift from top-down policies into bottom-up initiatives.

Unfortunately, in 2019, the Parco Geominerario della Sardegna has been removed from the Geoparks list: the executive board explained the need to resize the project into a more delimited one.

In this view the interviews in the next chapter aims at understanding the main problems of today, especially after the removal of the park from the list, and what is being done to change the economic and social situation in the areas of the park.

1. *Tarcisio Agus*

Tarcisio Agus is the president of the park at the moment. Graduated in Humanities and specialized in Archaeology at the University of Cagliari, he had several experiences in development Projects, as “PDHL Tunisia”.

In my interview I will try to understand which the problems are nowadays and the way the park is trying to cope with them.

Can I ask you to present yourself and know more about your job?

I am Tarcisio Agus and I am the president of the park for 2 years and a half, it took up duty with spirit of service as voluntary, because I am not remunerated, so as voluntary because when I was a major I pushed for the creation of the Geopark. I signed for its creation with the Ministry Bordon, as representative of the mining Comuni of Sardinia. What can I say? I was local administrator for 13 years as the major of Guspini, regional councillor for 1 legislature and a while. I have experience in international cooperation with the United Nations, because I participated in a cooperation project CALLED “PDHL Tunisia” for 4 years. The project was in a mining area of Gafsa, a phosphate area, where I realized a path of touristic enjoyment in this area, in the region of Gafsa.

What happened in September 2019? Why the park has been excluded from the network?

It happened that ... happened that often we have great ambition without having the capacity to sustain these ambitions ... the geopark was born with a ministerial decree and it is divided into 8 areas...the areas in Sardinia they are not continuous, they are divided: the biggest is the one of Sulcis Iglesiente Guspinese but then the park is not homogenous. So, in 1997 passionate and mining technicians presented the candidacy for the Geopark as an autonomous and interesting park. Let's say ... UNESCO recognized the characteristics and the unity. It was a simple recognition. A group of ... regions ... of Europe constituted the network of geosites ... and basically the geopark was invited to be part of it.

We obtained the first *green card*. Immediately, the network already criticized us, because we didn't have the territorial unity, but we were divided...and this on the basis of the regulations that later arrived in 2015 ... the geopark of the network had to present territorial unity ... so what did my predecessor do? Professor Pillola, expert of geology, proposed to the Regione Sardegna (Sardinian

region) to entrust the management to the park all the geosites, so that we will have only one perimeter. Only one area. He presented a project to UNESCO to show we had the strength to do this...we are talking about the entire island of Sardinia eh...to prove that we were able to do this he had prepared a project which was going to involve all the 500 workers ex ATIS INFRA, with an estimated investment of 100 millions of euro in 4 years. This project was sent in 2014 to UNESCO and to convince to give the *yellow card* ... well there was a yellow card before and now the green card in virtue of the fact that we committed to carry out this project in 4 years, and the Regione Sardegna issued the decree, the deliberation ... assigning to the park all the geosites of Sardinia...around 400. At this point, we overcame the problem of the 8 areas ... but what happened?

In 2017 I was nominated first commissioner. I arrived one week before of the inspection, so I didn't know anything ... I said to the employees: ok, organize everything, I hope you did everything. For the past 4 years I wasn't there so I didn't know anything ... it seemed everything ok.

The year after in 2018, a new yellow card arrived with the same problem of the 8 areas. We were not adequate to manage the entire island ... why? Because of that project, they couldn't find anything, because anything was done. So, we tried in one year, we had 2 years, we tried to ... to give a minimum of answer to that observation. So, we made them do a route that embraced all Sardinia ... a tour de force of 3 days from La Maddalena until Cagliari ... so, actually going out from the eight mining districts. The only one left inside the route was Argentiera, the others were all geosites: from Persigas, La Maddalena, until Oliena, Grotta Cornu Bellu until Molentargius. They appreciated it but at the end when we did an *inter nos* (Between us) reunion ... where is the programme? They expected we had to involve all Sardinia. In the excursion they asked to the people they met: *do you feel inside the geopark?* That is impossible, keep in mind that we are 9 workers in the geopark, and 3 of them are full time, the others part time. They acknowledged that we don't have the strength...they said that they would have tried to do our best, but they said it: you are not able to manage, both structurally and administratively, the entire island.

We received the red card because they could not give us another yellow. When we did the international meeting, Zuros, the president of the European Network said: *president, if you don't involve Sardinia ... and the Regione Sardegna takes action, you can't manage this ...*

Well, it is not enough to give us the Quality prize ... because then you have to demonstrate it! UNESCO require that you are really doing and practicing their observations, making the island feel that it is an only one park, it needs great awareness-raising and involvement ... so we went out.

Now I am trying with the Regione Sardegna, to have a management body in which the park is not going to be the director, but it is part of it, because the park doesn't have the numbers. So, in which

way we can show we can manage it? Inside of this management body flow into all the regional and national park of Sardinia and all the organization which already protect the environment ... why? To put together all the bodies and the resources to show UNESCO that we can face the unity with Sardinia – UNESCO - Global Geopark, which would be a very interesting brand. But to manage and raise awareness in the public opinion we need the region. Because the park, that already operate in the UNESCO spirit, so everyone doing its part ... putting together, we create a programme which is distributed at a regional level. Even more, with the Regione Sardegna ... I am not asking them more money, extra money ... I am asking for organization. In Sardinia, for example, public education is under the region: let's so seminars in the compulsory schooling, raising awareness to the fact that Sardinia became a European geopark with all the problematics around it: respecting the environment and so on ... so, a programme of this type can be done, because the re-candidacy can be presented again, creating a programme, on that base, they can give us the green card and they give us 4 years to demonstrate what we did. Without doing big things, because you will not find big resources ... indeed, Zuros, wrote that they will welcome the re-candidacy and re-entry of the park in the network of the geoparks, seen also the commitment of the region that pawned 110 millions of euros in 4 years ... then you understand that when they arrived and they did find anything of this ... they felt teased. Of course, they grin and bear it, but it was not to be expected benevolence towards to Sardinia. Now we are working with this view: we'll arrange management body, inside there are all the bodies which already operate in the island, in different ways ... we put together a project di awareness-raising in schools with the Assessorato alla Pubblica Istruzione (Department of Education) and (Environment Department), we put in the network all the CEAS in Sardinia, recognised from the region ... doing a programme of action and sensibilization to submit it to UNESCO that can re-accept us ... and then we will out in practice. So, this is it ...

So we are faithful of being back, not with a new candidature ... rather with the old one but as an integrated project with all the bodies occupied exclusively about following the geopark in a broad sense and unburden the park about this duty because we could not do it ... while we would do our part in our areas, they ... the others would do it in their on the base of a shared programme.

This is important because we will choose two representatives: I was thinking about professor Pillola, which is an expert, he already worked there and to sustain the working group, all the correspondence which arrives constantly. Because the Geopark Network ask you what you are doing, with which initiatives and you need to transmit the documents ... step by step, they have to receive the documents to know if the park is alive and active ... at the end the visit (inspection) is just to underline that the activity of the park is alive, that worked. We, with 8 people ... what have we done? We managed

some initiatives, that is not much ... the idea is to re-candidate the park on the base of involving all the bodies that are in charge of the sensibilization and the protection of the environment.

And this is UNESCO.

About the organization, we are asking to the Ministero dell' Ambiente (Ministry of the Environment), when the park was instituted we were 13 ... so ... we were working for this to be in short time to have a minimum of structure: the duties of such a big park of Sardinia ... it is enormous: taking into account of the smallest – which is one tenth of our, not even – has 20 workers ... the biggest of Italy, which is the half of ours has 80 workers.

We are talking about a hard situation and difficulties of being on time and create an endogenous system ... ours is a national park but it is not contemplated inside of the parks of the Law 394 ... for example for the parks of the Law 394, the Comuni have financial resource s... while our Comuni are not in them, we are not equivalated to them; but we are under the control of the Ministry of the Environment, but we are not equivalated to those parks ... it is an hybrid park.

Moreover, we have the big theme of environmental recovery, it is the result ... that I repeat we are trying to give our contribution with the Scientific Committee ... we have an expert about the problems coming out from pollution ... because these intervention are only conservation ... but the few environmental recovery that had been done where to cover the dumps and protect them from the crossing of the waters but the problem stays, in the future they will break ... while we are trying to start a process of research which wants the recovery of the materials of the dumps, of the minerals which still have values ... the dumps have to be reclaimed... and the problem of the pollution is from the substances in decomposition and leftovers of minerals that are still there...

So the recovery will lower the pollution ... or when possible the dismantlement of this dumps and the use of those sands and mud for building use ... when reclaimed, instead of opening new caves, the old one can be used...to put in the building use ... this also to apply the circular system ... that there ... it has blocked.

In these days we are starting a process of economic development because the park is not just a mining park, but it is also historical and environmental park. There is also a problem of economic development ... after the mining arrival, what happened?

There was an industrial intervention, also thick one, at least in the part of Sulcis and Guspinese with the industries of Villacidro, but they have a reduced cycle ... that brought more pollution of industrial nature ... so in this period, personally but shared also with the board of directors, we said: *before thinking about who knows which any intervention of the mining area that will have a cost ... we have*

to understand the idea of recovery, which is long and we need resources ... in the meaning while in the park there are communities in the park, they live and operate ... so we have to think about economic development of the territory. So, we started a consultation with an expert of European funds and we are moving inside the Comuni of the park, sensitising the citizens and operators to use the resources of the European funds to ... let's say fix up the debts ... because a lot of companies, almost the 60% is registered in the Registro dei Protesti (National Defaulters File), this doesn't allow them to improve their business, they even have to work only to pay the debts. There is a European fund that allow us to reset the debts and that money, that the bank gives you, you can give it back in 20 years with zero rate or 1%. So only the capital.

This would favour the businesses to go back to the entrepreneurial activity because they can access again to the loans. The part which is more interesting for us is the world of farm-zootechnical world, that is the culture of our land. It can help and incentivize to improve the structures and infrastructures and make it autonomous from the point of view of the production of energy. This would lower the costs of production ... and we have ... with one of the biggest shepherd's cooperatives: the one of Nurri, we shared the idea of realizing the food farming district, because it allows you not only the valorisation of the products, also the verticalization in an horizontal way (horizontal verticalization) between the product and the hospitality world, so the touristic one. So ... also, the mining areas have a touristic propensity, but we have to structure it. In the meaning while you structure the territorial economy has to grow. This will also allow the non-depopulation trend. If you help the business and companies to stay in the territory, and surely, they will stay. Yesterday we had the first meeting for the constitution of this agri-food district, in Nurri, the biggest joy is to see young adults that decide to start the agricultural way, in terms of food farming, apiculture, horticulture, cereal growing ... then to transform the product, not only sell it, but do the grains, pastas, all the production chain. We can take this, because unfortunately in the mining times this process of verticalization ... we did not have it ... we had the worst part, the extraction, and then the transferring of the materials, but the added values was in the factories which were somewhere else ... here in the agricultural world, strong of the old experience, we could not repeat it ... we have the raw material, the land, the products ... bringing also quality. This allows with a network of hotelier, restaurant owner, the consumption of the km 0 products. There is a system of territorial companies that should be sustained, and the district should help to maintain them and sustain them, avoiding also the depopulation trends of our villages. Because in the mining areas, when the activity ended, they went back ... so this, in the Park, this theme should be sustained. It completely enters in the finalities of the park which is to create inside the park a safe landscape, recovered with the human presence, which is important, and the circular production, where no garbage (waste) can be done, of small-medium companies of transformation

which are necessary to support the production in surplus, that needs to be transformed, where you can find the added value, not an invasive company as we had in the stataal participation). They hadn't any link with the territory, see Ottana, Villacidro ... in the chemical textile ... this broke the traditional world, the livestock and agriculture ... stopping this development that needed to be sustained and today we would have innovative agriculture and livestock. Because today there are the conditions, lot of young people love using technology, they are improving their irrigation system, asking for loans, because today the agricultural world benefits from 50% up to 70% of the Non-refundable Loans ... a lot of young which have intensive cultivation, they are using technology to control it with the smartphone.

This is the development of the geopark, because we, of course, maintain the mine, that is our land, but with a virous process that allows the young generation to stay in their territory and in a sustainable way. All the funds, all the European funds, tend to the green economy, all the things you do...also the treatment of the water ... you have to use them ... this system can give the possibility of giving energy and so on...

So, making treasure of the mining past, that saw this exploitation of the raw material, used for a piece and the rest went out ... one example we had it in Sardinia: in Guspini there is a ceramic which uses Sardinian material and produces tiles, but still a lot of material goes to Sassuolo, as Tout Venant, where it is enough to have two workers to blow up the cave ... take things and bring it to Sassuolo, and the development is there. It is about trying to have, in our island, companies who put their roots here in the land and raw materials present: this gives us continuity and ... not being dependent. This is important also, because we are pushing that the companies and the Comuni use the alternative funds or the funds will be lost.

In this sense are you going to work also with the Local Group of Action (LAGS) and so on?

Yes, in this sense we are inviting also the LAGS, also them they are trying to do it, it seems they have difficulties because in Sardinia there is still this separate way of life ... but in a district is acceptable to have different products, they have quality and the facts that you have a D.O.P ⁶or I.G.P ⁷product and also comes from the *park's area* ... it is an added value that can be given ... also the fruition of the parks allows the touristic attraction. Another problem we have is that the tourism here is seasonal,

⁶ DOP stands for Denominazione d' Origine Protetta, in English this translates to Protected Designation of Origin.

⁷ IGP. Indicazione Geografica Protetta (Indication of Geographic Protection) The IGP label shows that the quality or reputation of your food or condiment is linked to the place or region where it is produced, processed, or prepared.

in summer, but in an island, we can't live like that, for 2 months per year, it is not sufficient to have a solid economy.

One idea was also, in the mining area about recovery, but also we have villages that could be rehabilitate to host tourists ... so to have an *experiential tourism* ... but we don't have beds and we can't live of the "*touch and go*" ... of course people goes to Porto Flavia, pay the ticket, but it is only to pay the guides, but this is not economy, yes 40.000 tourists, those 40.000 tourists leave their money in Cagliari, where they are doing their vacations, because here we don't have beds. So, if we want to create a diffused economy, we have to create availability of accommodation, not only small one but also organized tourism ... in an island, if you want to create organized tourism you have to be organized. We have to work with the tour operator and structure locations that can receive 60-70 people, a bus ... so I host them, I give them the product that I produce then ... like that we start doing tourism.

This should be the objective, because in the mining areas, maybe the one which receives more is Carbonia, because it is close to the city but also Carbonia doesn't have any receptive structure ... yes but there is not three stars hotel. There isn't a medium-range which could host 60 people, there is one four-five stars ... but it is also limiting ... we still need to do big works, and the park can also give a big hand considering that is big 1/3 of Sardinia is under jurisdiction ... trying to sweep this path. This is what I am trying to do. I repeat, the theme of the territorial economy is very important for me. We can, from the past experience, start again and do not repeat it, that of course it gave lots of jobs, but the land is renewable, the mines were not – ended the minerals you close them - the land is renewable if you treat it well... the land is life, every year. This is the theme. So not anymore pointing on non-renewable materials, not only petrol and others (that actually we don't have, let's leave it there), but other resources, that are land, sun, water and wind.

One environmental recovery can allow to take it back to the *ancient splendour*, and have water all year...also the presence of desertification...took to the falling water tables, and the climate, but today we have the infrastructures as dams, that allow us to have water every day to do that horticultural production that we imported, and today we have very a few.

As a park, I see, in perspective 360-degrees this commitment. I don't want to trick, it is a mining geopark, yes we have the areas of course ... but the park doesn't even have a square meters of property in the mines ... so we have some administration remainders and we are investing them to maintain and for their fruition. But I can't use the money of the park to do something in something I don't even owe, or that I don't protect legally. But I can do this type push for an endogenous economic development that I think it is really important. But contextually, also at the European level there are measures for mining heritage. The idea is to intervene and use the infrastructures for a new use: we

could use a building that was at the centre of the lives of the miners, the houses, as Multi-building hotel. Moreover, lots of vacuum and empty warehouse can be centres of production, for example the young people in Guspini to which a building from the old mines has been given and they are producing beers, in this new brewery. They started in 3 and became 12, and in the limit of possible they are using Sardinian materials ... lately they are producing the beers with the Chestnut from Aritzo (very famous in Sardinia). Fantasy, researches ... brings you to valorise what you have, what we have, in our mining areas we have kilometres of galleries which are closed but still accessible. Let's think about the aging of products in this spaces, as a niche products, of course they will have different characteristics, different from the normal ones...in the big refrigerator centres that you have to pay to keep the low temperature ... they will have different taste, but also you would low the production costs because you wouldn't need that energy and a niche product. There it is natural and fresh, you only need light ... of course this will not create thousands of jobs in the same place but in a scattered way, yes.

Previously we abandoned our lands to work in the mines, because no one would do it, now we are trying to do the opposite, trying to have back the land and people who live there. They understand that living in smaller cities is healthier than living in the big cities, a lot of people are preferring peripheries even though they are working in the centre ... and today you can also work by your home of the countryside where you have your business ... I see a possible scenario if you are able to catch the opportunity. The Law today gives funds, loans, economic resources, but you need to catch the opportunity and be ready. They give them if you push for this vision...reutilizing the materials...so pushing there, being a model business where you recycle everything from urine until animal's waste ... everything which would be useful. They give funds until the 70% of the Not-repayable contributions.

I think it is important that the park will go out of the difficulties ...

We survived thinking that we would have to show something from the mines. There is not development in this way ... also Carbonia which is a city can't receive 60-70 people... but it is necessary to organize this, otherwise the economy and tourism move to another area, and we know ... I say it for all the Comuni which have this heritage. It should be integrated in the territory, tourists can't stay 3 days in a mine, and then? You have to organize fluxes of territorial visits, to bring the tourist to the *Cantina di Sanluri*, or showing it other products, doing experiential tourism... and in the territory the tourist will spend the money and create economy. So, I would like to set up at least this. I recognize that this is not going to happen in a short time, but if we can canalize this vision, in

perspective, something good can start growing, to have back a Sardinia as a “clean” place because with the globalization, industries will go where the entrepreneur wants and have more facilities.

We need a healthy life, nutrition. I think this is the future for our community. And Sardinia thanks to its geographical position ... I hope also that we won't produce much more pollution ... I hope ... all the other industrial activities which there will be, they will be linked to the transformation of products...that do not pollute and utilize and verticalize the raw material, without exporting everything out of Sardinia.

It is the concept of importing organized tourism and exporting those product that you do not consume in the territory and grow the economy, quality products also placing them in international markets ... and organized tourism, doing it with local products that successively the tourists want to find in their territory.

Tourism that we have today doesn't need any particular attention as far as it move autonomously, but I think about a stable economy and ... giving the possibility to stay in the territory to the young generation, acting that research that usually young people do, research of new products ... having also a big international recognition.

Someone says: *yes, but you, Sardinians, have to stop saying that what you have is the most beautiful* ... I say, yes, it is beautiful. Of course, but when you do tourism, we show tourist products that we like and love, but for example we should start understanding what are the products that the tourist likes! Of course, utilizing our typical products, we should understand what the target wants: for example, if Russian prefer shellfish rather than the piglet we love, we should understand this and behave consequently.

With a system of district, we need to understand and register the touristic fluxes we have and their tastes. It is like a cultural evolution like the language ... it evolves and have cultural intertwines ... We need to evolve also under the touristic point of view.

We should aim at the recovery and rehabilitation of the environment ... that put the roots in what we have, the land, and then exploit sun, wind and water. They allow to lower costs of production of our industries, whatever industry. Because often it is hard to stay in the cost of production. It provokes having high prices. It is important that the consumers pay 100, because they want to pay so, and not because you paid 80 to produce it. Rather it is better to pay 50 to produce it but the consumers recognize the value of the product as 100. It is a problem of economic scale ...

I see this ... of course it stays the protection of the mining area, but we will work for it utilising the European Funds ...with projects trying to bring the private sector to invest. Also there, the park can't, and also the local bodies, it can't manage ... we can manage the cultural part of this heritage, but the

areas and economic activities are in the hand of the private sector, that often behave as an engine of development ... we could recover the galleries, museums and musealization of it, but these part I think they should be managed by young people in cooperatives ... to stimulate to move ... to promote their sites.

Indeed I always propose this banal example: in Sardinia, I tried to do this, a law for the foundations for the management of cultural heritage ... you know that in Sardinian Cultural Heritage is financed by cooperatives and the region ... and lots of people doesn't even know that there is the archaeological museum in Sardara. Many do not know it, because workers receive their wages and that's it ... many public entities finance ... it should be managed by a foundation and then move, as they did in Barumini. In Barumini there is the foundation, they still receive a small contribution for the museal management, but it is small ... the operation which lead to 52 workers came from an entrepreneurial action. Otherwise we risk maintaining situation where the public finances, but it doesn't develop any action...I had problem when I arrived ... the resources that the park gives but without any report ... the parks' money should create development and should not to pay wages. What happens? That my money, the money from the Comuni and region gives guarantee of your working places? *Then if people go ok, if not it is ok, because you earn your wage* ... but it doesn't work like that.

So, I said to them to use the money of the park to use promotion's actions, organize for a development project, typical products' promotion projects ... that is needed for the fruition of the museum, more initiatives you organize, more people come ... Welfarism in Sardinia is scary... there is a battle to fight, it is a long process, but it is needed ... and fortunately I have not problems of having a political career, so I am not scared of the attacks in the press. I think that one is the main way to give everyone the conditions to express their own capabilities. Also, the management of a museum ... there are young people who studied in a Master, which would be able to valorise it, to give an input, to promote ...while they expect that is always the park to do things.

The park is an important instrument which can be helpful ... but you have to work hard.

I am trying to give the conditions for development ... to bring regional loan for business ... then work for it ... then you pretend that the park gives you the money to protect your business? It doesn't exists ... it is a cultural problem that we have and it is difficult to move from it ... also the aggregation: there is nineteenth-century vision of the fact that everyone can work alone, so what I do is ok ... in a globalized work we can't work like that. We have big potentials e peculiarities, but we need big attention from the international ... we have to work a lot ... I repeat ... this is my experience ...

I am also trying to say to the region: if we can keep our communities in their place of birth and residence ... then also it is ok the brand Global and Geopark. But you can't pretend that 9 people

manage the entire island ... of course I can spend money and put signpost. But this is not raising awareness: you need culture, education, action and people, apart from resources ...

I believe in this, it will push the region on this perspective ... for now it seems, with words, that they are interested on that. I will work more with the assessor, because also the UNESCO ask us: *but send us something, what do you want to do?* ... otherwise the re-candidacy, only saying that you want it is not enough, *you have to show a project* ... we point to the quality prize but then ... we don't have it? Being the biggest park of Europe ... can be cool ... but it has to be managed ... it is illusional that we could...it is even good that we receive this stop because we would have kept keeping thing like that ...

Instead, we can start again, saying: *or you start again, involving everyone* ... or *you don't go back*. In this way you say *let's be together* ... *take the green card and maintain it forever* ... so this brand you use it! Another thing we started to do was ... being in the network UNESCO, we were starting to certificate the food produced in the area of the park as Geofood UNESCO. This is also an added value ... in an exposition of typical product and seeing that one is a Geofood UNESCO I don't know what you choose but I would go for it!

I give all my energies ... I am working for the food farming district ... as we are working to help the companies to stay in the territory ... so access to the European funds and create business seriously and also the touristic one...that is interesting and there is research under it ... in the food farming district we have the Centro di Ricerca per l'Innovazione (research centre for innovation). The products, starting from the traditional ... there production is in evolution that people may like, to Arabs? What do you give them? Pig? No! Maybe they like other types of meat, which Sardinian may prefer less ...

It is complex ... but a structure of study and promotion is needed ... Otherwise we live for the day, but we should go out from this vision ... and go out from the vision of the park seen as an ATM.

This is not ok for me, public money should stimulate economic development and do other things ... so development, protection, recovery ... recovery in terms of environment but also in the sense of new production. Consequently, in the mining areas: tourism and research, for example, one of the project of Montevecchio that I hope to go back to it, it was about a circular action, with even the Sacla', it was about producing champignon mushrooms in the galleries in a bed of corn's leaves ... When the production would end, with the myceliums who do not produce anymore they could go to the agricultural businesses of the territory, ending the problem of animal feed, giving them natural products. So mining areas could revive to a new life, with a new economy ... as the 3 guys of the brewery in the warehouse, they did not need to build it, we maintained the historic memory, because in the building you can see "power house.." so also in the label they wrote "pit 3" and "pit 2"...

remembering the mining pits. They also produce them for Eurospin but there they had to call them “Babbu Mannu” (Big Dad) or something like that⁸. So we have different example of possibilities, there are warehouses which can be used for conferences, for people occupying about this ... space can be given to young people who want to create their own business. Also, a simple one, another simple one: if we go to Paris, we buy the mini size souvenir of the tour Eiffel, then you can produce the mini models of the mine’s pit with a 3D printer.

You need fantasy and initiative. Those areas can be recovered with new life in these terms ... giving support to classic activities as winery, cheese production, production of local products which needs constant temperatures, instead of doing new warehouse which consume energy, you exploit this locations and spaces. I see in this perspective; it is not easy, and a lot of work is needed.

The park I see it in this optic and possible development...starting from what it was to complete a path ... because what was ... it was not here ... it was somewhere else.

So starting again to the raw materials for a circular cycle, all in Sardinia, to have the added value and occupation, because without occupation there is depopulation, lands are abandoned. If people do not earn, do not want to keep doing what are doing ... clearly ... also the human needs need to be satisfied, to buy things, it is not like the past, it is normal life! Young people are dynamic, they want to work but they want commodities, justly ... we need to be dynamic. We need to push and create action to go inside the minds with this perspective.

Let’s try to put energy on this optic, environmental recovery and reconversion of this territory and push to use what we have, that we always had: land, sun, wind. Then keep up with the innovations that allow us to change, the fact that in Sardinia were born the first software societies because you created the conditions, the optical fibre, we have to be on the theme, because the progress doesn’t stop, keeps going ... and to be on it you have to dare. It is not sure that things will end well, but you have to stare keep up, otherwise you are out, people go out, we complain that Sardinia will be used for other scopes. Depopulation of the territory brings to an improper utilization of it. And then it can go to the hands of speculators. What scares me more is that we don’t take care of them, and they can go to be radioactive scoria deposit. Trying to have an environmental recovery and give them new life means kick out this danger: in a city no one would place radioactive scoria, but in a desertic zone yes. Moreover, if you have inhabited place it is even easier ... so let’s valorise what we have, before others use it improperly. This is the danger ... Sardinians, sometimes we don’t care about it. I would be careful of what it is happening of waste ... in Maracalagonis, I think it was there, there are waste of the industries from the South of Italy, that comes to us, we should impede that this things happen in

⁸ The brewery is named *Birrificio 4 Mori*, in Guspini.

our territory, in the park, I try to be aware, we can't afford this. This won't help our economy: it will only bring money to these criminal gangs and we don't need them ...

So ... attention, the park needs to monitor, there can't be economic activities that are not linked to the natural development of the park-area ... I repeat, experience should teach us but unfortunately, many forgot, having the textile industries: of course we had 100 employees ... but also unemployed. Now it is changing ... it is a hard theme, activities which are not ours, we could see it also with the bombs. What are we doing? Also, these bombs gave jobs, but they blackmail with them. if we want to do a metal mechanic industry? We have the machines to do the maintenance. So: products we can use, for instruments, for tractors, plows and so on. Why don't do them? That support the local economy. Then if you produce them in abundance you can export them. This is the theme and it is hard, but it is needed, slowly step by step...

2. Salvatore Cherchi

Salvatore Cherchi is an engineer and politician, ex major of the city of Carbonia that pushed for the law 388/2000 and the creation of the Grande Miniera di Serbariu, that today represent one of the poles for the conservation of the mines and mining culture.

In my interview I will try to understand the mistakes done in the past and what's the view of the new initiatives in the park and in the region.

A brief introduction of the interviewed, especially in the matter of the creation of the park.

My name is Salvatore Cherchi and I am a mining engineer, specialized in metallurgy. I worked mostly in metallurgy. I got interest in politics and I have been more times parliamentarian and elected in the Communist party and after in the democrats-left party. I have been the major of Carbonia twice, for 2 mandates, for 2001 until 2010. For 2 years I have been the president of the province Carbonia-Iglesias. When I was a parliamentarian in the 13th Legislatures, I think it was ... it was the one from 1996 until 2001, I presented a draft law for the institution of the PGM ... that then as in charge of the budget. I transformed into the Budget (law) ... amendment which was approved by the Chamber of and became legal procedure and then law ... that started the institution of the park.

I would like also to remember that during my administration of the Comune of Carbonia when I was the major, Carbonia rehabilitated the Grande Miniera di Serbariu, which the biggest of the coal mines in the Sulcis area. It was transformed into a big multi-purpose cultural hub that comprehends also the

Serbariu Coal Mine Museum, research centres and the Paleontological Museum. This big container organizes a lot of cultural initiatives. The job done in Carbonia, not only for the Grande Miniera, but also for the city itself, for all the buildings, offices and so on ... Carbonia is a city, a synthesis with a strong link ... both in the main city ... both in the districts: Bacu Abis and Cortoghiana ... so the joint renovating actions of the city of Carbonia. The actions done ... allowed to gain the Prize of The Landscape Award, of the Council of Europe ... that is assigned every 2 years. And I can also tell you some details later, because it is important, for all the actions of recovery of the industrial city ... that is actually one the most prestigious Prize in Europe.

What happened in the past that brought the Park into its exclusion? I read already what you wrote in the article in *Il Risveglio della Sardegna* but I would like to go a bit deeper to understand.

Yes, I will also forward you an article "*L'espulsione dalla Rete dei Geoparchi è un danno per l'intera Sardegna*" that was published in *La Provincia del Sulcis Iglesiente*, in which the motivations are exposed even more clearly than in *Il Risveglio della Sardegna*, because in the article of the Provincia ... it is more direct and specific about the provisions of the geopark ... I mean the provisions given with the *yellow card*.

So ... going backward ... we said that UNESCO operates through two channels: one is direct, the direct initiative of the inclusion of industrial sites directly in the list of world heritage - you already know this, because you told me you analysed Zollverein in Essen - and this is a path that involved a lot of mines, in the list that regards a lot of sites in Europe ... I saw it also for other issues ... overall there are around 20-21 industrial heritage on the list ... you can verify this ... these are only the European because I concentrated into this area, included in the list, you can find that sometimes are included regions, as for example Nord Pa de Calais, the mining coal region, included in the UNESCO list of world heritage has an extension of 250.000he - pretty notable - 150km, the same in the Wallonia region in Belgium, comprehending the 4 sites of la Marsinelle, Bois du Cazier ... they have all big extension ... in England we have the Cornwall ... a big part of world heritage included in the list is about mines from the first phase of industrialization, industrial revolution is coal and steel ... or in the past were no ferrous materials.

There is another path ... the one followed for the Geopark that is the indirect And follows these steps:

- You become a member of the world network of geoparks and this network it received the UNESCO recognition, it is not to the single sites or area but to the system-network ...

- To be a member admitted, automatically it takes with it the tag UNESCO ... let's say the authorization of showing of the emblem, the little temple ... you know that UNESCO has 2 emblems, one is the temple, the general one, and for the patrimony is a lozenge ... that the PGM could not show that emblem ... the park if you go on the website you can see all the history.

The park, when it received the recognition that actually was never translated and accomplished ... because the network of geoparks was instituted only in 2007 ... the Geopark entered in the network and received some years later the *yellow card* but it had never the exclusion before. In 2015 the geopark obtained the UNESCO's symbol, because of the green card.

What was the problem? It can seem bureaucratic, but it is not only that ... the network of geopark poses conditions of being a member, applying some disciplinary actions in the managing the sites and... also the physical unity and territorial of the sites.

The Geopark is articulated into different areas: some are continuous like Sulcis- Iglesiente- Guspinese ... while others, if you move in the Sarrabus -Gerrei, San Nicolo, Ballao and in the centre of Sardinia where there are also some important mining sites as Funtana Raminosa, Gavoi, Lula Sos Enattos, they are not continuous.

So, the network, to give the *green card*, says “*seen that you are actually applying the management requirements you have to satisfy also to this one*” ...

Some solutions have been proposed, also to obstruct this solution ... and then they thought about solutions like cycling paths ... but no one of the proposal was considered to be satisfactory to accommodate the conditions of the geopark.

The pro tempore commissioner Gianluigi Pillola from Gonnese, at that time he was the youngest tenured professor, he was really young ... a young palaeontologist, a very good one! At that time, he was teaching, as full professor ... very clever ... he also arranged the paleontological museum in Sulcis, the one that is inside the mine complex in Serbariu (Carbonia) ... I advise you to go because all the people go to the mine but a few go to see this museum ... it is really interesting not because it is very big and it is a museum in which there are exposed 550 million years ... because our land, Sulcis-Iglesiente, is the most ancient of Italy! He created it with fossil all from here ... in any other museum you can find the description of the evolution of geology, the description of life for 550 million years with fossils from the same area.

I was the mayor of the city when he did it, it was a big surprise also for me to discover this ... also the little Mammut from Gonnese or the deers (*laughs*).

He had a *Columbus' egg*: he thought: “*what are those sites connected by*”? They are connected by the territory, the geological base, the connective structure is the geology of Sardinia. We did an

exploration; I was there for other issues...with the Geopark Network and they recognized is as “valid” ... if you use the geological base of Sardinia as connective tissue ... ok ...then you need to manage the sites ... but also the entire Sardinia!

Then, the decree was modified, the one who regulates the Geopark and their competences was extended to all the island. But attention: it was extended for the studies and communication sector, not for everything! From that moment the geopark would have had to manage not only Carbonia ... Iglesias and so on but also the geology of Alghero, Capo Caccia ... Ogliastra ... which were the advantages of this? Well: not only the consistent satisfying the condition posed by the UNESCO network ... of an essential condition to stay inside the network ...

... But from that moment all the relevant geological sites could show of the *little temple* from UNESCO! For example, the *Roccia dell'Elefante* in the north of Sardinia could have the temple ... in Ulassai there are the magnificent *Tacchi* ⁹ ... it is about satisfying the conditions, to apply the management conditions.

What happened? When they did the next inspection, they realized they were really behind...because in the management of the Park there were many alternated Commissioner ... and the last one, Tarcisio Agus is the current president. Until that time, he was not guilty ... in quotes ... because there was this interchange between 3 Commissioners. But after they received the notification, they became responsible of that ... it is said that we can't do it, because we have no resources. The Same Old Story.

Indeed, you can find in the memorandum of the geopark ... we need to be honest with who studies this and to the public opinion ... because it is a big damage! It was written that they were aware ... I will quote the English sentences:

(reads in English)

”it is noted that it will take a significant amount of time to incorporate the entire island...”

But it means: *I ask you to give me a programme, not to do everything now!* A programme of final extension to all the island ... *you have time, but you have to do it!*

What was the mistake in Sardinia? It was seen as a duty ... instead it was a great added value because when a tourist comes, this happens to me but to everyone ... when they come or go to visit another country, if they are interested into cultural heritage ... look if in the territory there is any UNESCO Heritage...? And in basically every part of Sardinia there would have been possible to expose the

⁹ In geomorphology, a butte is an isolated hill with steep, often vertical sides and a small, relatively flat top; buttes are smaller landforms than mesas, plateaus, and tablelands.

UNESCO's symbol. Then when they came back, the inspectors... this activity of extension of the UNESCO's area was seen as a duty, a task ... for me it was an extraordinary opportunity! In many countries they fight and suffer to have the UNESCO's emblem, because it is an added value ... we obtained it, in an exciting way ... then that we obtained, and they should have thrown themselves into ... but they didn't do it.

There was the inspection from the network: they could notice that there was any advance compared to the previous *yellow card* and consequently there was the *red* one: the expulsion.

I know that the actual director doesn't agree with me but ... it is a park that has not used resources, remainders of administration, it is their responsibility and their duty ... it is a great damage to the territory and the entire Sardinia.

I followed all the facts, I sent some letters e they are on record, the letters...

I can say they didn't do their duty to safeguard the UNESCO's emblem. There are persons who obtained it ... like I said before professor Pillola, or Giampiero Pinna ... who obtained the results. But there are others who jeopardised this result...when they started there was not much more people than now eh... and when they had it, they send it to work in other parts... it was about applying the prescription as a homework.

Moreover, the park, beyond the park as "body" created with the law of 2000 ... the park exists: because Carbonia's site are visitable, in Iglesias Porto Flavia, Santa Barbara's cave, Galleria Henry in Buggerru, Su Zulfuru's mine with the tour guides...or Sos Enattos - Lula, Funtana Raminosa ... They work.

We should avoid thinking that the park doesn't exist anymore: no, it does! Rosas, Narcao, the Comuni or Regional bodies...

The duty of the park was to manage and put together with the Comuni, as a system ... like in the Ruhr region: Zollverein is not alone, disconnected from what there is Duisburg or Dortmund! It is a network, and being a network is the duty of the park.

While the sites live pretty well ... hosting tens of thousands of visitors ... the park would have had to work like that as a system.

You said you already looked for others European Sites's management, why can we consider Zollverein as positive example? Why did they manage it better?

There are numerous sites, in Europe and in the world ... with the conclusion of the cycle of industrial production ... the one who was born in the United Kingdom in-between of 18th and 19th century ... this cycle ended, then there were other cycles ... another one was accelerated to produce sustainable

development and fight climate change, sometimes for economic reasons ... or choices of multinationals ... in Europe that cycle of production that was focused into mines or processing plants to produce energy or in the case of coal to produce metals as in other cases... then they were closed. In all Europe they asked themselves: *what do we do?* A new culture of valorisation and rehabilitation was produced, with the objective of protection of the *identity*, to protect a place where men have worked, where miners have suffered ... an epos of miners, in all Europe all the miners...

In Serbariu, 12.000 of miners were working and when I was there, I thought it was desecrated, a rubbish dump ... and before there was no family who had not connection with it. It was a sacred world, that had to be preserved...there was this objective: to preserve these places ... but also to take some other things, with the finality of culture, tourism, environment ... or even a reconversion of this spaces to do something else!

In the territory of the Sulcis-Iglesiente, well I talk about me, I supported this, it was approved the law ... it obtained the loan with 6 billions of *liras*¹⁰, there was the *lira* ... attention it was about the management – not investments – only in Carbonia we spent even more to recover this...and this ... also because of the impulse from UNESCO, there was the idea to consider this as patrimony that needed protection-tutelage. From this phase, when there was a pure and simple dismantlement, then we had a protection and valorisation phase ... eh ... you can find that in many countries of Europe that a lot has been done.

Let's start about England: you can find Cornwall's landscape and its tin mines, when Phoenicians went there during the bronze age ... put also in modern times, as ours of zinc and lead on Nuragic age ... then during the industrial revolution in the Yorkshire, Sheffield, Manchester, Wales. These are some of them, that I had the opportunity to visit to understand what we could have done. It is a good norm to look what the others do, to acquire new experience without making the same mistakes.

In France there is Pas de Calais, but it is not alone, there is a big region with the centre of Lille...

In Germany, obviously the Ruhr, that was my point of reference, the Ruhrgebiet but not only: Saarland, Saarbrücken, but also Brandenburg, the zone between Berlin and Poland. In Poland: Silesia's mine that became what we are talking about, then salt's mine ... Wieliczka's close to Krakow, Salzburg, the Ore Mountain in Czech Republic (Krušné Mountains) ... so they are everywhere ... Spain! My point of reference was also what I saw in Catalonia, there was a network there...not only mining but also textile, it was a network system that we tried to do as well! This model should have been applied ... at the end the park that is in every hub of the network, it knows and function as control and communication. It communicates and promotes the park. You can find a lot of examples in different parts of Europe ... what I had is that the potential of what we have has

¹⁰ Italian currency before the Euro.

nothing to be envy of them ... we have industrial sites with wonderful landscapes as the Laveria di Nebida has the sea in front of it ... in Fluminimaggiore with the “close”, let’s say, the Antas’s temple...in Carbonia, there is the Serbariu mine close to the Sirai complex; in Gonnesa the nuragic village of Seruci; there is a camp, one above the other of civilizations: prenuragic, nuragic, roman, punic, until the modern industry ... this temporal arch needs attention. Try to find a relatively closed space and the relationship of man and territory and how man modelled it, starting from the prenuragic age!

Moreover, I have the beauty of the environment, look, uncontaminated. What is missing in the park ... was the creation of a system. Some other did it, going even further into environmental recovery... We had a negative burden from this. It is incredible that still today the majors received the notification that in some beaches you can stay sunbathing or bathing for just some hours ... but it is absurd if you think the beach of Piscinas, it has the most beautiful dune’s system and environment of Europe. Well, that small river comes from Ingurtosu and keeps being polluted because the environmental recovery has not been done. There is an ongoing contamination. But the mine was closed 25 years ago. Not yesterday.

In this I have to say that here it doesn’t happen because of money, but the public machine doesn’t work. In the Ruhrgebiet, the environmental recovery started, and was concluded, between 1990 and 2000, restoring incredible extensions of territories ... even, there is a river, the Emscher river, that was a channel, and it was modified because it was going to be used to carry goods ... there in Duisburg where there is the river Ruhr, there is a river port ... it is the most important in Europe: this system and channels have been naturalized again but there is still the industry and the substantial difference between them and Sardinia is that: in this places the operation of recovery went forward. When some visitors from there came to Carbonia, because it part of ERITH’S route (also recognised as excellence point!) ... when they came there were astounded by the beauty. There is the potential, but we need good practice, starting from the environmental recovery. And it is not about money, but also national laws.

What can we do today?

What would I do? A lot can be done, I repeat, It can be vain glory ... but to Carbonia was assigned the Landscape Award of the Council of Europe and it was about working on it until 3 years before, you have not to present idea, things to do ... it was the 2011 prize ... you have to present what has been done until 2008. It is the regulation and so on. We participated and it was a national selection, only one form Italy could win. We have been selected around 100 candidates in Italy and after the

European council chose one for every country in Europe! But if Spanish, French, English people do it ... why can't we do this, things properly? It is not about going to the moon. Well first of all the Geopark should do what it has been created for:

1. Create a system and take it into the international market.
2. With the reform we did, there are the majors managing the park, there are not commissioners ... there are the representative of the Comuni who has the majorities of the quote and have the majority of the board of director, well the relative majority. So they can ... now the majors have the responsibility! They have to make it work. The first thing to do is to act as a system...it is not possible to go alone! They have the funding; this is the first thing ... but it is not enough ...
3. Indeed, what is not applied is that these places are places of production of culture, and this is the way to create jobs ... no? If you compare any other place in Sardinia with the other experiences, of other places, you can see that in a multi-years horizon, people are working in the cultural production ... also the visitor become loyal, and it will come back, not just the same things ... because every year it is attracted by new cultural production! This is one flaw. Most of our cultural heritage, comprehending the archaeological one ... it is managed in a static way! While it should be managed in a dynamic way, that means, to produce culture! What is a museum? A place of production and diffusion of culture! It is not about just seeing a vase, of course it is a gratification, no? But every year who manage this has to make a programme, on a multiannual basis...because it should be captivating... and then this should be communicated this...right? Broadcasted, communicated ... communication is different from the production of a notebook of scientific studies ... this should be managed by the park.

I ask you a question: but in the end it is for me ... in Sardinia 2 millions of people come, there is program to reach them? No, and it should be managed by the park how to organize the contact with 2 millions of tourists ... that double the Sardinian population and more. How do I reach people who actually want to see something different? This should be the ordinary activity of the park.

How to have back the UNESCO sign? It is not lost forever but we need to know something ... if we want to go to the list of World heritage ... well, really good: French people decide to take it and worked for 10 years working seriously. It is a serious job ... Ok, there are the basic conditions? Yes, it has not less values of the one of Nord Pas de Calais ... it is even more various ... if I go to Montevecchio I can see the pits from 1800. In Iglesias there are the Pisan pits and before the roman ones... you can do it even if it can seem banal: I would create an committee of experts, that knows the procedures and dossiers; then I can ask to go back to the network ... well actually the geopark

deals more with geology rather than mining sites – there are mines and rocks – and then you apply for it, but you have to go back and look if you did your homework. You go there and you say: *I did my homework!* – and they will send the inspectors. This is a path I will sweep...you will get back the entire Sardinia.

Things are simple, but it is a hard work, you have to work hard for it, be clever, search the resources ... it is about good administration ... the goods are culture and heritage and we have it.

Can I ask about a doubt that was born from this interview ... as a student I ask myself ... reading about other sites that are world heritage sites ... would be better to manage the mining sites and trying to get World heritage symbol and maybe then organize to create again the geopark?

Mmm, I don't know, we need always to be problematic, you can start looking for one path or doing them in parallel. The going back to work could be easier because of the environment, what just happened ... because you just have to apply the prescription given by the *yellow card*. Then you go back and work in a couple of years to go back into the network if you do a good job.

While to go in the list World Heritage is more valuable, more prestigious, no doubt about it, we have one heritage sites in Sardinia inscribed in the list: the Barumini complex ... and some for immaterial heritage as the *Canto a tenore*¹¹ and *Faradda di li candareri*¹²...

In my opinion they can be a parallel project, in the park there are people who are working for it ... in the other case you need to delimit, it is unthinkable that it is going to be so huge, but the French of Nord Pa de Calais took 10 years, starting in 2010 and in 2020 they have it now. Maybe starting in 2020 in 2026 maybe you have it ... you should not be scared of things that take time. Every year one country can present just one candidate and proposal ... as some years ago also the Hills of Monferrato obtained it ... but also, Carbonia and Iglesias deserved it.

You need to work for it and do things seriously ... it is not the finish line. Once again, history, cultural heritage and places are here, this is the base. The other things, well ... you need to do them well.

3. GIAMPIERO PINNA

Giampiero Pinna is a geologist that in the past lead the occupation of the mine in Monteponi to push for the creation of geopark. Nowadays he created and is the president of the “Cammino minerario di

¹¹ Canto a tenore, Sardinian pastoral songs

¹² Celebrations of big shoulder-borne processional structures typical of the 15th August in Sassari (Sardinia)

Santa Barbara”. The Cammino develops along a ring of about 500 km in the Sulcis-Iglesiente-Guspinese region and it is an itinerary in the most extensive area of the Historical-Environmental Geomining Park of Sardinia, the Sulcis-Iglesiente-Guspinese. It aims at rediscovering ancient mining routes today largely abandoned and came to the volunteers of the ONLUS “Pozzo Sella Association for the Geo-mining Park”, following the great participation of citizens in the excursions organized by the same Association after having rendered numerous mining routes accessible.

The Pozzo Sella Association was founded November 5th 2001, in the underground mine shaft “Pozzo Sella” of the Monteponi’s mine, at the end of a political battle that led to the foundation of the Historical-Environmental Geo-mining Park of Sardinia.

The scope of the association is to contribute to the development of the Geo-mining Park, the enhancement of the disused mining areas of Sardinia, the involvement of young people and also the identification of job opportunities within the Park itself.

Brief introduction of the interviewed.

I am Giampiero Pinna and I am a geologist, I worked in the mines for almost 30 years in different tasks, from being a technician until being the manager of the mining activity. My commitment in the sector of the mining activity lead me also to be the president of the Ente Minerario Sardo, and during this period I could live the sad experience of ending the activity of the mining activity ... carrying out decision, which were not mine but already taken before, that actually no one wanted to take: no one wanted to pull the plug on the mines through which lot of billions were uselessly supplied. Also because the mines were, from already 50 years, unproductive ... so ... I did it with a bit of concern but with certainty: this territory, of the millenary mining epopee need to treasure this to build the future! So I took one idea of some others – other illuminated people – that they proposed to create the Geopark. And this idea transformed it into a project, took it to UNESCO and make it recognize. Successively, as municipal councillor I fought for the institution of the park. And when I finished being a municipal councillor, I fought for the park to work. When I saw that they were not able to make the park work, I decided, with our association, to try ourselves. We invented our valorisation of the cultural mining heritage and of the mining territory organizing a big route ... which it is not in the competences of the geopark so we chose this line, a niche, which would not overlap with the Geopark. But we demonstrated that this job could be done without all the millions of the geopark ... and working with volunteers. In this way we developed the *Cammino Minerario di Santa Barbara* ... about it maybe we will talk about it later ... and we worked hard also in the rehabilitation of the

cultural archaeological mining heritage with the recovery of the most emblematic and beautiful structure of the Geopark, the Pozzo Sella of the Monteponi mine, as voluntary job.

You are one of the figures that has fought more for the creation of the park. Which are the mistakes done? How it could be improved?

In the park there are a lot of things which should be improved; also from the point of view of the law, of the decree ... some interventions on the basis of the experience done ... it needs to be reviewed. I think everything should be simplified. The park can't depend on the control of 4 ministries, it should be placed under only one, and it should be the right one: for my opinion one of the mistakes done was to place the park under the Ministry of the Environment only because its name is "park"... but seeing the objectives of the park was to create from those resources ... an opportunity of development and job for the territory: if we had had to choose the Ministry, the Ministry of the Economic Development would have been better, rather than the one of the Environment. And this is a thing we should intervene from the legislative point of view.

After that there are simplification about the management and the system of governance of the park, that can be reconducted to the fact that to institute the park wasn't used the Law 394, but the Law 168/1989, that is the law that instituted the Ministry for the University and Scientific Research and it has been lent the organization of the bodies to research; and the choice has been done because the bodies have full autonomy, so it is true that the Ministry should have kept the vigilance – not four Ministries, just one – but above all it was necessary to respect the Law 168/1989 when it says that the consortium should have the full autonomy in the governance system. So the Ministries, inside the board of directors, should not be there ... they just clog up ... in every form of the governance system of the board of directors would have been organized which should have been totally autonomous and managed by the Consortium at the local level, region and Comuni, not ministries. This is one the things that can be done immediately without even modifying the law and asking to apply the law 168/1989¹³.

After this, there are other distortion: one is to give everything in the hands of incompetent, because to do everything that the world need you need competences and knowledge ... and management skills ... this is what was missing in the park until now.

Said this ... but in this last perspective, also are connected the motivations why the park has been excluded from the geopark Network. It was ... to not make the park work and function. Now it is said that we need to work to have the park recognize again, but I say: we need the park work! So, to bring

¹³ http://www.miur.it/0006Menu_C/0012Docume/0098Normat/1668Istitu.htm

signposts, to bring it to the people ... because the park, we created through the people and inside the community, with a big popular mobilisation. Today the park is unknown for people and in the community. Also, It is an obstacle today, because the restriction hinders our job today...about the authorization and opinions about the interventions to modify the territory and the urbanistic became now a real scandal ... indeed, the last modifying decree which established the zoning of the territory, the authorization from the Comuni, and all the others should be excluded because they are about the protection of the cultural heritage. There was no need to impose to all the territory of the park these restrictions ...

So those are the main things ... what I think it that if the UNESCO had found a functioning park, alive one ... so I am not saying impossible things...so connecting the park to reality, with the association, Comuni, all the stakeholder - that were individuated as a vital element for the development of the park...this would not have happened ... UNESCO grabbed on the fact that the park should be a unity, but the park "is not homogeneous" ... and they fell into the trap , and to have accepted this... to question the park for this reason...it is a big damage for whom accepted this. Because the park was approved by the Italian parliament and by UNESCO, with this configuration ... so with these dismissed areas of Sardinia, that they tell the mining history of Sardinia, and no network could change this arrangement ... There is a statal law, and establishes that the park had this configuration, also in the institutive there is the Carta, with the limitation of the park attached to it. Consequently, around this we need to mobilize the Sardinian community, to say to UNESCO: *no, the park is this one and you don't change it because in other circumstances*, in the Geopark network, *there are island, archipelagos, and this limitations are related to an archipelago* ... there it is ok if there is not continuity in the park...and here, are you searching for continuity? Well, when UNESCO instituted the network, who was managing the park did not even go to the convocation of the constitution of the network, so only in 2007-2008 we had to go back to it ... at that time I was in the board of directors of the park, with professor Ottelli ... as delegated we went to Paris, and we said it there: you have instituted like that, the park, you can verify the other conditions, but you have to include it again. And, simply, the park was again in the network.

This are the essential thing needed to make to go back to the network, to remove this restriction but above all to make the park work, involve the communities, and create a big mobilisation to make UNESCO hear and feel this pressure from Sardinia ... to reinsert the park: but an alive one, that functions, not an subject which is external to the society ... that lives boarded up in Via Monteverdi.

How the idea of the Cammino minerario Santa Barbara was born? It is part of a niche tourism, the religious tourism. One of the most famous is the Camino de Santiago. Can it be an example to follow? Did you inspire from others?

The idea was born essentially from the passion for our territory, to rediscover it. In those years we completed an important project, as the Associazione Pozzo Sella has been instituted one day before of the fight when we went underground. It lasted one year. The day before the minister came to bring us all the results of our revindications, that have been entirely accepted, and I repeat, the results of the lotta were:

- The institution of the park,
- Decree and institutive Law
- The fact to have obtained the funds to make the park work that were at that time 6mld liras;
- To have obtained the first environmental recovery's money, with 63 billions of liras to make them start
- Full time workers of precarious workers to make the park start working.

The association Pozzo Sella was born so sustain the realization of the park. At a certain point we have been involved in a European project, CULTURE 2000, with new European partners ... we had been gratified.

In 2009-2010 we said, we imagined the association with another project, and what we thought was the recovery of the old miners' paths. We did because ... well I concerned me because when I was young, 21, in the mine of Scalittas there was a path that brought to the close village of Acquaresi ... and thinking again to this project, we started from that ... reopening those paths! It was an extraordinary experience, and with me there were other colleagues as geologists, engineers, and retired miners! They accepted the challenge to be ... us ... the authors of this interventions. So, we started working without any funds, reopening those paths, we realized the signposts.

After the first experience, we were really happy because this path was so well recovered. We called the miners who travelled there already 40 years before. It was such a beautiful experience that allowed us to recover not only our roots in the territory but also the stories of those men. We were so happy that we thought about sharing this will all the territory ... organizing a free excursion to make the citizens know this path, from Acquaresi to Cala Domestica, where I used to work and started to work. This excursion, organised without making the participant pay, obviously ... in a rainy day the participant were around 300 people that encouraged to organise another path, a railway, a clinic and so on...and the participation of the citizen was more and more numerous! Then we understood that

those paths made us rediscover our paths, apart from forgotten corners of our territory ... those ancient path could be also an instrument to develop this territory.

But opening the gaze to the world we saw that single paths of 10-20 km, or one day were not enough to attract worker from all over the world and create development. The luck was that I could participate to some initiatives of this type, in Rome and Bruxelles ... and I could see that the big Cammini could have a big contribution for the development of the territory if they are organized and if the walkers can walk for 15 days or 1 month ... like the Cammino di Santa Barbara is today.

So the Cammino di Santa Barbara was born like that, to put together and create a system of mule track, railways and ruts and so on...and recreating this ancient viability ... and naturally the example of the European big Cammini are the Camino de Santiago and Via Francigena ... also the via Francigena is European because it starts from England through France and Switzerland ... it is a Cammino of a great international value! The important thing was to give a sense to the Cammino, not only creating the infrastructure: people walk, from one side to discover the territory, to the other side to discover the immaterial heritage of a community, which is material but also immaterial...the first thing that came out was people who came in the mines, with a millenary tradition...and they discovered the importance of light and landscape and we have this landscape ... this was one of the most beautiful thing for us as well ... as I worked 30 years for the mine, some corners of the landscape I didn't know them. And this was one of the first things we did ... then we saw that in such amazing landscape, with an exceptional variety, you can't find it anywhere! And it was said to many of the pilgrims who came from all over the world!! So, in this landscape they are set the testimonies of 8000 years of history and of man living in this territory. So from the shelters under caves, *domus de janas*, Tombe dei Giganti (Giant's tombs) and nuraghe all this heritage is set in the landscape ... moreover this variety is enriched because we walk in the most ancient land of Italy, from a geological point of view...all this emergences of industrial and archaeological heritage have as the narrative thread or *fil rouge* that is the devotion of Santa Barbara ... so, there is anywhere in the world the concentration of religious buildings dedicated to a Saint ... and this is a big heritage in the history of the territory. It brings a big history of cohesion of the territory ... between miners, because saint Barbara represented always an element of unity: even in the few occasions when there was a clash between communist and Christian Democrat, in front of Santa Barbara *didn't count anymore nor De Gasperi nor Togliatti*,¹⁴ because the miners founded an agreement in name of the saint.

The heritage, not only religious, but also civil, made us rediscover another aspect which was the cohesion of the territory. One of the results obtained until now, apart from the presence of lots of

¹⁴ Alcide de Gasperi was the founder of the Christian Democrats Party, while Palmiro Togliatti was in the Communist Party.

pilgrims, that I always say because it is important to build our future is to have aggregated around the Cammino all the Comuni of the territory. They showed to be very positive about the Cammino, and it is weird that even the PGM, that we proposed to them to organize it, and when they didn't want to do it. But, when we asked them to participate to the construction they signed the starting Memorandum of Understanding they did it, but when went from the project phase to the realization of it, the park pulled itself out, for the park it seems it is prohibited to do things completely. Until it is about signing programmes it is ok. But we didn't want only to sign protocols, we wanted to do things and act ...

So, we were whom around this project aggregated all the territory, giving for free to the Associazione which was created the main asset around it all the project where built. The Court of Cagliari evaluated the projects, of the Fondazione, the notary wanted to know the value of our job, we had to designate an expert of the Court of Cagliari that valued our job for 250.000 euros, that was generated freely, comprehending what you can see in my mask: the tower, that is the place where Santa Barbara was closed before dying as a martyr, tormented of by the hands of her own father.

Which are the future objectives for the Cammino di Santa Barbara?

Aiming at excellence, organize better the viability, the receptivity, also to compete with the others Cammini, with a lower cost, as the case of Santiago. They not only organized a low-cost receptivity, but they make them the pilgrims sleep for free for 15 years. The Cammino di Santiago became an attractor that was unconditional from the costs. Many went to sweep it and that system of hospitality generated a complex system of welcoming. Now it is in the hand of region and public structure, and now it is in the hands of the hostellers, this is how they are called, and today they can give hospitality to the pilgrims paying "with donation": a cost that goes from 5 to 10 euros. The same it has been done in the Via Francigena but the cost is higher: the donation goes from 10 to 15 euros. But around this we should organize our system of hospitality. We started with already 5 *posadas* that are working now, where pilgrims can sleep with the same economic conditions ... with a big satisfaction because it is in general the reconversion of historical buildings of big value. So: aiming at improving this system.

But overall we want to repeat a positive experience of what they did in Spain, Galicia, that is to generate new Cammini with the same ideal purpose, that for them was always to go to Compostela, ... so from 2000, to the last century- new century ... are born not only the primitives Cammini, but also the French, English, La Plata's Camino, the Portuguese one ... many others Cammini that instead of competing, they became *critical mass* to make the participation of pilgrims explode.

With the Associazione Pozzo Sella, which did this job – again – for free, we saw that the same conditions, the same values of this Cammino you can find them in la Nurra, the centre of Sardinia, in Sarrabus-Gerrei ... that means in all the areas where there are dismissed mines in Sardinia. So we verify that the Cammini could be organized also in the other areas of dismissed sites in Sardinia, and the Associazione Pozzo Sella already prepared the projects that we are proposing to the majors of the Comuni, with the aim of doing of the Cammino Minerario di Santa Barbara an identity brand of the slow tourism of Sardinia. I think this will not penalize the tourism in the southwest Sardinia, but it will be strengthened to increase pilgrims. So this is the big step to do:

- Aim at excellence for the Cammino
- Activate these others Cammini that together they tell the millenary history of Sardinia.

I had the opportunity to interview the direct of LAG Sulcis Iglesiente and she told me there are future projects with them...

Yes, this is another good result of the Cammino, considered as a project – point of reference in the territory. Gladly we replied to this proposal of the LAG Sulcis iglesiente. We want to make the Cammino available for the territory as touristic product, for the territory, to link it to the hospitality sector, food farming sector, enological, cultural sector more in general ... so about this we are already happy because it is already a positive sign.

And with the Geopark?

As I said before, the purpose that we made formally is on their table to gather dust. We hope they will not let it gather too much dust ... because the Cammino as the citizens saw that the project is going on and it will keep on. Probably if they would have done the Cammino, the park would still be in the UNESCO Network list ... with this devastating result for Sardinia, that from pride became shame motive. This is the most painful thing for what regards to me and all the sacrifices I have done for the park from the occupation of the mine...and this effect I am feeling it because after being insert in the national Atlas of Paths to be insert in the European cultural itinerary where all the big paths are as well...and this...on this we are working hard . the difficulties we are finding are concerning the park: *but why were you excluded by the network?* ... and I hope they will solve not doing proclamations but something functional. Putting competent people who make it work and also doing some adjustments from the legislative point of view.

4. NICOLETTA PIRAS

Nicoletta Piras is graduated at the University of Cagliari in Political Science and today is the director of *LAG Sulcis Iglesiente Capoterra e Campidano*, a limited liability consortium by LEADER¹⁵ and promotes initiatives for local, social and occupational development.

In my interview I will explore some of the Project of the GAL and the results achieved so far.

When did you start working at GAL? How did the GAL work and how is working today?

I started working at the *LAG Sulcis Iglesiente* in 2004, when it was responsible for the management and execution of a European Community Project: Leader+ Sardinia. At the moment GAL had only eight Comuni, corresponding with the *mountain communities*. The others Comuni of lower part of SULCIS (Basso Sulcis) joined us after. At that moment the LAG was working with a global grant, managing and creating *as hoc* the calls for tender and verifying its own projects. We were also intitled of giving the resources and money. It was an amazing experience to understands the needs of the territory and translate them: it was incredible also because the machine was very fast. The director and administrator that we had at that time lasted two other months. So, after these two months I was alone on managing it, and with the help of the Centro Regionale di Programmazione¹⁶ who was our interface and mediator. We managed to get the machine running and finish the schedule.

After LEADER+ in 2008-9, there was the 2007-13 programming period, a new phase of constitution of the LAG was starting, but the European legislator. After LEADER 1, LEADER 2 and LEADER + decided that this programme had to make a leap in quality: not being anymore a Community project managed by the regions, but to be embedded and incorporated inside the European Agricultural Fund for Rural Development (EAFRD). The Regione Sardegna (Sardinia Region) sent important investments for the 2007-13 programming period, around 140 million euros, creating 13 LAGs ... and in 2010 I became the director of this LAG.

My formative experience is that at the beginning in LEADER + we were the only managers while now we are a “method” inside an instrument in a programme which is really strict.

Its approach is the bottom-up approach, that aims at catching the needs of the territories and being able to translate the requirements into calls for tender, and consequently loans.

¹⁵ LEADER Works on the implementation of integrated development programmes for local rural areas, drawn up and implemented by broad-based local partnerships, called Local Action Groups (LAGs).

¹⁶ Body assigned to the preparation of the planning acts of the Region of Sardinia, who provides Economic-Financial Plans, Development Plans, Intervention plans and so on.

With the experience 2007-13 programming period this actually did not work, we became a “*bandificio*” (a call for tender maker) because we were an instrument in the hands of the region, as an appendix of it: that has to work with calls for tender decided by the region, of a particular axis of the region that is the axis 3 (Rural Development Plans) and selection criteria were not even focused on the necessities of the territory. But they came from above, with a Supervisory Committee who decided for everyone. At the moment I really felt the change of LAG’s tasks. I was used to have a close contact with the territory and acknowledge its needs. It became really difficult to do that. We had also very particular calls for tender, as for example one dedicated for Social Agriculture, another of Didactic/ Educational agriculture. I decided to block them immediately: I did not agree with the idea of “*bandificio*” ... it meant publishing that calls for tender and if in the territory had been any public subject interested to it. Well, because it was dedicated to public subjects ... otherwise we would have had to give back the funds!

My choice was different: I wanted to start a path of participatory planning process. This happened in 2011, and to say: we will use these funds only if the territory needs them!

We will develop two projects: one dedicated to the social agriculture and the other one about didactic agriculture. We organized a meeting to say to all the possible actors and stakeholders who would work in the field of social agriculture, what is going to be about ... because no one knew at that moment what didactic agriculture was. After this meeting, a series of meeting started through participatory planning with OST methodology¹⁷, instead of the Metaplan¹⁸ or Work café. We built a 4 years process and we arrived at the creation of a partnership (*paternariato*). We prepared the call for tender, in which 5 Comuni decided to participate. They organized a public tender, where the companies who participated to our meeting candidate themselves, with the partnerships of social cooperatives of the types A and B. The strength was the fact that it activated a bottom-up process which saw the creation of Social Agriculture in this territory! Moreover, when the funds ended, that were around 350 million euros, involving 5 Comuni, and, above all, it involved disadvantaged kind, pinpointed by the Comuni, and the process did not end there. The Comuni understood the importance of the activation of alternative system of welfare, that allowed to joint their own funds to keep the project going! Even now is it still going ... last week the new ranking was out of the new call for tender for Social Agriculture. Equally for the didactic agriculture: although we were quite

¹⁷ Open Space Technology (OST) is a method for organizing and running a meeting or multi-day conference, where participants have been invited in order to focus on a specific, important task or purpose.

In contrast with pre-planned conferences where who will speak at which time is scheduled often months in advance, and therefore subject to many changes, OST sources participants once they are physically present at the live event venue. In this sense OST is participant-driven and less organizer-convener-driven. Pre-planning remains essential; you simply need much less pre-planning.

¹⁸ Metaplan Corporation for Planning and Organization (German: Metaplan Gesellschaft für Planung und Organisation).

circumscribed by the region at the very beginning, we found our own path to build something in the territory according to its needs.

With 2014-20 programming period, the European legislator decided that we needed another step forward ... the LEADER method works and it works so well that it will be extended to all European Structural and Investment Funds (ESIF)¹⁹, giving to LAGs more power: they can choose their own strategies through a process of participatory development.²⁰ Indeed, in 2016 the *LAGs Sulcis iglesiente* ... we started the project “*Chi partecipa conta*” and from February until July we completed the strategy for the territory. It was then presented of the Action Plan that was finally financed.

So, at the moment we could go to the territory and say: look, now the LAG is able to build a strategy that could be financed by EAFRD’s funds, but it also wants to create a broad and far-reaching strategy for the territory! But to do that you need not only the EAFRD, because the territory comprehended 22 Comuni in the coastal part of the region. We need to talk about rural development and coastal development ... In that strategy there was the constitution of the FLAG (Fisheries Local Action Group) ... as the LAG ... but in the coastal sector ... financed by the European Maritime and Fisheries Funds (EMFD). These strategies allow to develop the two both areas of interests of the territories involved by the Local Group of Action!

Moreover, we needed education, the partnerships required it ... because business creation needed the know-how and know if you can actually do it - before trying to do it – consequently we developed a strategy according to the *Green and Blue Economy*²¹ and in October we developed one financial plan of 5.8 millions euros in the LAG ... a FLAG plan for 1.1 millions, 1.6 millions for Education that we are carrying out. This is what LAG is.

Do you have any projects with the Parco Geominerario della Sardegna? What is missing that lead into the exclusion of the park?

We started collaborating with the Parco Geominerario della Sardegna in 2007-2013. At that time there wasn’t a president, but a special commissioner. With the commissioner, we stipulated an

¹⁹ For the period 2014-20, cohesion policy is financed by the European Structural and Investment Funds (ESIF). The ESIF include five different funds, which are all covered by Regulation (EU) No 1303/2013 of the European Parliament and of the Council, the so-called ‘Common Provisions Regulation’.

²⁰ This approach is oriented toward inclusion and listening of the needs and the different points of view, and it creates a collaborative climate among the local actors and the public administration, allowing, therefore, to foster the dialog among them, envisaging networking.

²¹ Alternative economic approaches to address growing financial uncertainty and vulnerability. Blue and Green economy they have been promoted as offering a more resilient and sustainable economic path: one that re-balances the social, environmental and economic drivers.

agreement protocol, and we managed with them three projects: one in the field of transnational cooperation, one about the Mediterranean diet and another one about rural identity that involves kids, called “Simposio delle Identita Rurali Europee” to rediscover their own territories and ... we work for their rediscovering of the identity of the territory and the added value of our territory, Sulcis, which is one of the most ancient of Sardinia. They will cooperate in Summer Camps with other countries like Finland and France. We take them in Finland and France to make this experience. They tell some stories that will be collected in a book that will become a short film (short) and it will be presented to the community and schools. We worked very well with them and this project is really interesting ... We developed a Symposium in partnership with the Geopark. The other project is about the Mediterranean diet was developed with the country of Malta. We could manage the resources that they transferred to us. It was a positive experience.

What we should improve is that after the collaboration we need keep working together, create synergy in the territory, especially after the economic crisis. We need to all work together with the Geopark, LAGs of the territories, Centro Regionale di Programmazione²² and all the other departments ... we need to promote the identity of the territory starting from the Sardinian, from the kids. We need to understand what we were and what we are now, to let understand this our identity we need to start from the kids.

In parallel also the *Cammino di Santa Barbara* was born, with whom we are participating with Sardegna Ricerche in their "*Sardegna, un'Isola sostenibile*" (Sardinia, a sustainable island) call for tender and The Cammino is a touristic project. All together we are trying to create one touristic destination: as “Sulcis”. We are also going to work in the project "*Underground Built Heritage as catalyser for Community Valorisation*", with the professor Giuseppe Pace and CNR of Naples²³. They already organized a summer school in Naples, the next call will be in Malta and I hope to participate to the next one and try to involve mines, sites and caves, of course we can't transform all Sardinia into museum but in some sites you can actually develop some experiments ... a very interesting project²⁴ in Lula, in the Sos Enattos mine, with the Centro Regionale di Programmazione. In the mine of Serbariu there is a project with spirulina cultivation plants.²⁵

²² Body assigned to the preparation of the planning acts of the Region of Sardinia, who provides Economic-Financial Plans, the Development Plan, intervention plans and so on.

²³ National Research Council (CNR) is the largest public research institution in Italy, the only one under the Research Ministry performing multidisciplinary activities and the Institute for Studies on the Mediterranean

²⁴ Sos Enattos (Lula) is one of the two candidate sites for the Einstein Telescope (ET), the European third generation underground interferometric detector of Gravitational Waves.

²⁵ The project is realized with collaboration between INFN, National Institute of Nuclear Physics and Regione Sardegna.

We need to think all together, we need to understand that nothing stops, and everything moves. What we are today was born from what we were in the past ... but we are not the past ... when we tell our stories we free ourselves and we transmit this energy, we move forward...when I wrote my thesis it was about Carbonia about Carbonia as a social laboratory, because for me the beautiful of this city is that there was nothing, just a small nucleus of Serbariu, and what happened there was a social laboratory, what are today the people from Carbonia is what happened in the past.

Sardinians and especially young people, today, do not even know that they used to call us “*Is Maureddinusu*” because the kings from Northern Africa were brought here: we come from the pre-nuragic and Nuragic civilization, with their union with Carthaginians and Phoenicians...and after what happened under the Romans ... we are the synthesis of what happened in the past ... but we are something else! We should not stop with the miner but tell what happened and go on, do something else. We need a step forward.

Are you planning new projects with the Geopark?

I hope so, we are trying to involve them into this complex tourism project ... we think that it is a project with Comuni in territory, with the Park of Gutturu Mannu²⁶ that is an environmental park with the Service Center of the Chamber of Commerce, the Parco Geominerario and the *Cammino Minerario di Santa Barbara*. We think that the park must be involved into this touristic project of Sulcis area. Moreover, we have a cooperation project with the *LAG Marmilla* and *Vichy's LAG* in France. The focus is on the schools, we aim at creating a didactic platform with some laboratories and new technologies: in particular of Cinema, instead of blog creation ...

I would like that the park would be involved for the theme of reconstruction of the identity and the mines.

The ARIA collaboration is constituted by the INFN together with Carbosulcis, a subsidiary of the Sardinia Region that manages the mining plant, the Princeton University, the Autonomous Region of Sardinia, the University of Cagliari, the University of Sassari, the Politecnico di Milano, the Fermi National Laboratory, ENEA, the ITIM (Cluj Napoca – Romania) e others institutes and universities taking part of the DarkSide-20k collaboration.

The infrastructure has been inaugurated on September 21 2018, in Sardinia, in the Monte Sinni mine, in Sulcis-Iglesiente. (Source: https://wpress.ca.infn.it/?page_id=1799&lang=en)

²⁶ The regional park of Gutturu Mannu extends through the territory of ten Municipalities in the southwestern part of Sardinia: three near Cagliari - Assemini, Capoterra and Uta, where the oasis of Monte Arcosu lies and seven in the Basso Sulcis area: Domus de Maria, Pula, Santadi, Sarroch, Siliqua, Teulada and Villa San Pietro with its large forests of 35 thousand continuous hectares.

5. PAOLA ATZENI

Paola Atzeni is an anthropologist graduated at the University of Cagliari, that pointed out the focus on the “*saper vivere minerario*” that represent the know-how and immaterial heritage acquired during the years in the mines that should also be protected by the park. Particularly interesting is to see the shift between a rural economy, and identity, into the mining one. This shift shows how the identity of a territory is something that can change and be shaped and re-shaped by events and time. This discourse pose itself in the bottom-up approach that should lead a sustainable development of the areas of the park and the districts mentioned by Sacco, Ferilli e Tavano Blessi (2015) and show the productivity of the collective activities in the history of a community.

Methodology of translation: in the translation of this interview it was particularly important for me to maintain the accuracy of the terms utilised by the professor. Talking with her I could get her opinion about some of the past translations of her essays. For example the stylistic choices of never translating “*saper fare*”, “*saper vivere*” will probably hinder the immediacy of the interview, but at the same time also in Italian it needs an explanation for its deep conceptual meaning; I preferred to not translate them as for example the concept of “*buen vivir*”.

I hope I maintained the same style of the interview and of the explanation of the professor, being able at the same time to be clear and concrete in explaining the concepts behind the Italian, Sardinian and Spanish words.

What is the *saper fare*, for the mining production and vital *saper fare*?

So, Serena, you were asking me that. You want to know more about the *saper fare - saper vivere* ²⁷ to make you understand I will start from 2 types experiences that were common in the underground because they were, maybe, the most dramatic ... the ones which make us understand the continuous risk-situations typical of the mines. I think that we have to put, as the professor Viazzo already did, reading my studies. We had to interpret the mining anthropology, and consequently the mining experience in the view of the *anthropology of risk*: indeed, Mining anthropology concerns mainly mining risks.

Today we can start from there to understand other types of risks, as the environmental risks, just to not talk about others ... this is to say that mining anthropology has a resonance and extension that comprehends and concerns also today’s problems. We should look at the mining experience not only as an experience of the past, or at least in its cultural sense, but as something that can concern today

²⁷ Literally “Know how to do and know how to live”

and surely concern you as young generation. So, I was talking about two experiences, the most frequent, the daily ones of the miners. They concerned two activities – let’s say – of risk and danger’s removal. One was the one of disanchoring dangerous and unstable rocks: it was made by an instrument – the crowbar – that was used to disanchor. The other important moment, when there was the switching on of manual fuses called “*su tempus*” (the time, in Sardinian the translation would be make the time - being on time),²⁸ of determining the measure of the rocks – first they made the hub (heart) of system work, imagine it a ray system – but the worker had to have the time to go from one to another one while they were switched on, then place themselves to save its life.

In both cases there were important anthropological dimensions that were operated by the workers: this prevention from the danger, it was first of all a “*per se (about and for myself)*”,²⁹ so they needed to have self-awareness – I would not call it consciousness, it was not only meditative – it was very active, dynamic and very strong self-awareness, an operating one. I would like to stress this aspect. But it wasn’t only an egoistic “*per se (about and for myself)*” ... no, it was a *per se* with a responsibility: as *insieme individuale e insieme sociale* (individual totality and social totality)³⁰ Please be careful. In saying things, I am not saying that we have to use dichotomic categories, one or the other one, or positive or negative ... no.

We need to think the mine with a complex thought, in which is possible that there are two – three fours things – and this is the richness of the mining experience. It is not ok for the people who simplify in a reducing way. We need to open our mind and see these thought’s extensions. Miners had a broad thought.

The same happened with “*su tempus*”, governing well the fuses, this would serve for you but also for the others ... you didn’t eliminate the long-term silicosis ... but in that moment what was the miner doing? He was producing that moment of safety ... was it an activity of a short time? No. Because producing a life- moment, not by chance it was called “*su tempus*” and it was very important for the miner ... governing the time is saving the life-time, saving the present but also the perspective for the future. So what was what was the miner producing? Only mineral? No, *tempo di vita* or lifetime and life. Only for himself? No, he was producing it for himself and for others.

So, was this happening in every part of the world?

If you study experience in Latin America, in Bolivia. In the experiences of the miners in Bolivia, they adored “*el tío*”, to whom they brought gifts to appease it. So there is an commitment to search for

²⁸ My translation

²⁹ My translation

³⁰ My translation

benevolence, to have its favour, the protection of this *tio*, while in Carbonia, but to say all the mines around, the miners venerated Santa Barbara and so on, but they do not gave all to the custody of the divinity, they count on their security produced by themselves, this capacity to create life for them and the others, and *certainty in the mortal uncertainty*, it is a cultural production that can and must become with the Park has to do more, it has to become World Heritage. This experience should be recognized as World heritage. It is an heritage that value for everyone, because we talked about disanchoring, but also the manual switching on the fuses, in a risking place, the miners humanized the space making it visible, in a risking time they humanized the time, not making dangerous but making it time of life and of future. They are dimension and scan, steps, not worthless, they deserve a valorisation which recognize the original, exceptional Sardinian and Sulcitana experience, that presented with this anthropologically strong and rich symbolic value, and with a world-scale recognition which is capable to talk about also to our present, because the risks of the present are many and the museum which has been created also in Carbonia can transform something else, enriched of questions – because a museum should not only be a documental, it should also provoke some questions, in all the public... not in the distracted ones, but in the most motivated, to receive emotions and learn the right emotions have to ... solicit the question for the present - this can be done and must be done. Consequently, there is a dimension, also new, which is favoured by these conditions, let's say of this uncertainty – I attribute it to wrong political choices, the neoliberalism was a political and economic choice which lowered the working and living conditions, for example for a lot of young people. So, in the risks, apart from the environmental one I put also the working and social risk for the young generations. Many people and families do not get through the end of the day. How can they live?

The situation, if I go back to the mining heritage, it seems alike, with different the historical conditions, because we can't flatter the present on the past, but with all the comparative articulations (and comparisons) that are needed. If I think about the first uprising of the Sulcis Iglesiente, about the metallic mines, Buggerru, 1904 and 1906 ... uprising for hunger which comprehended also Gonnessa ... in the mines, and I see that understanding the appropriate differences ... there is stimulus and evocation of thinking the present with the difficulties of the "*poter vivere*"³¹ that were born at the time and solved in a certain way, in a certain measure, they are not completely solved today. So the "*poter vivere*" is a problem that concern the risks, we are talking about the *anthropology of risk*. I am proceeding, Serena, to make you understand that anthropology of risk is not only the environmental one, even if it was my first example, to understand the repercussion of the mines, but

³¹ Condition of having the possibility of living, connected to the *saper vivere* as knowing how to do it, having the competence and doing it avoiding the risk of the mines.

now I am extending it to the social sphere, the “*poter vivere*” enlarges in what in the mines has been done also from the social point of view. If we sweep the uprising ... the experience of the area deserves, both in the underground both of the upper ground, they have a link of cultural coherence, there is a strong cultural axis, which deserve to be valorised because for this coherence...in their daily life, the miners, knowing how to produce activities and ways to safe live, so they were doing it in the upper ground. Please note that this was particularly dramatic when in the mines was introduced the Bedaux system, especially during fascism, because, accelerating the work...there are many studies of the Bedaux system, it is like today, you accelerate the breath, you breath more...you breathed more mineral fine dust, so the miner had more damage. Today the doctor says it for when you dance and so on ... it facilitates the entrance of the virus ... there happened the same with the minerals. It is not about in the mining risks, experiences which were about engineers, for example ventilation system and construction of waterworks, they were systems of *securitas* – security. Which was the difference? Of course, I give value to all what the engineers did, manual and so on, also the anthropology of sciences and technics concern them, also engineers and technician needs to be valorised from this point of view, I am not a closed workerist. But I valorise that the miners’ practice, because it was daily, every day, continuous, needing constant attention and presence, first of all molecular, minute, it was concerning all the workmen, it was not enough ... one for all, no, it concerned all of them who were there ... let’s stay all for one ... (*laughs*) to understand each other in a sympathetic way and not scientifically cold ... ok? So, the engineers had done their park, but the workmen represented this molecular and continuous experience, in every working shift ... this requested a technic education from the technician, but also ethic. In the team, the most expert workman had to educate the other workmen, to not be slave of the Bedaux system, producing making them work like animals, dehumanizing, putting the others in danger ... but humanizing with this ethic of responsibility. As you know today is a very actual problem, with the Coronavirus, it is not a far experience. Consequently, this dimension of *saper fare* is also a dimension of the *saper vivere* ... which was not closed, rather was socialized. Indeed, these miners were not slaves of the Bedaux system, fighting to change it...but every day they were fighting the right measure that allowed them to live, they were recognised as “Good Miners”. The “Good Miner” was not what “they” said (the company), the one who produced a lot, the work animal, with every cost and risk ... they were who could produce, knowing how to live (survive) and knowing to make the others live ... and *farsi bravo* (*making-being oneself good*) miner was essentially this...

Consequently, for me these elements of knowledge, we should enlarge them and give them a local dimension but also with an extension: this is a very particularizing experience, subjectivizing one ... and the miners of these areas were not passive. They reacted not only with the uprising, but with

everyday transformations, they were subaltern, subordinated, submitted, even if in the submission they found a way to become active, protagonists and subjects. They were *subjected* and *subjects*. Be aware of this duplicity. Ingold, who is an illustrious anthropologist, had reflected on this. You study English so I will say in English ... he distinguished between (*she says it in English*) *Undergoing in doing* (so being subjugated in doing), or *doing in undergoing* (doing in being subjugated), it is a completely different situation. Miners even when *subjected*, they do, transforming, humanizing the space, the time for themselves, for all, but above all starting from themselves, because they were becoming not *subjected* but also *subjects of value*. “Good miners”, they could not be for the company, but they were a community which recognized with their own values the “good miners” ... recognised in a hierarchy of competences. They were not egalitarian in a dumb and foolish way. They had a precise hierarchy of competences ... this, even if in a partly different way happened also for women, which were *cernitrici* (sorting type of working, typically executed by women in the mines), as you know, they separated the materials with their hands, before the floating. Then with the modernisation women have been excluded. Politically and from the point of view of the labour union, it wasn't found any place where women could exercise other job ... the sorting women, in the coal mines were a bit fewer but there were ... the ancestry and cultural genealogy certainty were more numerous than women in the mines ... they had a higher position in the functional organigram of the mines because they selected the best quality of coal, from the sterile that was not saleable. So the coal after this action was more valuable: they were aware: “*dappu avvalorau*” in Sardinian (I made it valuable, I gave it value), they were particularly good and fast, the same Léon Goüin distinguished a good *cernitrice*, also there, there was this distinction, the technicians were able to distinguish a good *cernitrice* and with the piecework were interviewed by Paolo Audibert to know how they managed to do it. With Paolo Audibert, we are already with the piecework, in the 30s ... so this was the preoccupation. Nevertheless, the *cernitrici* were paid less than the miners, although they were giving value to the coal. You would say: this is also a problem from today, yes of course ... and this create a cultural genealogy and make us think about inequalities and the fact that in the mines there were risk, inequalities, risk of not being valorised ... not being considered, and the women represented this substantially.

Now, women, when they treated the mineral, meanwhile there were also big blocks of the minerals and there was the risk it could fall on the workers. This could be a small risk, but it is not a small one. But also, they had to be careful because in the minerals there could have been unexploded capsules, not only fuses, but also capsules, and this, using the hammer ... with sparks produced when they were dividing the mineral ... it could happen, of course not so often as the miners. But also, the *cernitrici* had to be careful, not only to recognise *su bonu* and *su malu* (the good coal and the bad coal, the one

who could be sold and the other one), to this. Also, they elaborated an anthropology of risk where *sa cumpangia manna* (The “big”, in the sense of expertise, co-worker), so the most expert, had to teach them not only to what was good and bad, but also to be careful to the dangers. It’s a distinctive and *individuating* capacity. They gave to it a great importance, making a paradigm. They said it a bit also in a metaphorical way, they were good because they had to distinguish *su bonu* and *su malu*. And when they say this, they slide, extend the distinctive concept that was not only technical but also social ... as the mineral we have to distinguish the good and the bad, also in life. Consequently, it is a bit also a *saper vivere*, in a certain way also women do it ... realize it ... in this case they did not call her *maistra* (teacher) as for men³². They called her *sa cumpangia manna*. Also there, there was a hierarchy.

I can’t put them in a balance, but the two genders, both in their own ways, they did a lot in the direction of a *saper fare*, which was a *vital saper vivere*, generous, comprehensive, inclusive, not egoistic and exclusive and that excluded. It is not a modest experience, compared to the divinities, of course I anthropologically look to them with respect, but I am more aware of this tutelage in which technic realized a capability of *subjectivizing themselves*, transforming themselves into a subject, in condition of subjection. In my opinion this is an experience of immense value, in the general human experience, as World Cultural Heritage. Heritage, not closed in the past, but which talks to the present and to you as young generation, which is living a dramatic situation, in which the future is precarious, but you equip yourselves, you too, to *poter vivere* (build a possibility to live), and you must know how to realize this, as a right to live which concern institutions, parties however they are called, and that makes you from subjugated to subjects. Because you are subjugated in a very risky situation for your future ... in space and time, and this doesn’t mean flatter and pour on you those experiences. It means you should individuate it, understand it, elaborate and decline it under your conditions, first of all personal and then social. This is why I am very sympathetic with you, I send you the best wishes, so that this thesis would be also a step in this path, your path of the *saper vivere* for you but also for others.

What should Carbonia be (itself) “durable”? Carbonia but also the geopark ...

The most important thing is to assume this experience, understanding and elaborating it in the present, so the question is: where, how, in which way we can elaborate it in the present. A durable development means a development, which is environmentally and technically durable, innovatively

³² It was a very important figure for the didactic of the new miners and for the transmission of the knowledges: *how to do* and *how to live*.

durable... in all sectors, for example starting from the experiences of industrialization, what they left culturally, that is not only the one vital, but also *malsano* (insalubrious). I wrote an inedited essay, but something already appears in the short essay of the Park, when you find the matching with the vital and the *malsano* (insalubrious), there ... there is a big theoretical point ... but to reflect, which there is the problem of decontamination, redevelopment and requalification of the decontamination...to make vital all the parts...the first point of view should be this: to make that all the bequest of the insalubrious, would not only decontaminated but make it regenerable and regenerated. Because this is a *saper vivere* and *poter vivere*. (knowing how to live and the possibility of living) ³³

Then there is Portovesme, the new industrialization, also this has not to be forgotten, but apart from the regeneration of the past, it has to inspire the new models of development...I mean, how should the new compatible industry? This is also in line with the new European funds which we could spent, it is an intervention on that: a new durable industry. How is it? You as young generation should dialog with the technician and go to this way. Not everything will be perfect, not everything will be solved. But this is the new way to access, redevelopment and regeneration of the past but production of new space and tempus to have the possibility to live, with a new right to live that it is not claimed as a slogan but realized *in loco* creating new realities. This is also about agriculture of course ... we can't separate it the industrial and the agriculture. Workers always needed and need food and the agricultural part produced also what was needed for the life of the miners. We should ensure that life is protected ... insecticides used and abused would be transformed in particularly healthy food and that is life-generator, not death. Here there is a change in the model of development ...

Then there is schooling, formation ... until university. Should we keep on with isolated compartments? Or education of human sciences and biological ... technical sciences should dialog to be at the service of individual human development? We should ensure that every student gives the best... and we all keep on studying for our entire life. Because now, technological changes require a permanent education. It is not possible, not only in the modalities ... that concern elementary school and so on... that education ends with university and graduation? No, it can't finish. Not only ... the content can't be anymore the one of the past centuries ... they should be others...as the human sciences should learn from the scientific rigor, scientific rigor should also learn from the reasoning's models produced by the human sciences ... so for example the models of empirical control that the workman did, that concern the observation: so, keep eye, *tenni ogu* in sardinian, or *tenni origa*, have an ear ... today fortunately there are new ways of finding ... but they indicate that the body was activated, now is it done with other instrument of finding ... now with other types of security services

³³ My translation

in the mines but behind every instrument and object there is always the human awareness which is observative and inquirer. Always a body which is subject of inquiry, for what? To save life. It is necessary that those models from the human sciences, that are algorithms, that have another translation and discipline. They were anyways models of control and technical weighting with a programmatic objective. This model, if we transport it in the environmental sector, I say, it doesn't give us a sharp separation with the technical sciences or in general science, medical science and humanity. In fact, they are strongly linked. Consequently, it is needed a school with an epistemology, a different knowledge, starting from an advancing of the compulsory education. But we need a new school which isn't only informative but rather is about the use of instruments. Of course the informative part is needed, but also the models of reference would be ... until the reaching of 15 years ... models that have together scientific and humanistic education and keep the two together standing. It is what is called an *epistemology of transdisciplinary*, I mean, not only interdisciplinary, putting in contact the disciplines. But that overcome the disciplines. For example, the underground landscape interested the technicians but also doctors, anthropologists ... this, declined in the schools, what will become? A different school which brings together the disciplines ... to make think about the city, landscape and territory how they should be thought, without separating the disciplines, rather making them dialog.

In Carbonia we had the luck, given the cultural opening of the at that time major Tore Cherchi³⁴, that created a research equip, that then was disregarded ... it is a pity, because whoever there is, a scientific committee in a museum is needed. And also, in the park, the scientific committee that is in charge, and I also wrote it, it doesn't respond to the needs of transdisciplinary, that a situation, a rich situation as the one of the human experiences of the park ... needs. So, anthropology is a hidden dimension in the geopark. And this doesn't hurt anthropology, maybe ... it hurts more the geopark, because anthropologists keep on writing and publishing, the geopark from this point of view appears inadequate. I am sorry to say it but it is like that, it doesn't gather all the richness and also this projection that concern the recognition of this experience as World Cultural Heritage ... this should be a fundamental axis of the action of the geopark but I can't see it in the things done, as a strong axis.

What should be improved?

The scientific committee should be improved, it should be broader, and in this, there should be a working group that collects, studies, makes a programme and a chrono-programme in so that the

³⁴ Salvatore Cherchi

geopark obtains the recognition from UNESCO of these experience realized in the areas of the mining geopark as World Cultural Heritage.

It should fight to obtain it, with coherence, strength, promptness ... because time has been wasted, and the recognition that Sardinia represented, in the mining experience, an experience that must be recognized as World Cultural Heritage. Full stop. Firstly, the park should do this: make the mining experience as *great World Cultural Heritage*, with not only local value, but also general. The park should do this ... and it is already late in this. Guiltily in late.

6. Paolo Fadda

Paolo Fadda was president of the *Ente minerario sardo* from 1969 to 1974, director of Banco di Sardegna (1968-1988) and, from 1978 to 1986, he was at the director of companies of the Bastogi group operating on the island. He wrote numerous essays on the protagonists of Sardinian economic history. The most recent is "L'amico di uomini potenti" (Delfino editore 2016, My translation).

In the article *Il Parco Geominerario: i quattro equivoci che l'hanno affossato e quattro proposte per farlo risorgere* (Il Risveglio della Sardegna 2019), Paolo Fadda explains four misunderstandings that made buried it and 4 proposals to make it rise again. In fact, this will be my reference and starting point for my interview.

The four misunderstanding according to the professor are: 1. Nominal, it should be unity but it is actually a park of many parks; 2. The modalities by which the park has been created, indeed the creation of the park happened though a Consortium with 81 Comuni, the provinces and the two universities; 3. It came from being a UNESCO geopark network and from the fact that the park gives more attention to the naturalistic-geological point of view instead of giving it to the mining heritage; 4. The complex and chaotic way of management did not help the geopark, moreover, it is not enough to have the recognition from UNESCO to attract tourists.

Consequently, the scholar proposed 4 proposals: 1. To attribute competences to the park, with norms and criteria apt to the valorisation of the mining heritage; 2. To introduce valid regulations or the protection, valorisation and fruition of the heritage sites, taking example from interesting experiences from abroad; 3. Find in the park of many parks a fil rouge that sweep through an historical, museal, archival reorganization of what and who have been the protagonists, their success, technological progresses and real but also virtual signs of what have been the biggest social epopee in Sardinia; 4. It would be necessary to define clearly the historical-cultural history of geosites and mining heritage, between environmental values and industrial values, between a mining park and an environmental

park. He reminded that in 2014-2016 the almost one thousand geoparks from UNESCO collected not even 1/5 of the visitors that the thirty industrial archaeological sites, of mining character, collected in the same years.

Can I ask you to introduce yourself briefly?

Fifty years ago - it was in the late summer 1969 – I was called by the Autonomous region of Sardinia to launch the Ente Minerario Sardo (EMSa). It was established to make order and protect the Sardinian mining industry, which was living a crisis period. After that, the mining industry started to be in my interests, and for at least ten years, I was at the head of the body and subsidiaries' director. Successively, as researcher, analyser and narrator of the historical events of that industry, from the arrival of the capitalism – which in the island was dated in 1848 with the concession of the lead vein of Montevecchio to an anonymous society promoted by Giovanni Antonio Sanna from Sassari. On the other hand, all my professional education and the following development was strictly connected to industrial and financial entrepreneurship, both in the public and private sector. Today, as 90 years old, I will just have to see and read the events of half a century, trying to identify lights and shadows. Above all, telling the events, protagonists and the accomplishments (without forgetting the difficulties and failures) in dozens of articles on newspapers, magazines and almanacs of the island and in different historic essay published by prestigious editors.

My last effort is the “Breve storia dell’industria mineraria in Sardegna”³⁵ that analyses, step by step, the path of mining capitalism in Sardinia, which lasted one and a half century.

Coming to the point... and quoting the article *Il Parco Geominerario: i quattro equivoci che l’hanno affossato e quattro proposte per farlo risorgere* (The mining Geopark: 4 misunderstandings that buried it and 4 proposals to make it rise again) on *Il risveglio della Sardegna*. You talked about four misunderstandings:

The first one is purely nominal. It concerns the own nature of the geopark, which in its UNESCO definition should indicate a unitary part of a territory, a well delimited one in its perimeter, borders and surface. In our case it will result into a “plural network” of 8 unities, separated by each other, almost a park of more parks, scattered from north to south, from east to west in the 24 square kilometres of the entire island. This misunderstanding, that was already individuated by UNESCO at that time, showing surprise and doubts, for the fact that disregarded the guidelines. The park was divided like that, losing in a certain way the

³⁵ Brief history of the mining industry in Sardinia (My translation)

territorial and historical unity that should have been the fundamental characteristic (...) (Fadda, 2019, My translation).

Considering the fact that we have these 8 areas and there is no unity... wouldn't be better?

To understand better the different misunderstandings that I talk about, it is necessary to make a premise. In the 90s, one by one, all the mines of the island were closed, because of the ending of the minerals and the uneconomical situation of the managements. So, in order to protect the values of sector, which was vital for thousands of Sardinians, the main idea was to protect the memory constructing an archaeological system, of work and economy, to make the valorisation of the past in a touristic and scientific point of view. Unfortunately, the constitution of the body at that time for the valorisation and protection of that memories, has been denaturalized, because this body didn't have the juridical capacity of managing the mining sites, so to be nothing more than of a supplier agency or cash machine. Moreover, also the distinction of geo-mining park introduced a different reading of the territory, which starting as a territory of mining activities ... and it introduced the *geosites*, as preferred frame of geological asset in the entire territory.

So, the original mission of being the custody of the mining epopee dulled more and more. Not by chance the archive of the mining history, is managed by a *society in house* of the region, IGEA, while all the equipment is in the hands of the park, which is first of all historical and cultural. All the misunderstanding that I described, they come directly from the fact that the region entrusted the management of the juridical capacity of the ex-mining heritage in the island to a multiplicity of entities – from IGEA to the Comuni – that should be in charge of the protection and valorisation, through the subsidies of a park, which seems just as a dispenser (payer) body. So, this is why the use of the adjectives “historical-cultural” would lose the original meaning. So, for example, if the park gives the contribution for the rehabilitation of the ex-hospital in Montevecchio, but IGEA, which is the owner, decides to implant its offices, it would mean neglecting the historical ratio of the operation...

Indeed, it is easy to understand the connection between the making of the Consortium, as a multiplicity of bodies which determined its evident precariousness, and it is confirmed in the 15 years of fact commissarial management, changing every 6 months. Moreover, the fact that the park assimilated the tasks and the rules of the naturalistic park has emphasized the difficulties for all the defences in the necessities of protection: while the naturalistic park is a unity, the mining one is for its nature discontinuous, for all the disjointed sites.

Look, the misunderstandings are a lot - maybe even more than the four of the article that you quoted.
³⁶ indeed, above all, there is one that is the basic one. It is about the nature of the body that doesn't own the heritage, which should protect and valorise, turned to be a supplier machine to the bodies of the Consorziom and to others. From this it came the name" "*Parco bancomat*"! (*Park as cash machine*)

Look, the Ruhr mining basin, in Essen district, presented unique structures and machineries that the mining in Sardinia doesn't have. But the Sulcis-Iglesiente-Guspinese alone, if it had applied for it, it would have had it. In Zollverein UNESCO put its seal, but of course it will not give it to 8 Sardinian mining areas, scattered in 24 thousands of square meters, that are really different between each other for their origin, history, importance, typology of work and so on...as you can see I always go back, as a refrain, to reiterate that the park is unfortunate, ineffective and inefficient, as they say, and unfit for its mission and for obtaining the UNESCO recognition. Indeed, the way out Geosities-UNESCO was a cunning way for obtaining a prestigious stamp/ brand.

Are there any mining sites that we need to look at? That are well managed and give us idea for the future?

If I have to stay in Sardinia I would say that Rosas mines, the old lead mines, close to Narcao represents a smart protection, valorisation attempt and profitable of ex mining site; as well as the Grande Miniera di Serbariu in Carbonia is a very well and positive way of recovery of one of the most important industrial events on the 90s, the Carbosarda- ACAU of Giulio Segre.

Outside the island, I would say the Spanish examples *Parque Minero de Rio Tinto* and *de La Union*. Only these two parks, as destinations, went beyond the 300.000 visitors.

In Italy, the *Parco delle Colline Metallifere* mining park indicated, thanks also to the input of the prof. Massimo Preite from the University of Florence, the best way to define "how it should be and work" a geopark.

From the article "*Parco Geominerario: i quattro equivoci che l'hanno affossato e quattro proposte per farlo risorgere* (Il Risveglio della Sardegna 2019)": *A second misunderstanding can be individuated in the institutional modalities by which the park has been created and introduced by the law, in fact that the park was born as "Consortium for the Park" with a really complicated asset of management because of the numerous institutions involved (81 Comuni, but also the*

provinces and the two universities...) This plurality makes the park fragile and with a precarious management, apart from the fact that favoured a long and sterile period of commissioners. It makes difficult to understand to whom we should put accountability for faults and responsibility of the command. Not by chance the park could not provide itself of an organic Action Plan that would precise ideas, projects and objectives, as it was necessary (Fadda, 2019, My translation).

The fact that there a plurality of bodies, can also represent a positive factor, if there would be a dialog and work with synergy, cooperating for the same objective?

Theoretically, you are right. But in Sardinia we say “*Centu concas, centu berrittas*³⁷” and it means that the plurality of conflicting opinions is now the routine. Indeed, the parks couldn’t have for years a board of directors (CdA), with all the squabbles week after week...

Actually, it is still not clear what a park like this should be, with all the mining memories, in which the strength and clou of its being is the knowledges of the material and immaterial heritage, that the mining civilization in Sardinia gave. Also, because for different reasons and all bounded to the presence of the characters that lead the park – commissaries and directors – the geological and after environmental exuberance overtook the historical one.

You say that we must take notice that *the law 388/2000, which instituted the Sardinian Geomining Park, needs a complete revision. Of the same opinion is Massimo Preite*³⁸, that in *I parchi minerari in Italia fra requiem e revival*³⁹ says to us that “*the unanimous conclusion that we can acquire is this one: The institutive law 388/2000 didn’t work*” (Preite, 2015, pp 9)

Preite also proposed “a legislative recognition of a new figure of mining park”.

But in the meanwhile ... taken that to modify the law or create a new one would take long time ... what can we do at the moment in short terms? What should be done in a long term?

I agree with the fact that a new law, that better defines the mining parks, even if necessary, requires long time and may be complicated. There could be intermediate steps, taking what already exists of the existing law. So, for example in our park there are 3 articles, the 20, 21, and 22 that recall to the

³⁷ It is a Sardinian common saying which has the similar meaning of the Latin locution *tot capita tot sententiae*, similar to *too many cooks spoil the broth* in English.

³⁸ Before the interview the professor Paolo Fadda suggested me to read the article of Massimo Preite: *I parchi minerari in Italia, fra requiem e revival* in *L'Italia e il suo patrimonio minerario: conservazione e valorizzazione*. ISPRA pubblicazioni

³⁹ The mining parks in Italy: between requiem and revival (My translation)

necessity of a strategic planning of the activity that the territorial plan should be essential base. It should be the Ordinator and inspector of the places to control and valorise them ... and above all be the network of the different places of mining memories, to link them with a *fil rouge* from a reorganization of the archive, museums. A reorganization which would be technological and social, of what happened from 1848 until the 90s of the last centuries. It is an extraordinary heritage the park never conducted a census on, in 20 years of experience.

Yet there is a lot of curiosity and interest about it. For example, my studies about the Sanna - Castoldi family's (1948-1933) and its Montevecchio obtained an excellent success, even in the peninsula, and above all they allowed the exposition of objects, memories and written texts of that family of entrepreneurs at European level. There were also interesting essays about mining activity in different sites of the island as Argentiera from Masua, all outside from an organic and rational programme leaded by the park.

I would like to conclude this chat, telling you this: mining industry had the great merit of bringing Sardinia in Europe and above all Europe in Sardinia. The best of Europe, I underline, the Europe of innovation and modernity, of HP and KW, of the labour league and wage contracts, employer representatives and technical schools: in one word *the Europe of innovation and progress*. It is necessary to preserve and valorise memories and experiences, joining them in a fair vision of careful knowledge and smart usability.

This, for my opinion, should be the innovative mission of the Park 2.0!

Summary of the interviews

The summary will proceed following the order of the interviews in the chapter, trying to sum up the vision of each one of them.

Tarcisio Agus's interview showed a vision of the park as facilitator of sustainable development from an economical point of view. He proposed the creation of a management body in which the park is not going to be the director, but it is part of it with the Regione Sardegna and other parks of the region. The focus is to manage all the island and to improve the awareness of the park and its environmental problems through education and compulsory schooling. According to Tarcisio Agus the organic structure of the park should grow to sustain its activity.

Moreover, he proposed the creation of an agri-food district in the areas of the park. This operation would be done using European funds and creating new economic possibilities for young generations

according to the vision of circular and green economy. The agri-food district should animate the economy of the Comuni inside the park and, with the creation of a system of hospitality and accommodation, it should create non-seasonal economic opportunities inside the island.

Its vision shows the importance of environmental recovery and redevelopment, especially in the economic sector, while from the point of view of culture and mining heritage, he proposed the park only as animator and partner of the activities organized by the Comuni and cultural bodies as museums, mining sites and so on.

Salvatore Cherchi highlighted the need of the creation of a park-system and the necessity of reconnecting the geopark with its roots, mining heritage and the community. In addition, the park should be insert into the international market. He supported the need to follow UNESCO's prescriptions in order to go back to the network and the fact that the Memorandum should be seen as a great opportunity and not a duty.

He proposed a long-term horizon that sees the park as the principal animator of a dynamic view of culture, through museums (as the CICC), schools and cultural bodies. He proposed some European examples to follow such as: in England Yorkshire, Sheffield, Manchester and Wales; in France Nord Pa de Calais, in Germany the Ruhrgebiet, Saarbrücken, Saarland; Silesia, Krakow and Wieliczka in Poland but also some parts in the Czech Republic; Catalonia in Spain.

Giampiero Pinna's interview focus was on the creation of the Cammino Minerario di Santa Barbara, in which firstly also the park was involved. The Cammino Minerario di Santa Barbara is a religious path according the old paths swept by miners. The purpose is to connect mining (also immaterial) heritage, landscape and local communities. Some European examples are the Camino de Santiago and the Via Francigena.

According to Pinna the problem of the geopark lies in the fact that it is not under the law 394/2001 and it is under Ministry of the Environment. Indeed, he thinks that the park should be placed under the Ministry of Economic Development and in the short term the Law 168/1989 should be applied in order that the consortium can have full autonomy in the governance system.

He highlighted the necessity of making the park function, work and reconnect it with the community.

Nicoletta Piras's interview focus was on the LAGs's activities, they aim at animating and boosting sustainable economic development. The LAG Sulcis Iglesiente worked in some projects with the Geopark, but Nicoletta Piras highlighted the need of a systems inside the areas that is lacking today.

Paola Atzeni's interview was based on some anthropological concepts that the mining experience created in the areas of the park: every day miners saved their life and their future with their knowledge, in an individual and collective experience. For her these concepts should be protected by the Geopark and she proposed their entry in the World Heritage list as Intangible Heritage, in which sense the geopark is late. In guiding the Park, the professor thinks that the scientific committee in charge should be more open to transdisciplinarity. Moreover, these anthropological concepts should guide the new generations to find their own way of living, fighting today's risks according to a new view of sustainable and durable development.

Paolo Fadda's interview started from his four misunderstandings and four purposes in the article *"Parco Geominerario: i quattro equivoci che l'hanno affossato e quattro proposte per farlo risorgere, (Fadda, 2019)"*. Before the interview he advised me to read Massimo Preite's article about the differences of mining and natural parks. (Preite, 2015, pp 17) The problem for the professor stands on the fact that the park doesn't own the mining heritage. Consequently, taking into account that a new law that better defines the mining parks requires time, he highlighted some intermediate steps, using what already exists, from the institutive law to the current Statute (Institutive Statute born with the Decree of 16th October 2001, modified by the Ministerial Decree n. 244 of 8th September 2016) in which, for example, for our Park there are three articles, 20, 21 and 22, which recall the need to develop a strategic planning of activities, in which a territorial plan must be the essential basis. The park would therefore be the body who controls and valorises the mining memories and heritage.

In the interviews the park is shown as cash supplier which is not able to protect and valorise its mining heritage. Moreover, all the interviews manifested the complexity of the Consortium to make the park function and the fact that a system-park is lacking as well as the involvement of the local communities.

1. Great Copper Mountain, Falun (Sweden)
2. Zollverein Coal Mine Industrial Complex, Essen (Germany)
3. The Copper Coast UNESCO Global Geopark (CCUGG) Waterford (Ireland)

1. GREAT COPPER MOUNTAIN, FALUN (SWEDEN)

Analysis from traditional approach to regeneration, evaluating all the factors that can hinder its development towards sustainability and innovation

The following section will describe the example of Falun (Sweden) and its industrial heritage sites and management. This site has been described to show a *patronage model of regeneration* after the UNESCO'S conservation-oriented approach, where the main activities are thought to be mainly educational and traditional tourism. Nowadays it tries to keep up with the last references in the UNESCO report "Culture Urban Future" to join urban regeneration, sustainable development and innovation.

The industrial heritage is defined as "the remnants of activities whose value – historical, economic, social, architectural technological, or scientific – is worth saving, protecting and enhancing" (Della Lucia and Pashkevich, 2020, pp 188). Together with the artistic and cultural endowment, industrial heritage acts as an integral part of the cultural core of a place/country and it relies on its irreproducible material and immaterial cultural supply. But especially with the end of the activities a new process of industrial heritage starts: its protection and the beginning of the new life. New studies are trying to investigate how the old model of conservation promoted by UNESCO is affecting the post-industrial development of the cultural site and its evolutionary progress. In Europe there are 21 industrial heritage site and most of them are promoted by UNESCO WHS (Della Lucia and Pashkevich, 2020, pp 189).

Of course, education and traditional cultural tourism are the main path to maintain, share and celebrate local culture and memories and generate value. Nevertheless, the transformation of the industrial heritage through its hybridization with creativity may provide opportunities for social innovation, sustainable development and regeneration.

There are new forms of tourism using mixed reality and creative and relational tourism⁴⁰, involving people's creativity, (technological) innovative intangible content. It may be used to positively influence place identity, enrich tourist experiences and nuance further the content of destination marketing. According to Della Lucia and Pashkevich in *Coming to new life? Envisioning sustainable development in industrial World Heritage Sites* (2020) the nature and range of stakeholders that participate in the decision-making affect:

- Material (structure, system and services)
- Intangible heritage and its transformation (symbols, values, identity and image)

The main drivers of heritage transformation have been identified with stakeholder's engagement and cultural heritage hybridization with creativity. Their combination allows to create four models that can be used to interpret a process of transformation of industrial heritage sites and therefore can be applied to Falun. They can be connected with different forms of tourism and tourist experiences. According to Della Lucia and Pashkevich (2020, pp 190):

1. **Patronage model:** its principal characteristic is the heritage conservation through top-down approaches and values creation through traditional cultural tourism.
2. **Sociocultural innovation model:** urban stakeholders enhance and extract value from the hybridization of heritage with intangible assets and developing new form of tourism.
3. **Managerial innovation model:** enhance cultural heritage and heritage conservation reflecting the needs and desire of powerful interests' groups.
4. **Social innovation model:** it enhances heritage and heritage conservation, reflecting the community participation primarily in tradition/past but fostering social relationship and trying to rebuild social capital.

The more tradition and the past are reconciled with innovation and future (creativity), the more pervasive and sustainable is cultural regeneration, and of course would be applicable to industrial heritage (Landry, 2000; Sacco, Ferilli, Tavano Blessi, & Nuccio, 2013 in Della Lucia and Trunfio 2018, pp 2).

⁴⁰ It is also described as human-scale tourism, some examples can be rural tourism, cultural tourism, farmtourism, environmental tourism, tourism, outdoor activity.

In particular, the case study of Falun has been developing since 80s. Culture-based regeneration of the old urban areas were in crisis after the closure of primary and secondary industries. They tried to reinvent themselves and the industrial landscape and stimulate their creative uses to transform the sites from abandoned sites into new pathways of socio-economic development. One of the difficulties was to create a shared vision and reconcile the interest of development from the idea of conservation of the industrial sites and the vision of local habitant's own leisure activities (Heldt-Cassel and Pashkevich 2011 in Della Lucia and Pashkevich, 2020, pp 190).

Great Copper Mountain

Great Copper Mountain is located in Dalarna region approximately 250 km north-west of Stockholm and is in the UNESCO's cultural World Heritage Sites from 2001. This industrial site was chosen as a single case study to investigate the influence of institutional conditions on the regeneration of both the industrial heritage site and urban centres for many reasons:

1. The Great copper Mountain has been a point reference for the local economies since 13th century, when some archaeological remains was dated back, but it is in the 17th century that was one of the engines and the symbols of Europe's mining activities.
2. Its recognition, preservation, management and transformation has been developed through a complex decision-making process with the different interests of multiple stakeholders.
3. Its inscription in the UNESCO's list occurred before the latest directives connected to the vision for World Heritage Sites sustainable development by UNESCO (Della Lucia and Pashkevich, 2020, pp 187).

Its values lie on the integrity of the sites and for being a complex system that includes the mining area and its surrounding mine-related landscapes and the copper works. It consists in 3 parts:

1. The district with wooden houses (Gamla Herrgården, Östanförs and Elsborg);
2. Countryside homesteads located outside of Falun;
3. Great Pit, the heart of the mine. It is a result of a collapse in the mine during late 19th century (Della Lucia and Pashkevich 2020, pp 191).

The designation from UNESCO occurred according three out of six inscription criteria:

- I. The site has profoundly **influenced the mining sector** and technological advance in all parts of the world for two centuries. Copper mining at Falun was influenced by German

technology, but this was to become the major producer of copper in the 17th century and exercised a profound influence on mining technology in all parts of the world.

- II. It is a **unique testimony of the copper mine** related and domestic landscapes and of a centuries-old production tradition.
- III. It is an **outstanding example of human interaction with the environment** and its economic and social evolution of the copper industries, that survived over time (Source: UNESCO 2019)

The protection of the integrity and universal values of the site and its management is organised in accordance with the rules posed by the World Heritage Committee implying the local-global connections.

From its inscription in 2001, the Great Copper Mine Foundation, Municipality of Falun, Country administrative Board and Dalarna museum set up a World heritage council. Indeed, the World Heritage Council has a working team called VÄX (managing group) associated with it. It consists of representatives for Falun Municipality, Dalarna museum, the Stora Kopparberget Foundation, the Dalarna County Council, Dalarna University and Friends of the Falun World Heritage Site. This council is responsible of developing, coordinating and strengthening the Falun World heritage Site. Even though for now the impact on tourism of the site listing on WHS has been modest, in recent years visitor's numbers of the mine and the museum have increased of the 37% more than the previous year (2017), hosting 70.000 visitors in 2018 (Della Lucia and Pashkevich 2020, pp 192). It shows a positive transformation.

Another successful example is *Zollverein Coal Mine Industrial complex* (Essen, Germany): they tried to go beyond the simple scope of heritage preservation and drive a culture-led urban regeneration". The industrial sites are part of a new purpose and became a symbol of this change of perspective by being cultural heritage sites and hosts of new art and creativity, as for example the Folkwang Museum (an ex-factory now a contemporary art museum) close to Zollverein. I will analyse it in the next section.

In the case of Falun, the authors Della Lucia and Pashkevich (2020) have been investigating by qualitatively applying the matrix of cultural regeneration models. The matrix joints the main drivers of transformations and the factors that may activate them: **the drivers are the stakeholder engagement** in heritage conservation/regeneration, while what activates them is the **hybridization of heritage with creativity**. Urban governance and strategies affect the nature and range of stakeholder participation in decision-making. Industrial heritage identity and transformative power

of creativity can be hybridized by human resources attraction, training and creative thinking. It can also help the development of hard and soft infrastructure, including ICT applications.

Secondary and primary data were collected using qualitative methods and tools to investigate the years 2007 and 2017 from multiple sources of case evidence. Secondary data included archival and official documents, website information, newspapers and magazine articles; while primary data were collected through semi-structured interviews with official management representatives from all the institutions and organisations engaged in the management of the WHS in Falun that I explained before. The interviews were recorded and reported in their papers.

Falun's management according to Della Lucia and Pashkevich (2020)

Falun Mine is open year-round and offers guided tours and theme-oriented tours for various target groups above ground and underground. Falun Mine's programme of activities consists of a National Day celebration, Christmas market, Walpurgis celebration and other events. In the mine area there is a museum, exhibitions, historical buildings, shops, cafés, restaurants, conference activities, an upper secondary school, BBQ sites and signed areas for walks.

Since 2016/2017 heritage tourism offer is showing an innovation with projects leading to the establishment of a new interactive mining museum. It reopened for the visitors in 2018/2019 with the combination of underground and above the ground excursions, the opening of the Bed & Breakfast facilities on the site since 2018. However, industrial heritage exhibition within the museum still lacks advanced ICT applications, i.e. ICT 4.0, which can of course enhance and enrich visitor experience and live immersive extra-sensory experience of heritage valorisation and interactive learning. In particular, augmented reality (AR) leverages on computer-generated 3D environments to visualise and interact with objects, information and multimedia representations of the past, real-life, and/or imagined future. Virtual reality (VR) amplifies the AR opportunity of visualisation and interaction characteristics, creating and inserting visitors into alternative and multi-sensory virtual worlds (Della Lucia and Pashkevich, 2020, pp 196).

In addition, the authors Della Lucia and Pashkevich (2020) point out that there is still a lack of involvement of Falun's own inhabitants in the decision-process around the development of the site, and the related activities and events and a lack of close collaboration with Falun Municipality in the support of the activities, promoted by the Foundation throughout the period since nomination onto the WH list. However, since 2018 the collaboration between the Foundation and Falun Municipality seemed to improve. Development projects so far were dealing with the safeguarding of

heritage and focusing on the preservation of cultural heritage connected to the 16-17th Century developments of the mining activities on the site.

Conclusions

The site still is an example of *Patronage model* of management: its preservation-oriented approach is focused on the historical legacy of past development and memories.

In this study case value creation occurs mainly through traditional levers: educational activities and cultural tourism. Tourism flows are connected to the mining area and there is a need to create multiplication effects for the urban development. The management of the mine is not yet at the core of an integrated strategy of sustainable tourism development, built on participatory management. Nevertheless, there are very positive signs that some levers that can help, including sustainable development promoted by UNESCO's recommendations, managerial competences and technological innovations.

The site's new life, by overcoming past path dependency and the Patronage model, requires the creation of specific preconditions according to Della Lucia and Pashkevich (2020):

- Enhancing UNESCO's recommendations focuses on site's sustainable tourism development;
- Engaging local community and let it reimagine and reinventing their sustainable urban future. The so-called **spin-off effects** (the results of the activity of the local community) may lead to a regeneration process and also to a decision-making process. Moreover, it can produce a participatory management of conjoint heritage to produce the generation of added value with also the help of ICT applications.

In order to foster a sustainable and innovative tourism development in industrial WHS, a set of following measures the authors Della Lucia and Pashkevich (2020) suggested:

1. fostering complementarities between sectors and sector-specific policies (education, research, culture, tourism etc)
2. staging stakeholder dialogues and meetings to increase awareness and inspire ideas
3. experimenting with urban laboratories of change and experience through peer-to-peer communities of practice (artists, designers, knowledge workers, influencers/bloggers);
4. developing ICTs applications, including AR, VR and mixed reality, for improving and innovating visitor experience and communication of industrial heritage

5. attracting and training talents etc (Della Lucia and Pashkevich, 2020, pp 196).

These suggestions would be perfectly applicable at the Parco Geominerario, even though the last show more difficulties given especially to the extension of the areas and the fact that the economic situation of the two region is very different.

2. ZOLLVEREIN COAL MINE INDUSTRIAL COMPLEX, ESSEN (GERMANY)

The second example I present is the UNESCO World Heritage Site “Zollverein Coal Mine Industrial Complex”, close to the city of Essen, in the Ruhr region. The region includes other cities such as Duisburg, Oberhausen, Bottrop, Gelsenkirchen, Bochum and Dortmund, and it forms the polycentric urban structure of Rhine-Ruhr Metropolitan Region (Blotevogel 1998 in Saner, 2012, pp 271). I choose this example because Zollverein has led in the development of the notion of industrial heritage in a technological and aesthetic point of view and worked as a point of regional identification. It inspired the creation of the *Route Industriekultur*: a network of industrial heritage that engulfs the German Ruhr region. Zollverein can be said that started a worldwide trend towards appreciating vestiges of the industrial age as “heritage”. In 2001, the Zollverein Coal Mine and Coking Plant was declared a UNESCO World Heritage Site (Marth, 2018, pp 42). The site has been developed as a location for the creative industry (art, culture, design), for education, tourism and recreation. Zollverein has been visited by more than 1,5 million visitors annually. As starting point there is the idea that path-dependency and the creation of strong supporting institution around the mining heritage would be impactful on the transformation of the WHS over the time.

History

The Ruhr region was an important mining and industrial production area for almost 150 years between 19th and 20th centuries. The Zollverein Coal Mine was closed in 1986 as the last of about 290 collieries in Essen and it was the largest mining city in Europe.

Particularly, the complex used to work between 1847 and 1986. In 1984 the Rhenish Office for the Preservation of Historic decided that all the shafts of the Zollverein Coal Mine were to be placed

under monument protection. The proposal did not meet RAG⁴¹'s approval, which was the owner of the Zollverein complex, because they feared high costs for its preservation and saw valuable building land in the property. They intended to demolish a partially destroyed Zollverein shaft. They wanted to build a business park on the site to offer new jobs for the city. For several months, RAG, the City of Essen, and the Rhenish Office for the Preservation of Historic Monuments discussed the preservation and monument value, without reaching an agreement (Marth 2018, pp 53). Under time pressure of the UNESCO's candidature application, Zollverein Shaft XII was acquired by the Grundstücksfonds Ruhr (Ruhr Property Fund), which is managed by the Landesentwicklungsgesellschaft Nordrhein-Westfalen (LEG, State Development Corporation). Its task was to develop new uses for industrial wastelands (Marth, 2018, pp 53).

The focus was on the purposes for which the complex should be used in the future (Saner 2012). A working group with representatives from the RAG, the City of Essen, the monument preservation authority, LEG, and others subsequently developed a multistage use and redevelopment concept, which was initially not made public due to the high costs involved. The slogan adopted was "Forum Ruhrkultur" (Ruhr Culture Forum). The costs for the renovation of the industrial complex was meant to be covered by means of urban development funding, a joint funding program by the federal government and the federal states for sustainable urban development and funds from the state of North Rhine-Westphalia and the City of Essen. The developed master plan chosen by Essen and the Zollverein foundation was created by Rem Koolhaas (OMA) and the principle of "*preservation through reutilization*" (Marth, 2018, pp 1; 91).

Numerous plans and strategies were adapted after the closure:

- monument status;
- lighthouse project of the International Building Exhibition (IBA) Emscher Park;
- appointment as a UNESCO World Heritage Site;
- a master plan;
- conversion of the Coal Washing Plant into the Ruhr Museum;
- Zollverein Park and the new buildings (Marth, 2018, pp 16).

⁴¹ RAG Aktiengesellschaft is the mining supervisor. While "RAG-Stiftung" is a civil-law foundation with legal capacity, its main objective is the adaptation, control and support of the German hard coal mining of the RAG Aktiengesellschaft.

In the first IBA Memorandum dated to 1989, which defined the strategy of the whole framework, IBA Emscher Park projects were structured around six main central themes (FG STB, 2008, pp 9):

- The Emscher Landscape Park;
- The ecological reconstruction of the Emscher river system;
- Working in the park;
- New residential and urban development;
- Conservation of industrial monuments and industrial culture;
- New facilities for social, cultural, and sporting activities.

IBA Emscher Park was dealing with ecological issues and their projects aimed at reversing the ecological, aesthetic, and social abuse of the landscape, including a special treatment for slag heaps. Moreover, one of the Emscher Landscape Park's fundamental principles appeared as protecting, linking, and increasing the qualities of existing open spaces of former industrial landscape (FG STB, 2008 in Saner, 2012, pp 271).

For example, the IBA team developed the idea of a large, temporary public exhibition on the millennia-old history of energy. The exhibition "*Sun, Moon, and Stars: Culture and Nature of Energy*" attracted more than 300,000 visitors within two years (Marth, 2018, pp 68; Dorseywitz, 2014, pp 436). This park promoted a new urban planning and construction projects and tried to change the region's perception of its own industrial heritage, basically building its identity. The exhibition was designed to put visitors in touch with the history of the place and thereby confronted the need to define a new social and historical identity for the region. The experiment was extended by making more indoor spaces accessible to visitors and establishing the *Route Industriekultur*, a regional network of industrial heritage places. Zollverein rapidly gained recognition in the region as an important historical identification point, an architectural monument, and a renowned cultural location that has hosted countless exhibitions, projects and events (Dorseywitz, 2014, pp 437).

As in December 2001, the World Heritage Committee discussed the proposal to include the Zollverein Coal Mine and Coking Plant in the World Heritage List, Zollverein revised their first application and with the promise to dismantle the Sun Wheel from the Coke Oven Battery finally convinced the jury to be protected and under UNESCO's list. In their statement, UNESCO named two central criteria for their decision:

Criterion (ii): The Zollverein XII Coal Mine Industrial Complex is an exceptional industrial monument by virtue of the fact that its buildings are outstanding examples of the application of the design concepts of the Modern Movement in architecture in a wholly industrial context.

Criterion (iii): The technological and other structures of Zollverein XII are representative of a crucial period in the development of traditional heavy industries in Europe, which were reinforced through the parallel development and application of Modern Movement architectural designs of outstanding quality.

Zollverein as a creative hub

The aim of the projects was to revitalize a region in which industrialization in the nineteenth and early twentieth centuries as well as post-war deindustrialization had left deep marks: structural crisis that resulted from the decline of the coal industry and among other things showed that many jobs had been lost, several residential areas were in need of rehabilitation, mining had left a high ecological burden on the environment (Marth 2018, pp 54). Besides, as LaBelle (2001, pp 222 in Saner, 2012, pp 271) puts forward, “the ecological degradation was mirrored by psychological resignation among much of the population” who were struggling with unemployment whose rate exceeded 15% in the late 1980s. This situation is the typical break after the disclosure of the mines in all Europe.

The new guiding principle of the Complex was “its orientation toward the future without loss of identity” (Marth 2018, pp 57). In order to achieve this, the guiding principles brought four dimensions together to form an integrative overall concept:

1. the history of the Ruhr area;
2. the design-architectural significance of the monument;
3. the urban development potential of old industrial landscapes;
4. the economic and cultural attractiveness of the location.

The new Zollverein World Heritage Site immediately hosted an ice rink that was opened for the first time in the water basin of the former Pusher Machine Track of the Coking Plant. The coordination processes and working groups were divided into five core themes: commerce, design, art, education, and events. The goal was to maximize the interaction between these elements.

In particular the Landscape Park created a cooperation project between twenty cities and two districts, which connects various parks and green spaces in the Emscher region through a network of cycle paths that started working during the IBA Emscher Park.

With 1.5 million visitors annually, Zollverein is the most visited anchor point on the Route of Industrial Heritage. Fifty-five events from panel discussions to congresses to events accompanied have been hosted in three months. In total, more than 400 companies and 80 institutions were involved, and around 220,000 visitors from Germany and abroad travelled there for the occasion. A second remodelling phase was scheduled for the end of 2008, specifically to prepare the showrooms for the Ruhr Museum and its first temporary exhibition in the Coal Washing Plant (Marth, 2018, pp 91).

The IBA Emscher Park had given the impetus to transform abandoned industrial sites into cultural open spaces, thereby creating at the same time the template for the Ruhr area's application for European Capital of Culture. Under the motto "Change through Culture – Culture through Change," the reprogrammed locations became the focus of public attention as the venues of the "RUHR.2010 projects" (Marth, 2018, pp 153). Indeed, the complex and Essen was designated to be the Capital of Culture of the year 2010 with its rich program. Overall, the Zollverein World Heritage Site attracted around 2.2 million visitors in 2010 (Marth, 2018, pp 153). In addition to the permanent exhibition, the Ruhr Museum regularly presents special exhibitions, also on topics that do not relate to the Ruhr area. The exhibition and event program with the Monument Path are combined with the Route of Industrial Heritage.

In addition, the construction work on a new building for Folkwang University of the Arts began in July 2015. In the winter semester of 2017/2018, around 500 students and seventy members of the Design Department moved into the new building, which since then has formed Campus Welterbe Zollverein (Campus World Heritage Zollverein) (Marth 2018, pp 198). Campus Welterbe Zollverein and the headquarters of the Folkwang University of the Arts in Essen-Werden also form a north-south axis through the city. For the industrial districts adjacent to the World Heritage Site, this connection promises positive effects: around 30 percent of the Folkwang students come from abroad, so the relocation of the design department to the World Heritage Site means an increasing revival and internationalization of the location and the surrounding area (Marth 2018, pp 198).

Moreover, in 2016 the City of Essen and Stiftung Zollverein were successful with its application in the program "Nationale Projekte des Städtebaus" (National Urban Development Projects). From more than one hundred submitted projects, the plans for Zollverein along with fifteen others were selected as "premium urban design projects that have a model character and radiate beyond regional and national borders" (Marth, 2018, pp 184).

Since the Capital of Culture RUHR.2010, around 1.5 million guests (2011-2017) have visited the decommissioned Zollverein Coal Mine and Coking Plant with its tourist attractions. Thus, Zollverein is the most visited cultural destination of the Ruhr area, just after the Cologne Cathedral in the North Rhine-Westphalia region (Marth 2018, pp 153).

Zollverein as an urban laboratory

Essen council member Oliver Scheytt wrote an article titled 'Zollverein: a laboratory' (2002) to advertise its innovative potential and regional impact. Saner (2012) investigated this notion and outline the conceptual groundwork for a theory of 'urban laboratory'. He explains that Zollverein can be understood as a case of culture-led regeneration, which focused on cultural initiatives as a key to transforming post-industrial cityscapes into new, service-oriented and historically embedded destinations (Hauser 2001; Garcia 2004; Miles 2005 in Dorseywitz, 2014, pp 432).

In practice, cultural projects such as the Internationale Bau-Ausstellung (IBA) Emscher Park exhibition or an international dance fair on the site started transformative processes that led to the establishment of flagship institutions such as the dance school PACT and the Red Dot Design Museum. Susanne Hauser (2001) studied how planners have approached industrial ruins, wastelands and 'refuse', and traced the creation and negotiation of new meanings through three basic strategies:

- commercial redevelopment
- musealization
- creation of green spaces (Dorseywitz, 2014, pp 432).

Saner (2012) pointed out that all three strategies are manifest on the Zollverein site.

At the very beginning there was a struggle for protection, but in the early 1990s gradually gave way to a more structured and organized approach in the way they were managing the site. Initially, tolerance for spontaneous projects and initiatives was high: design students were allowed to use the coal wash as an exhibition stage and visual and performing artists were given free rein to set up shows and workshops. Of course, the increasing scope and rigour of heritage protection, especially from UNESCO, slowed down the speed of the new initiatives. The ice rink swimming pool in the coking plant is an example of "*a much more liberal planning process in the past*" (Dorseywitz, 2014, pp 440). Although these installations are described as aesthetically well embedded in the ensemble, they are also considered to be invasive measures that according to the author would have no chance under current protection statutes.

There are four principal areas of interest of the stakeholders and they are:

1. protecting industrial heritage;
2. utilizing the ensemble for cultural projects;
3. establishing new industries;
4. providing educational services (Dorsewitz, 2014, pp 441).

Agencies that represented the interests of heritage protection, municipal planning, economic development and cultural institutions had to clarify and adapt their missions continuously within the rapidly transforming character and perception of the ensemble, probably making them mutually dependent on one other (Dorsewitz, 2014, pp 441).

For example, the heritage protection agencies (Rheinisches Amt für Denkmalpflege and UNESCO) were still searching for a viable conception of industrial heritage in the given context. This prevented the imposition of a ready-made set of rules and regulations, which might have made many developments impossible (Dorstewitz, March 2014, pp 441).

It's important to notice that management and planning functions were not assigned to a single organization between the business sector, heritage protection or the municipality. According to the author this prevented Zollverein from being developed solely as a new-enterprise zone, a museum, or a "cultural theme park". The plurality of agents and participants probably was a valuable resource in the evolution of the development allowing the emergence of different creative projects and attracted contributions from various artists, designers, academics, public servants, entrepreneurs and ex-miners. Probably Zollverein's success was its perception of the open space for new and creative initiatives but approaching it respectfully as a place of great historical and aesthetic significance (Dorsewitz, 2014, pp 441).

According to Saner (2012) the transformation of Zollverein from an industrial site to a world cultural heritage site illustrates how means and purposes can co-evolve creatively in an experimentally approached situation. Of course, not all purposes and uses were discovered or invented de novo: like any research process, Zollverein started with a set of conjectures and hypotheses, which gave direction to an experimentation process that largely shaped its outlook today. As a planning project, according to Dorstewitz (2014), Zollverein can be seen as a urban laboratory though the use of intelligence and we can identify the scientific inquiry:

"This form of intelligence is defined by learning how to resolve an indeterminate and problematic situation by gaining an understanding of its determinants and by mutually calibrating theories and

experimental activity. a laboratory approach to urban planning depends on the way collective forms of coordination emerge in response to situational challenges. This may be as rewarding from an academic point of view as it is promising from an urban planning point of view in the pursuit of a more context-sensitive, creative and reflective practice (Dorstewitz, March 2014, pp 447)''.

The community tried to develop a “right” choice of programme and adequate concepts for involving visitors in projects, which required ***studying the monument and its meanings from a sociological, demographic, educational and cultural point of view*** (Dorstewitz, March 2014, pp 441). It points out the dilemma of protecting the structure evolved over time and the fear of ‘killing through preservation’ that joined the need to raise popular awareness for the entire ensemble in order to protect it from various destruction plans (Dorsewitz, 2014, pp 444).

The economic situation and the geographical position of Zollverein and of the Sardinian geopark are surely very different, showing the geopark as very disadvantaged. Nevertheless, the rethinking of the Zollverein complex shows a positive model and a positive urban laboratory example that could be looked, especially for the attention paid to the environmental sustainability, the green ideas and community-focuses projects.

3. *THE COPPER COAST UNESCO GLOBAL GEOPARK, WATERFORD (IRELAND)*

The third example I have chosen is the Global Geopark Waterford which received the designation UNESCO Global Geopark in 2015. It is a geoparks as the one I described in Sardinia and share some of the difficulties of the Sardinian Geoparks. I will report the SWOT analysis of the Copper Coast Geopark in their The Copper Coast Opportunity Study 2019-2024.

The Copper Coast UNESCO Global Geopark (CCUGG) delineates the territory of the so-called Copper Coast and it defines its identity, landscape, geology and industrial heritage. It is one of 140 UNESCO Global Geoparks worldwide and one of three on the island of Ireland. The area is located on a 25km coastal stretch between Dungarvan to the west and Tramore to the east. Its territory lies in the Municipal District of Comeragh and a little part in the Municipal District of Waterford.

History

The territories of the park were mined for lead, silver and copper in the 18th Century. But the main phase of activity was the mid 19th century when the mines east of Bunmahon were worked by the Mining Company of Ireland.

The Mining Company of Ireland was established in Dublin but Knockmahon by 1840 was described as ‘the most important mining district in the empire’.

In 1850 the company began to move their entire operation east to Tankards town, including engines and engine houses. A peak was reached in 1865 followed by a decline. As usual entire extended families moved away, mainly to America where some of them wound up working at the Copper Mountain in Butte, Montana.

The organization of the park

It's is managed locally by the Copper Coast Global Geopark CLG (CCGG), a non-profit social enterprise dedicated to community development through the promotion of sustainable tourism and the development of productive partnerships. It was established in 2004 and the organisation started earlier informal initiatives and promotions from the 1990s. The park is also actively promoted under the IAE (Ireland Ancient East, www.IrelandsAncientEast.com is the official tourism information website for Ireland's Ancient East, operated by Fáilte Ireland, the National Tourism Development Authority).

The Geopark grew out of the Copper Coast Tourism Group which had been formed in 1997 but the application to join the new European Geoparks Network was accepted in 2001. In 2004, in common with all the European Network Geoparks, the Copper Coast became part of the Global Geoparks Network and in 2015 it became UNESCO Global Geoparks. In 2004, InterReg⁴² funding necessitated the forming of a limited company and this funding enabled, among other things, the purchase of Tankards town Mining Engine House and Monksland Church. Further funding from Leader has meant that they could use the church building for use as a multi-purpose Geopark Centre and community facility, with a café, shop, exhibition space and the possibility to use it for small seminars, courses and performances.

WCCC (Waterford City and County council) has the principal responsibility and function in promoting and supporting economic and community development throughout the City and County and The Waterford Local Community Development Committee (LCDC) which plays a central role in planning and coordinating development activity within the County. Its work was guided by the

⁴² Interreg is a series of programmes to stimulate cooperation between regions in and out of the European Union (EU), funded by the European Regional Development Fund.

Local Economic and Community Plan 2015-2020 (LECP). The area, close to Cork and Waterford cities, is endowed with a rich geological and heritage legacy and a wealth of environmental features and resources.

The CCGG is now guided by a strategic plan for the period 2019-2023. The plan establishes its mission, vision and objectives. I will report the SWOT analysis and some data collected in the plan.

SWOT Analysis from The Copper Coast Opportunity Study 2019-2024 (pp 58-66)

Strengths

- The existence of enabling EU, national, regional and local development strategies and resources to support tourism, recreation and amenity development;
- development support and financial resources from Waterford City & County Council, Waterford LEADER Partnership, FLAG South East and Fáilte Ireland to support community and enterprise initiatives, placemaking and public realm development.
- A pro-active community and voluntary engagement with longstanding experience of and responsibility for planning, resourcing and implementation of local projects.
- Strong name recognition of the Copper Coast with further potential for Destination Management and Brand Development strategies. Moreover, the area is one of 3 UNESCO Global Geoparks on the Island of Ireland and one of 147 Global Geoparks worldwide.
- diversity and richness of biodiversity in the landscape, antiquity and heritage. Strategic location as a touring route on the coastal strip between the towns of Tramore and Dungarvan. Proximity to established and emerging high-profile tourist attractions and investment priorities such as the Waterford Greenway, Mount Congreve House and Gardens and Waterford City.
- natural, environmental, ecological and coastal resources and strong collaboration and networking potential with national and international stakeholders. Indeed, the park includes protected/designated heritage and *Natura 2000* sites of national and international significance comprised of *Special Areas of Protection (SPA)* and *Proposed Natural Heritage Areas (pNHA)*.
- Its proximity to the cities of Cork and Waterford Cities with accessibility to Cork Airport and Rosslare Europort via the N25 national secondary route and onward connectivity to Britain and Europe.

Weaknesses

- A small scale of territory, its settlement and resident population.
- Lack of accommodation and facilities for tourism and tourism seasonality. The comparatively low profile of County Waterford as a tourist destination and the limited attempts by stakeholders to define and promote a countywide tourism proposition.
- The absence of a comprehensive *Destination Management* Strategy in the Copper Coast.
- Unfortunately, the Copper Coast does not leverage any significant economic impact from visitors to and users of the Waterford Greenway. Despite the profile and name recognition of the area generally, specific establishments, attractions and facilities, it is not referenced in national, regional and local tourism promotions and brochures.

Opportunities

- Resource opportunities provided by the *Ireland 2040* Plan and the National Planning Framework for rural economic and place-based development, with particular emphasis on the *Rural Regeneration and Development Fund (€1bn)*; and the *Climate Action Fund (€500m)*. Its alignment with national policy initiatives to support the development of regionally based tourism propositions centred on experiential, educational heritage, sustainable development, eco-tourism, active adventure and outdoor recreation.
- The product development, networking and marketing opportunities provided by the IAE brand (Ireland Ancient East), Visitor Experience Development Plans and supporting strategy and resources. Strategic and sustainable development of the *Blue Economy* to drive investment in tourism, amenity, conservation, climate change mitigation, renewable energy, food and fisheries, marine minerals, supplements, cosmetics, ingredients and nutraceuticals.
- The development of *smart village strategies* where social innovation combined with adoption of new technologies is used to address social, economic and environmental needs in the area. They aim at digitalisation of tourism and the potential for digital and social media to further build social and community engagement as well as to promote and showcase the areas assets and attractions.
- Alignment of the areas vision and strategic development with the United Nations *Sustainable Development Goals*. But also: advocacy and leadership for sustainable development, zero waste, circular economy, low carbon, climate adaptation and mitigation practices in the management and development of environmental assets and resources.

- Improved physical and virtual connectivity arising from targeted investments (Ireland 2040 Plan and the National Planning Framework) to enhance the transport and communications infrastructure.

Threats:

- Demographic, economic and behavioural trends towards urbanisation and a continued attrition of population, skills and services in rural areas.
- Failure by stakeholders to collaborate and share knowledge, expertise and resources in order to achieve scale and critical mass in product development and promotion.
- Public funding for the planning, development and operation of community-led initiatives made available on a highly competitive basis, often subject to themed *calls for tender* on an irregular basis.
- Poor alignment of local development objectives, actions and targets with national, regional and sectoral development strategies.
- Weakened social capital, the diminution of community engagement, loss of volunteerism and the ever-growing governance and compliance burden for community and voluntary initiatives during the last years and fear for the future.
- Fossil fuel dependency, greenhouse gas emissions (GHG) and the failure to mitigate and/or adapt to the effects of climate change. Deficiencies and limitations in transport, communications and sanitary infrastructure.
- *De minimis* regulations limiting the amount of public funding available to community and enterprise project applicants within a given three-year period.
- Fears of global downturn and recession in key economies and source markets in the short term with added downside risks arising from *Brexit*, weakness and poor growth prospects in the Eurozone economies, trade wars and the imposition of tariffs.
- Changes in EU development priorities, budgets, exchequer contributions and regulations with direct adverse effects for Ireland on funding for the *Common Agricultural Policy* (CAP); *Cohesion and Regional Development* (ERDF) funds.

The Copper Coast Opportunity Study 2019-2024 proposed a set of 11 objectives in the CCOS:

1. *enhance and sustain robust structures for community-led development. It will represent and advocate a shared social, economic and environmental vision for the communities of the Copper Coast.*
2. *promote active citizenship, community participation through collaboration, networking and resource-sharing in planning and development.*

3. *enhance social, economic and environmental wellbeing and resilience through investments in smart, placemaking strategies.*
4. *build scale, complement and add value to Waterford City, Dungarvan, Tramore, the River Blackwater, the Comeragh Mountains and the Waterford Estuary, which collectively comprise the County Waterford tourism offer.*
5. *respect the character, heritage and traditions that defines and showcases a “sense of place” within and between communities in the Copper Coast.*
6. *create and sustain high quality, innovative, knowledge and skills-based competences in the in the design, management, use and protection of the natural environment.*
7. *mainstream climate mitigation and adaptation priorities in 1) building design and maintenance; 2) in the management of village assets, infrastructure and public realm; and 3) in the management and protection of environmental resources.*
8. *create physical connectivity to larger urban settlements through investment in infrastructure which favour soft modes such as walking and cycling.*
9. *achieve optimal usage, benefit and commercial return from prior publicly funded investments in the social and community infrastructure.*
10. *devise smart strategies through digital innovation that will enhance the social, economic and environmental fabric of the area.*
11. *match development objectives, capabilities and projects locally with the development priorities, enabling policies and resource capabilities of the EU, national and local government. (Dempsey, 2019, pp 58- 67)*

CONCLUSIONS

The tourism product, infrastructure, accommodation offer within the Copper Coast is narrow in scale and scope. The absence of hotel accommodation represents limiting factor. Indeed, the Copper Coast B&B and Seaspray (located in Bunmahon) are the only accommodation listings in the area featured on the Fáilte Ireland www.discoverireland.ie website. There are no hotels, guesthouses or hostels located within the Copper coast listed on this site, although these are in nearby Waterford City, Dungarvan and Tramore. Nevertheless, tourist accommodation is also promoted through *Airbnb* with clusters of accommodation. Economic activity and employment in the Copper Coast are described in the Census 2016: the working population in the area is employed in the *Professional Services, Commerce and Trade* and *Manufacturing* categories. Tourism employment locally is most likely accounted for in the *Commerce and Trade* category. The “community” is said to be part of initiatives in heritage management and presentation, community enterprise, environmental management and the development of community assets and amenities: it should reflect strong social capital, community ties and identity (Dempsey, 2019, pp 34).

The Copper Coast offer a range of active recreational activities and amenities such as watersports, boating, and swimming. The area is endowed with beaches throughout, even though there are not Blue Flag beaches (Dempsey, 2019, pp 32).

Waterford has developed a prominence and expertise in hosting a number of significant festivals and events that attract tourists and visitors throughout the year: it serves to mitigate seasonal flows in tourist numbers. These festivals include *Winterval*, *Spraoi*, *The Viking Festival*, *The West Waterford Festival of Food* and the *Imagine Arts Festival*, amongst many others. Other experiential activities are workshops and events including those provided directly by tourism operators, guides, artists, craft and food producers. Moreover, the Stradbally Copper Coast Geopark Loop is an 11km cycling route linking the Waterford Greenway at Durrow and Stradbally. The Dunhill Multi-Education Centre in association with Waterford Wexford Education Training Board offers a 44-week, QQI level 5 *Tourism Trails with Smart Media* (Dempsey, 2019, pp 24; 33).

In conclusion, WCCC has set some targets for the growth in total visitor numbers to the city and Waterford based on annual growth of 15% per annum for the period to 2022, yielding 1.17m visitors and revenues of €255m to double the 2017 figures. According to the plan this is to be achieved through the enhancement of existing visitor attractions; the development and promotion of festivals and events; the development of new world class visitor experiences; increased promotional spend; consolidation of the Visit Waterford Brand; and improved collaboration with Tourism Ireland and industry stakeholders throughout Waterford and South East, Ireland's Ancient East. Of course, the coronavirus pandemic will change numbers and targets (Dempsey, 2019, pp 25).

CONCLUSIONS

Considering the three threatened cases of Minerary Parks, the one which appears more similar to the *Parco Geominerario della Sardegna* is the Copper Coast in Ireland, even though the size and the closeness to strategic points are more in favour of the Irish World Heritage. The basic difference stands in the fact that the WCCC (Waterford City and County council) has the principal responsibility and function in promoting and supporting economic and community development throughout the City and County, with the Waterford Local Community Development Committee (LCDC), while the *Parco Geominerario della Sardegna* has been guided by commissioners and under a plurality of entities already described in the chapter 2. Quoting the interview of Paolo Fadda, it represents a big obstacle in managing such a big area, and it is also confirmed by the president of the park Tarcisio Agus. The similarities comprehend: the fact that accommodation is in both still not developed and the two geopark aim at enhancing experiential tourism. In the Copper coast the community is said to be “part of the of initiatives in heritage management and presentation, community enterprise, environmental management and the development of community assets and amenities” while in the Geopark the community is still not involved, apart from the activities of the *Cammino Minerario Santa Barbara* and it is still improving. Other differences presented with the Copper Coast Geoparks are the activities of festivals and events in the area, which represent a good opportunity to fight seasonality of tourism; these types of activities are not present in the Geopark. Moreover, the Copper Coast already collaborates with tour operators while this type of organization is still ongoing, through the geopark, *Cammino di Santa Barbara* and *LAGS Sulcis Iglesiente*.

Great Copper mountain (Falun, Sweden) WHS represents a positive example of a smaller heritage site which is trying to involve local population and offers more services to the local community and tourists. More comparison and researches should be improved, especially in the exceptional situation of the coronavirus pandemic. Moreover, they are trying to develop ICT technology in their cultural activities. The council is now preparing a new management plan for the World Heritage and it will be ready in 2021. They still represent a patronage model, but it is visible that the machine already started working to develop its protection of intangible and tangible heritage, culture-based regeneration and involving habitant’s leisure activities. The main difference is that Great Copper Mountain is managed by the VÄX as managing group or council, formed by: Falun Municipality, Dalarna museum, the *Stora Kopparberget Foundation*, the Dalarna County Council, Dalarna University and Friends of the Falun World Heritage Site; again the Consortium of the *Parco Geominerario della Sardegna* and the different commissioners hindered its development as the interviews of Giampiero Pinna and Paolo Fadda confirmed.

Zollverein Coal Mine Industrial Complex is a big example of industrial heritage reconversion. The number of activities proposed in the heritage site and the project “*preservation through reutilization*” have shown to be strongly positive for the World heritage Site and for the local community, but there is the need to point out that it is strongly supported by the largest urban area in Germany. Again, the guide of the heritage sites shows a plurality of the entities in the Parco Geominerario della Sardegna that, as already said before, hinders its development. Especially because of the plurality of visions inside the Consortium. RAG, the City of Essen and the monument preservation authority LEG of Zollverein tried to transform its post-industrial cityscapes into new, service-oriented and historically embedded destinations focusing their attention on environmental sustainability, green ideas and community-focuses projects. Their vision is particularly important for showing the dilemma of protecting the structures evolved over time and the fear of ‘*killing through preservation*’ and it should be taken as an example in finding a balance in the geopark’s mining sites.

The difficulties of the park stand on the complicated organization with different stakeholders, its extension and its legislative and managing complexity.

I propose the applicability of what Della Lucia and Pashkevich (2020) suggested for the Great Copper Mountain WHS:

1. fostering complementarities between sectors and sector-specific policies (education, research, culture, tourism etc);
2. staging stakeholder dialogues and meetings to increase awareness and inspire ideas;
3. experimenting with urban laboratories of change and experience through peer-to-peer communities of practice (artists, designers, knowledge workers, influencers/bloggers);
4. developing ICTs applications, including AR, VR and mixed reality, for improving and innovating visitor experience and communication of industrial heritage;
5. attracting and training talents etc.

In order:

1. POINT 1: *fostering complementarities between sectors and sector-specific policies (education, research, culture, tourism etc);*

Going back to the theories mentioned in the first chapter there is the possibility to develop new strategies through which the park could improve significantly, as for example the use of new technologies. It will probably require a stronger connection and partnership with the close faculties of the University of Cagliari and Sassari: indeed, the examples of the European heritage sites show a

close relationship of university and education. Of course, it is desirable to improve a better connection with all grades of education, seen the low level of schooling in the island. ICT and technology application could also be applied to some of the geological sites that are hardly and more expensive to stay open.

Several new projects are showing the use of memories and people as real testimonies of heritage sites: of course, not all the workers may be available, but it could be useful to maintain a strong link with them and with the new geologists. It can help the connection with the local community and the recovery/rehabilitation of the memory. I could be positive enhancing the relationship with the “Monumenti Aperti” activity, that usually involves students from primary and secondary schools of the surroundings: it could be profitable in the sense for helping the feeling of community, linking the present and the past. Indeed, *Monumenti Aperti* is the most important festival dedicated to the promotion of the Sardinian cultural heritage. Every year in the past, more than fifty municipalities take part in the event, involving at least fifteen thousand students of all ages in tourist-guiding activities. The event takes place during the weekends between April and May, when over six hundred monuments are opened to the public.

POINT 3: *experimenting with urban laboratories of change and experience through peer-to-peer communities of practice (artists, designers, knowledge workers, influencers/bloggers);*

It may be positive strengthen development of cultural tourism, especially if connected to social media: the story of Lucia (on Instagram @unasardatralenuvole, literally “a Sardinian in the clouds” with the connection with the way of saying “the head in the clouds”) shows how followers and profiles interact through the use of culture on an Instagram account where she promotes food, experiences but also common stories. For example: the story of Speranza Ladu, an old tailor in Sarule, in the heart of Sardinia, or the story of Tzia Assunta (aunt Assunta) that still maintains some old religious traditions typical of the island. Apart from that, the profile promotes excursions, Airbnbs, restaurants and arcraft as the brand “Macchillotti” (it means “crazy” in Sardinian and according to the artisans these scrunchies are able to keep strong and rebel hair even when the strong wind from the north blows, the famous Maestrale). This Instagram account with many others shows how cultural activities from the past, and today, can emerge and find place in everyday life.

The park needs to be economically sustainable, but it is important that it finds a way to involve both tourists and local community, with the aim of constructing new social relationships through the use of arts that as explained in the first chapter may be generated by collective activities. The starting point would be identity and values from the past, seen not only as something “to save, preserve,

celebrate” but also something that could be constructive for a new productive post-materialistic era. Indeed, as the rural economy has been the previous “identity” of the local, then it was transformed to make place to a new know-how, in some cases without losing the previous one. As the professor Paola Atzeni explained we should find our instrument for developing a new know-how (or *saper fare*). Cultural Heritage and old values may be the engine for constructing a new model of production aiming at not losing what was the community before but being able to shape a better future for the new generations. This is particularly in line with the activities of the Park, its food farming district and the new regeneration projects, but as Paola Atzeni and Salvatore Cherchi explain it is also needed a protection and valorisation of the mining heritage: Paola Atzeni highlights the immaterial heritage and the fact that the park should fight for its recognition as Intangible Cultural Heritage protected by UNESCO. Salvatore Cherchi, which also developed initiatives as the The Serbariu coal mine museum, in the Centro Italiano Della Cultura Del Carbone (CICC), that is also an Anchor point on the European Route of Industrial Heritage, highlights the need of this type of valorisation of the territory.

POINT 4: developing ICTs applications, including AR, VR and mixed reality, for improving and innovating visitor experience and communication of industrial heritage;

Many sites that are using more “realistic” way of storytelling, namely the use of feeling that the miners used to experience in the mines (smells, heat, sounds and so on), that could be particularly interesting both for tourism (known as experiential travel and tourism: this new way of travel prioritizes immersive activities in several areas such as ecotourism, gastronomy, rural tourism, historical-cultural and self-knowledge experiences. It could be interesting also from the point of view of the accessibility of the museum. People who chose it search for interaction with the local identity, culture and territory) and locals (engineers, cultural heritage experts and whoever could be involved in this kind of projects). Storytelling is for example one of new trends in tourism, because one single “story” (let’s say of the mine “alone”) is not enough nowadays. Moreover, new trends show the creation of novels in heritage sites that can also help to connect a site into one or more stories: for example, Paris as city of love, told by hundreds of novels but also that can be everyone’s.

Particularly interesting is the what Salvatore Cherchi pointed out: we need cultural animation; avoid static museums and we should aim at dynamism. My short experience at the Archaeological Museum of Alicante MARQ showed me a type of dynamism and involvement of the community: accessibility is a keyword in the activities proposed by the body, in detail the activities in which I could give a hand were the ones for children with disabilities and a path of meetings at the Museum with aged

people, focusing every meeting on a theme connected with history. Even with the coronavirus situation I could see the link of the people with the museum, seen as a dynamic point of reference.

Moreover, there are four principal areas of interest of the stakeholders in Zollverein and they are particularly important for the Parco Geominerario della Sardegna as well:

1. protecting industrial heritage;
2. utilizing the ensemble for cultural projects;
3. establishing new industries;
4. providing educational services.

As a starting point, the interviews and the previous literature suggest not only an economic recovery: it is necessary an environmental recovery and decontamination of many of the areas of the park (and of the entire island, as far as the definition of the geopark involves an unified territory, already hoped by Perelli *at all* 2015.) that is also requested in the definition of sustainable development by OECD and Sustainable Development Goals (SDGs).⁴³

Indeed, Salvatore Cherchi, Paola Atzeni, Tarcisio Agus highlighted the importance of a process of decontamination and redevelopment through different points of view (political, anthropological, organizational, medical and so on...) The concept of redevelopment and regeneration should be the starting point of the geopark. Indeed, on the 21st July a conference of the Parco Geominerario della Sardegna in collaboration with Assessora Regionale all'Agricoltura, of the Assessore Regionale ai Lavori Pubblici, Assessore Regionale alla Programmazione, Presidente della Commissione Regionale alle attività Produttive (council members) presented some of the objectives of the park, that are:

- improvement of the quality of life of the communities of the park;
- creation of experiential travel and tourism networks and activities;
- creation of a net of local products, developing a proper registered trademark;
- improve the knowledge of the heritage sites for tourism;
- booster the process of urban and environmental recovery;
- strengthen the connection with costal touristic hubs to generate a connection between coastal and inner areas of the region.

Salvatore Cherchi, Paolo Fadda, Giampiero Pinna showed a vision of tutelage, protection and valorisation of the mining heritage that can actually be developed with the activities proposed by

⁴³ <https://www.undp.org/content/undp/en/home/sustainable-development-goals.html>

Tarcisio Agus and the precious activities of the LAG Sulcis Iglesiente on creating economic development, strictly connected with the point 3 of the Zollverein's areas of interests.

In addition, as Paolo Fadda pointed out the law 388/2000 is not adequate for managing the park. In particular, Preite (2015) explains the differences between a mining park and natural park, and its importance to act properly, especially as far as the geopark is not under the law 394/2001, rather is under the jurisdiction of the Law 388/2000 art. 114, comma 10 for the institution of the mining parks, which appears inadequate (Preite, 2015, pp 8-17).

Paolo Fadda proposed the introduction of new regulations to protect, valorise and manage mining cultural heritage, or in the short term apply the articles 20-21-22 of the current Statute (Institutive Statute born with the Decree of 16th October 2001, modified by the Ministerial Decree n. 244 of 8th September 2016). Giampiero Pinna proposed a change in the ministries that control the park, from four to one, which would be the Ministry of Economic Development and in the short term the application of the Law 168/1989 in search for autonomy in the governance system.

All of the interviews showed a painful lack of a system-park and its urgent need to create a network in the areas of the Park but also in the island.

To sum up, it should be improved:

- environmental recovery, regeneration and redevelopment of the rural and urban areas; awareness is needed on abandoned sites to avoid improper economical activities which do not sustain durable development. Moreover, educate young generations to the respect for the land, island and our planet, through schooling and manifestations;
- the creation of a system "park", aiming at a fructuous cooperation in the short term until there will be a structural change on the regulation and in a long term with the schooling system, the Comuni, the LAGs and cultural and business bodies;
- the development the protection and fruition of mining heritage, aiming at the protection of both tangible and intangible Heritage (see Paola Atzeni's interview). The link with education should be enhanced at all levels and animate cultural bodies with a dynamic view, improving the use of ICT technologies and investigating the applicability of the new trends described in the first chapter;
- creation of a system of hospitality and accommodation for not-seasonal tourism and production of local products to create economy around it;

- regeneration the economic activities as the example described by Tarcisio Agus, the brewery *Birrificio 4 Mori* recovering old buildings from the past, but also reconnecting the land with the community, guided by the activities of the LAGs towards a sustainable economic development.
- take as starting point the main drivers of the possible cultural districts and the 7 strategic goals of future Sardinian polices elaborated by Sacco, Ferilli e Tavano Blessi (2015) and analysed in the second chapter.

All these objectives are definitely in line with a sustainable development's process, but they need effective action and polices to take root into the region.

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