Many different phenomena could produce alteration, decay, depletion or loss of material and immaterial assets that mark out landscapes. In this Special Issue, "Landscape at risk" is understood as concerning all the phenomena that could alter or interrupt that relationship between community and places, which lead to landscape features creation. Therefore, the topic "Landscapes at risk" is addressed considering its multiple meanings: Landscapes under environmental risk, climate change effects, but also landscape at risk of abandonment, or at the contrary landscape overexploited by tourism and other intensive activities. Landscapes endangered by environmental phenomena are analysed taking into account the way risk influences everyday life and the population-resources relationship underpinning landscape creation. Special consideration is given to climate-change related risk and to methodological improvements to develop criteria and tools to achieve the integration of mitigation and adaptation measures within landscape. In addition, landscapes suffering drastic depopulation are investigated and the most suitable management processes to prevent modification on landscape features are proposed. Finally, causes, effects and possible solutions are examined for landscapes where exploitation levels maxed-out saturation or where resources enjoyment is mainly based on an intensive consumption pattern and on the appropriation for commercial purpose, which lead to jeopardize the resources themselves, as mass tourism does.

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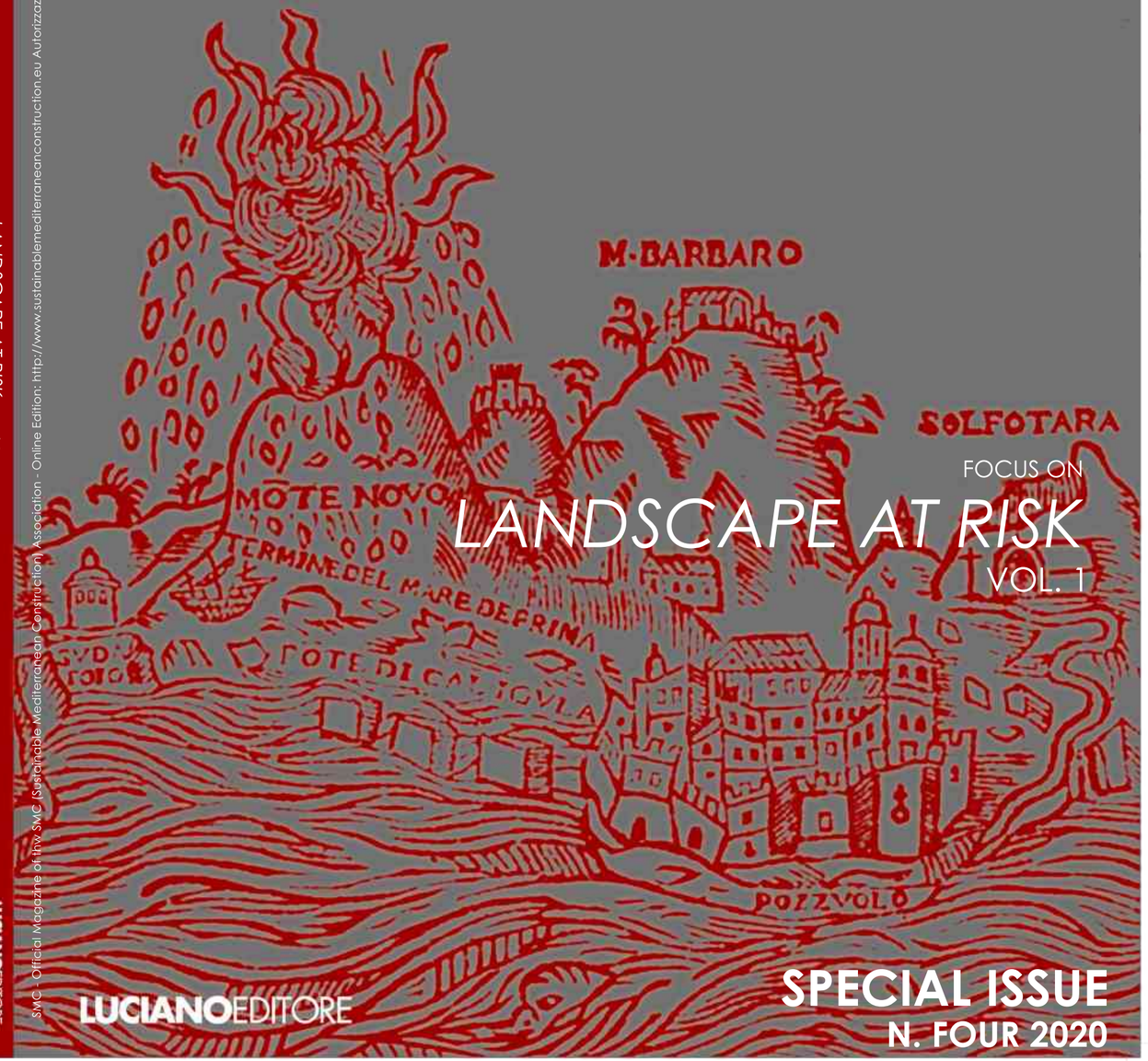

FOCUS ON

LANDSCAPE AT RISK

VOL. 1

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PREFACE

The European Landscape Convention (ELC) allowed achieving important results through the promotion of approaches oriented to landscapes safeguard and valorization. Nevertheless, in the present context, risks and hazards able to threaten landscapes resources have been increasingly growing: environmental risks intensified by a wild urban development, climate change, excessive landscape exploitation or, on the other hand, landscape abandonment and depopulation. Twenty years on from ELC enactment, this special issue wants to take a stock of how much is still required to cope with all the different form of risk threatening "the significant or characteristic features of a landscape, justified by its heritage value derived from its natural configuration and/or from human activity" (ELC, 2000).

The special issue aims is to deal with all the different reasons that could produce alteration, decay, depletion or loss of material and immaterial assets that mark out landscapes. Therefore, risk is also understood as risk of alteration or interruption of the relationship between community and places, which lead to landscape's features creation according to ELC. Therefore, the issue "Landscapes at risk" will be addressed considering its multiple meanings, starting from landscapes affected by natural risks, moving to the ones suffering shrinking or gentrification risk or even overexploitation and/or congestion, up to landscape in transition.

The first section of this special issue analyzes landscape affected by natural risks, from technical, organizational and social point of view. Landscapes are modelled by risks in many different ways. Some types of risks shape orography and influence the characteristic of natural environment (i.e. volcanic and hydro-geological risks) promoting specific economic activities more than others, generating population movements/settlements. Furthermore, grey works to struggle hazard (i.e. river banks, retaining walls, etc.) could distort landscape features. To cope with landscape alteration due to risk prevention new solutions that are landscape-consistent have been recently set up and local knowledge in dealing with disasters is reconsidered as a welcome supplement to scientific knowledge. Traditional practices to face risks could contribute to find solutions for risk mitigation, which are more respectful of nature, i.e. there is an expanding body of knowledge on locally rooted strategies for risk mitigation.

Furthermore, the presence of a permanent condition of risk affects the relationship inhabitants-territory and the way people live places under the constant threat of hazard; while some places are abandoned by population after a disaster, in other places people came back in hazardous areas to rebuilt their houses and their system of life. Sense of belonging, cultural identity, risk and landscape perception and representation, on one side, and social networks, information channels and risk communication modalities, on the other one, should be considered before and after a disaster, and have a special attention in Disaster Risk Reduction strategies. A special attention should be paid to cultural heritage and landscape features that are representative of identity and pride and needs to be proactively considered in post-disaster recovery. Safeguard of heritage and landscape features have a significant role in social cohesion and sustainable development especially in time of crisis.

The papers presented in this section focus on traditional techniques and customary practices to face hazards; everyday life and community resilience underpinning landscape creation; post-disaster reconstruction examples, which are consistent with landscape features.

The second section deals with the risks provoked by Climate Change for urban and rural landscapes. In particular, hydro-meteorological extreme events are increasing in frequency and intensity, generating dramatic negative impacts on ecosystems and increasing the hazards of other risks, such as fires, sea-level rise and biodiversity loss.

Climate change, thus, has been also altering the value system through which local communities traditionally interacted with landscape, and this change can be perceived both in a negative or positive way. If at one hand climate change is one of the main causes of rapidly changing landscape scenarios, on the other hand adaptation and mitigation strategies can become themselves drivers of profound land transformations.

The need to face climate-related risk has been pushing researchers, local authorities and policy makers to find and test viable solutions to mitigate climate change negative effects and to make landscapes more resilient to these effects. The implementation of solutions will significantly modify urban and rural landscape and its perception by communities. Examples of sustainable solutions that can transform the relation between landscape and its community can be found at urban scale, such as the implementation of sustainable mobility-oriented traffic policies (e.g. restricted traffic areas, bike lanes, etc.) or nature-based solutions. At a wider scale, climate-sensitive management of agriculture practices (e.g. by shifting to crops with higher carbon storage potential or reducing forest clearing for agricultural expansion) can contribute to significant reduction of CO_2.

This section presents contributes investigating how to ensure the reduction of risk by climate change with the landscape preservation and promotion. Papers included deals with:

1) methodological improvements or new modelling approaches to support strategies, measures or actions for the mitigation and adaptation of rural and urban landscapes.
2) case studies and experiences on urban planning and design, at nationally or international level and at different scales and extents, dealing with nature-driven urban and landscape regeneration (NBSs, green and blue infrastructure, ecosystem services, soil sealing recovering).

The third section deals with Landscape at Risk of abandonment. All over Europe there are extensive cultural landscapes at risk of depopulation. These landscapes typically belong to peripheral areas that were cut off by the main development dynamics. They have gradually become marginalised due to depletion of the local economy and demographic decline. Frequently these areas conserve uncontaminated natural environments with a rich cultural and historical heritage composed of a network of small historical centres, abundant high quality agricultural products and knowledge and skills utilised in traditional ways of working. This heritage is at risk since population decrease is leading to abandonment of these areas with the consequent decay of the tangible cultural heritage. These settlements play an important role in safeguarding the territory, custodians of memory and beauty, and their depopulation has led to a freezing and deterioration of places, an emptying of relationships, a desertification of the environment and culture.

These areas are often lacking in accessibility, have scarce economic visibility, low levels of enterprise, and have difficulties in becoming part of effective economic hubs. The global economy favours the concentration of assets in big cities producing isolation of peripheral areas. The broken link between generations, between

young and old people, prevents the natural transmission of traditional knowledge, which is based on previous experiences and drives the loss of intangible heritage composed of traditional skills, social organization forms, awareness, understanding and ability to use natural resources. The loss of intangible heritage with the associated culture, memories, skills, knowledge and imbedded sense of identity linked to these landscapes may further compromise the competitiveness of these regions. New ways of thinking, living and housing, are necessary to give new chances to these territories, using culture and traditional local resources as a leverage for a new tailored development.

This section explores different development paths for these landscapes, where the elements that are traditionally considered as weaknesses for economic growth could become the strengths of a new concept of development, the starting point of a "different" development pattern.

There is a strong request for new researches based on the:

1) creation of networks able to systematize and revitalize landscape resources;
2) engagement of local community (e.g. new forms of inclusion, hospitality projects, innovative agriculture, etc.);
3) triggering of intercultural and intergenerational dialogue to cope with the loss of heritage;
4) exploitation of the "different" resources held by these landscapes;
5) examples of development based on the hybridization of natural and cultural driven.

The section presents papers aiming at identifying innovative patterns for the revitalisation and regeneration of these landscapes at risk.

On the contrary, the fourth section deals with landscape at risk of overexploitation. It is evident how the intensity of landscape exploitation is producing unprecedented changes in places perception and configuration, in the levels of biodiversity and in social and cultural relations. In detail landscapes exploitation for touristic purposes has been producing extremely relevant effects on tangible and intangible landscape values through the construction of infrastructures, building densification, urban spaces and functions transformation, installation of seaside tourist accommodation structures, both seasonal or not.

Landscapes resources are threatened by the intense overexploitation, for touristic aim and not: the massive growth of intensive cropping modifies the mosaic of rural land use, while the pervasive "hit and run" tourism produces severe impacts on urban historic centers, such as the replacement of traditional activities with facilities for tourists or the substitution of local population with tourists themselves. However, some practical experiences have shown how is possible to achieve a "delicate balance" between the landscape values enhancement the protection of natural environment and local identity and the promotion of tourism. According to these premises, this section tries to investigate which are or how should be the tools and good practices for the "sober enjoyment" of the anthropized and/or natural landscape, through a controlled exploitation of the resource.

The papers hosted in this section deal with case studies of tourism development patterns that are consistent with material and immaterial values of landscapes and strategic responses to enhance the ability of territories to manage and recover the tourism shocks and to cope with the loss of identity.

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A PEOPLE-CENTRED APPROACH TO DISASTER RISK REDUCTION

Abstract
One of the main innovations which has emerged in international strategy for disaster risk reduction (DRR) in recent decades is the growing attention to the role of communities in the risk management cycle. This new concern creates a bridge with landscape policies which recognize the active role of communities in shaping their own surroundings. This paper explores the new role of people in DRR and how the new approach could be reinforced and implemented with the support of landscape policies.

Keywords: disaster risk reduction, landscape, communities

Disasters seen as the failure of social systems

The notion that disasters are related to hazard sources as well as to other characteristics of a society dates back to the 1970s with Barry Turner's pioneering work on man-made disaster [1]. In his work Turner analysed a large number of technological disasters, focusing on their pre-conditions and relationships within the organisational system to which they belonged. His analysis suggested that technological disasters are a consequence of technical faults, as well as the failure of social systems made up by technical, social, organisational and institutional factors [2]. Application of this view to studies of natural disasters has been facilitated by acceptance of the paradigm of sustainability, introduced in 1987 [3]. Disaster resilience has thus been recognized as part of the process to build a sustainable community, i.e. one that provides a high quality of life for current and future generations [4]. In this way, the risk of natural disasters is fundamentally linked to environmental problems as well as to socio-economic development patterns, essential for sustainable development [5].

A turning point towards a new understanding of risk was the designation of the 1990s as the United Nations International Decade for Natural Disaster Reduction (UN-IDNDR). Among the important results achieved by IDNDR was a shift from a culture of reaction to one of prevention, and the forging of vital links amongst different sectors of society. In 1994, IDNDR organised the First World Conference on Natural Disaster Reduction where the Yokohama Strategy and Plan of Action for a Safer World [7] was conceived. This document, focusing on the importance of socio-economic vulnerability in disaster risk analysis, emphasised the crucial role of human action in reducing the vulnerability of societies to natural hazards and related technological and environmental disasters. The very mind-set that many natural hazards, such as extreme meteorological events, earthquakes, tsunamis and volcanic eruptions, will never be eliminated from our lives underscores the importance of strategies designed to reduce our vulnerability [6]. This has led to the development of approaches that look beyond the hazard and resulting emergency, and onto risk management [7], including such aspects as:

- assessment, prevention, mitigation and monitoring prior to a hazardous event;
- early warning systems and emergency preparedness during an event;
- recovery and reconstruction following a disaster, leading towards raising the resilience of communities to future extreme events.

When IDNDR came to an end in 1999, a successor body was created to carry on its work: the International Strategy for Disaster Reduction (ISDR). ISDR focused on the link between hazard sources and elements of the human environment, stating that "vulnerability to disasters is a function of human action and behaviour. (...) It is determined by a combination of several factors, including awareness of hazard, the condition of human settlements and infrastructure, public policy and administration, the wealth of a given society and organized abilities in all fields of disaster and risk management" [8]. Since risk mitigation and prevention should thus involve both hazard (when possible) and vulnerability reduction, it is of concern to all sectors of society [9]. It should include actions that range from choosing suitable land uses to strategies for poverty reduction; from setting up legal frameworks on risk management to developing skills in emergency planning. However, while greater concern about society is expressed in the above documents, communities still play a mainly passive role of being recipients of risk management policies.

The first shift in disaster reduction policies towards a more people-centred approach dates from 2005, when ISDR promoted another World Conference on Disaster Reduction at which the Hyogo Framework for Action (HFA) was adopted. HFA outlined a strategic and systematic approach to reduce hazard vulnerability and risk based on three main features: *a)* an interconnected process for DRR; *b)* a comprehensive approach and *c)* a community-based strategy [10].

The Framework proposed a newly integrated and multi-risk pattern of risk management seen as an interconnected sequence of risk reduction activities—beginning with assessment, followed by prevention and mitigation, preparedness and emergency response and concluding with rehabilitation and reconstruction following a disaster [11]. Along the process, feedback loops were suggested that focused on reinforcement and the new role of monitoring with the twofold role of tracking the evolution of hazards in order to design early warning systems and following the progress of risk reduction efforts aimed at prevention and mitigation measures. This integrated approach involves the engagement of all branches of knowledge that affect land use policies; the call for breaking down barriers is urgent since the approach promoted is multi-risk and multi-sectoral. Indeed, total accomplishment of risk prevention, with complete removal of existing hazards, is unrealistic. A more practical path should thus involve risk mitigation in attempts to reduce key aspects of vulnerability and exposure. Thus strategies towards risk prevention and mitigation suggested were largely based on policies dealing with the following: regional organisation and land use management, reinforcement of the socio-economic fabric, the struggle against inequality and poverty, and setting up an adequate legal framework connected with funding resources to implement risk reduction. This meant managing risk with a comprehensive approach involving all sectors of society, from scientific research to education, from business to healthcare, and from national to local governments and communities.

This theme has been revisited and reinforced by the new Sendai Framework for Action [12], which clearly underlines the need for a broader and more people-centred preventive approach to disaster risk. "Disaster risk reduction practices need to be multi-hazard and multisectoral, inclusive and accessible in order to be efficient and effective. [...] Governments should engage with relevant stakeholders, including women, children and youth, persons with disabilities, poor people, migrants, indigenous peoples, volunteers, the community of practitioners and older persons in the design and implementation of policies, plans and standards".

The landscape approach and the DRR strategy

The concept of landscape has been developing in the course of time, acquiring several

meanings: first, identified with historical gardens and panoramic places of exceptional beauty; next, tied with environmental issues; and finally acquiring a new holistic meaning comprising all relationships characterising a landscape in the definition developed by the European Landscape Convention (ELC) in 2000. Under the European Landscape Convention relationships between people and nature are seen as the basis to understand and conceive landscapes [13]. The active role of people in shaping landscapes is stressed by the convention: communities through their actions and interactions with natural systems define landscapes and implicitly give form to them, expressing their own way of perceiving and living their surroundings. Furthermore, by connecting the meaning of landscape to people's perception thereof, the Convention promotes a new cultural approach that recognizes the importance of every form of perception and highlights the role of immaterial and symbolic values.
In defining the scope, it is specified that the convention that the term "landscape" applies to all parts of a country's territory and "concerns landscapes that might be considered outstanding as well as everyday or degraded landscapes" (Art. 2), thereby freeing the concept of landscape from that of beauty and quality.
The value of this conceptual extension operated by ELC lies in its many implications, such as recognition of the need for widely occurring quality as the fundamental prerequisite for the protection and enhancement of all landscapes, not only outstanding examples but also ordinary or degraded landscapes [14]. The latter are the landscapes on which we need to focus because, "outstanding" landscapes, being subjected to forms of legal constraint and protection, are nevertheless safeguarded and subject to attention and maintenance, while "ordinary" landscapes are often neglected and easily become subject to unsustainable practices, partly due to the scant attention paid to such landscapes and the low consideration of their relative values,.
If attention to quality enhancement and maintenance is not lent to the whole area, forms of misuse and overexploitation with the consequent impairment of environmental balance could have a free hand. After all, such factors, together with lack of upkeep and environmental degradation, are among the main triggers of natural hazards.
Disasters, foretold to a greater or lesser extent, often reflect the image of devastation and irreversible changes perpetrated upon the everyday landscape. Such events are largely the evident outcome of the lack of a proper notion of landscape and expression of low awareness of the values it holds. The landscape approach frames each object within a system of complex relationships with the surroundings. In this perspective, landscape is characterised by its semantic breadth through which new interpretations and new points of view regarding traditional problems may be proposed. Such breadth of meanings represents both the limit and strength of this concept. The limit manifests itself in the difficulty of a synthesis between different meanings and interpretations proposed by different disciplines. Its strength is given by the role that the study of the landscape can assume today in pooling knowledge, in joining up the paths implemented by the various disciplines involved in landscape studies. Hence the study of the landscape represents one of the most engaging challenges in the construction of contemporary thought. While, according to Giedion [15], our culture resembles an orchestra where the instruments are already ready and tuned, but in which each musician is separated by an insulating wall from his or her colleagues, the theme of the landscape arises as a possible opportunity to permeate the barriers that over time have come to be defined between the different branches of specialist knowledge. This need to bring together different sectoral approaches represents one of the main points of convergence between the landscape approach and risk theory, and the multi-relational approach envisaged by landscape theory could represent a reference pattern for risk analysis.
The main aspects of the landscape approach that directly meet the strategy of disaster risk reduction set up through international cooperation and that could contribute to reinforce and expand its implementation may be listed as follows: a community-centred approach, attention to material and immaterial values as key elements in the relationship between people and their place of residence, a strong focus on ordinary and degraded landscapes, and the breaking down of barriers between disciplines.

A people-centred approach to DRR
The new people-centred approach that lends more effectiveness to DRR strategies hinges on the following four tenets:

- Communities have a key role to play in disaster risk mitigation;
- Social cohesion and solidarity are the building blocks of community resilience;
- Inclusion makes communities less vulnerable;
- A sense of community must be conserved after disasters.

Communities have a key role to play in disaster risk mitigation
Communities could acquire a key new role in disaster risk mitigation. DRR strategies have to be tailored to a community's main characteristics in order to consider people's specific needs. The ability of people to cope with risk depends on many factors, comprising state of health, poverty, age and gender. Such factors affect people's ability to set up home in safe places, to take care of their surroundings, to have risk awareness, to reach safe havens and follow the recommendations of emergency plans and so on. This should be taken into account in action plans.
All over the world communities are changing. Demographically speaking, the world appears to be divided in two: the population in wealthier countries is prone to ageing while developing countries show a preponderance of children and young people (see the statistical data on population by age group in www.geohive.com). Furthermore, recent years have seen an increase in migration from poorer to more affluent countries. New arrivals do not always mix well with long-established inhabitants in the host country: it is not always easy to cohabit and share structures and services, and sometimes the lack of integration generates what could be described as parallel communities living in the same area but in separate spaces, using different facilities and practising different habits and customs.
The landscape approach underlines the fact that different communities with diverse cultures have different ways of using space and relating to environmental resources. In order to enhance social and environmental vulnerability assessment, it is important to understand the ways in which each community is affected by risk and could contribute to resilience since each social grouping is vulnerable in a different way and needs to be supported with different measures. At the same time each community could contribute differently to disaster risk reduction, for example by maintaining elements at risk, monitoring hazards, increasing risk awareness, developing local knowledge and so forth.
Risk information and communication needs to be tailored to different social groups with different languages and understanding.
Disaster recovery should be suitable for accommodating people with different needs, satisfying those of vulnerable people. A more focused approach on the vulnerable is required , inclusive of the poor, the disabled, elderly, sick, minorities, children, migrants and indigenous populations. The above categories are more likely to be severely affected by disasters since they may have least awareness of hazards and little ability to respond to them [16], [17].

Social cohesion and solidarity are the building blocks of community resilience
Communities also play an active role in enhancing hazard resilience, defined as "the capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure"[9]. Enhancing resilience needs community cohesion, solidarity, public awareness of risks and diversified economic resources [18]. Social degradation breaks that relationship between people and their surroundings, which is the very basis of landscape care and increases vulnerability of communities to disaster since the poor are often unaware of hazards.
A healthy and living landscape ensures a resilient community. Lack of awareness and poverty lead people to locate in precarious and vulnerable settlements. Informal human settlements constructed outside legal development processes are frequently inadequate to face natural hazards and in some cases are built without any awareness of local hazard conditions. Furthermore, if the economy is based on the exploitation of one or few resources, the loss of such resources due to a natural disaster could deal a fatal blow to community life from which it could be impossible to recover. HFA has already identified this problem and stressed the importance of diversified income options for populations.
In general, poverty reduction, food security, landscape care and disaster risk reduction have to be considered mutually supporting objectives.

Inclusion makes communities less vulnerable

Cultural and social features underpin resilience and each segment of the population with its unique perspective can lend its contribution to understanding risk perception and the unique needs of a population living in a vulnerable setting, how to raise their awareness and predict their needs in emergencies. It is essential to tailor awareness and risk reduction education to the culture of the communities involved. Otherwise any actions proposed could meet with opposition.

Local knowledge is part of the immaterial value of a landscape and in dealing with disasters, it should be considered a welcome supplement to scientific knowledge [12]. Traditional practices to deal with risk have contributed to shape landscapes and could help to find solutions for risk mitigation, which are more respectful of nature. For example, there is an expanding body of knowledge on locally rooted strategies for climate change adaptation [19] as well as integration of indigenous knowledge and scientifically based early warning systems.

A sense of community must be conserved after disasters

According to international DRR strategy, rehabilitation and reconstruction following a disaster are windows of opportunity for rebuilding livelihoods and for planning and reconstructing physical and socio-economic structures, in a way that will build community resilience and reduce vulnerability to future disaster risks [9]. The Sendai Framework stresses that in order to capture the opportunity to "Build Back Better", a reconstruction phase needs to be prepared ahead of a disaster.

The issues involved in post-disaster reconstruction are of crucial importance for the future of communities: it is a hard task to decide what could be relocated, what should remain "where it was and how it was", what could be changed to improve overall performance of settlements in the event of a hazard, and what could be abandoned without harming the identity values of a community. These are questions whose answers cannot be given without triggering decisional processes that involve the entire community [20]. A bottom-up approach is required, based on reinforcing local responsibilities, community involvement in decision-making processes, and partnership with community-based associations [21].

In the post-disaster phase it is difficult to start such processes, to share choices and strategies with communities, which is why land-use and physical planning inspired by a comprehensive approach to risk reduction should precede strategies and guidelines for contingency reconstruction plans. Reconstruction planning should be an essential part of comprehensive DRR, and basic decisions should be taken before disasters happen. Just as emergency planning is usually organised well before disasters happen [22], the main strategies and actions to be included in contingent reconstruction plans should be set up during "peace time". It would thus be possible to make well-informed, participated decisions in full awareness, without the urgency or the lack of openness that characterises post-disasters [23]. In this framework all the measures considered necessary to mitigate risk that could not be implemented in the current circumstances (due to economic or technical reasons) could become priority actions of a possible future reconstruction plan. If decision-making on post-disaster strategy is taken in advance, it would not be necessary to act under the pressure of emergency and it would be possible to ensure a suitable level of people's participation in decisions regarding, for example, displacement that would weigh heavily on their future. People displaced after a disaster lose the context of their traditional surroundings, their sense of environmental identity and their livelihoods. Resettlements often increase poverty and worsen the quality of life for those concerned. Careful appraisal of displacement should be made in advance, considering all the factors involved in the local economy and the quality of life for the population in question.

The landscape approach shows that the relationship between people and their surroundings is based on a system of material and immaterial values which are important in defining a sense of belonging and place identity. Cultural identity should be protected after a disaster: this means not only paying attention to conserving cultural heritage, with its elements representing identity and pride, but also taking care of immaterial values and societal needs that must be proactively considered in post-disaster recovery [24]. Heritage conservation plays a significant role in social cohesion and sustainable development, especially in a time of crisis. However, at the same time it is important to consider that people's lives are also made of everyday relationships, of habits, and small-scale economies; all the above features are swamped by the occurrence of a disaster (Fig. 1). Such immaterial elements must be safeguarded during reconstruction because they are part of the very essence of landscapes.

Conclusion

In this paper risk management was seen to consist of an interconnected loop of risk reduction activities. Within this process the active role of communities was progressively highlighted in every phase. Indeed, disasters can sometimes be construed as the result of an ill-adapted society, a society that has broken that bond with nature and its living context which created an ecological balance and is a fundamental principle for the concept of landscape. Such ecological equilibria were often forged by people historically cohabiting with well-known natural hazards, leveraging on forms of traditional knowledge to implement prevention and mitigation measures.

Social cohesion is a strategic factor to increase resilience. Community awareness of hazards increases safety during emergencies while community involvement could ensure more effective monitoring of hazards and landscape maintenance whose degradation could be a driver of natural hazards. In the aftermath of a disaster, among the rubble, the very essence of the community also falls apart, neighbourliness and affective ties are broken, habits and customs are interrupted, and small-scale economies grind to a halt. In practice, the link between community and environment which is crucial in the ELC's conception of the landscape is severed. Reconstruction therefore represents a crucial phase for the future of communities and landscapes (Fig. 2).

The current comprehensive approach calls for links between all the different sectors involved in DRR. A further step could be made, breaking down barriers between disciplines, sectoral concerns and institutional mechanisms. After all, risk is not sectoral and cannot be neatly compartmentalised.

Risk management and landscape care are mutually interdependent: healthier landscapes

Fig. 1. After a disaster, it is important to consider that people's lives are also made of everyday relationships, of habits, and small-scale economies (photo credits: Marialuce Stanganelli).

Fig. 2. Disasters abruptly interrupt daily life, the possibility to reactivate habits is crucial for the future of communities (photo credits: Marialuce Stanganelli).

are more resilient to risk while mismanagement of landscapes is one of the sources of natural hazards; healthier landscapes will also reduce poverty and improve food security, thereby enhancing community resilience. Pressure on land and water resources, poorly planned and managed urban development, unequal income distribution, inadequate ecosystem services and landscape degradation are underlying drivers of risk in current megacities. Measures involving land-use planning, application of building codes, agricultural and ecosystem management, water management and drainage are essential for reducing disaster risks, since disasters are the ultimate outcome of unsustainable economic and social development of poorly adapted societies. This is why a step forward is required to go beyond an integrated approach towards a firmly rooted awareness of risk reduction needs in all sectors of civil society, in order to consider DRR no longer an 'add-on' but an integral part of all key development sectors. It is time to move on from an integrated approach where risk is considered as a separate element to take into account in different sectors to a holistic approach where risk is an inseparable part of a hybrid environment. Communities, developers and decision makers must be sensitized to include DRR as an essential part of their actions. Disaster risk reduction should no longer be considered external to land use and landscape policy but as a basic part of each action, as one of the sides of a multifaceted reality.

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Fabio Andreassi

Cinzia Barbara Bellone

EVOLUTION OF A SEISMIC MEDIEVAL CITY. THE CASE OF L'AQUILA

Abstract
The history of the city of L'Aquila is charactised by frequent urban planning and building cycles caused by earthquakes. This research aims at exploring in depth the existing relations between the cyclic physical and social reconstructions and the urban planning tools that were mainly used. The "percolate" of the answers that society has given to the theme of the post-earthquake reconstruction, can be seen in the stubborn permanence in the chosen place and in the persistence of the urban approaches that have led the way for the physical reconstruction work.

Keywords: L'Aquila, earthquake, construction, medieval plan.

Introduction
Historically there have been destructive earthquakes in the central area of the Apennines [1]. In fact, the seismic activity in such a vast mountain area is one of the strongest in Europe and this makes it hazardous (Fig 1). Every violent earthquake renovates in society the awareness of living in a risky environment and causes an impressive restoring activity that involves on average 70 municipalities [2]. The 1915 earthquake, for instance, launched a series of building activities in many towns of Central Italy that ranged from repairing buildings to the replacement of entire city centres (Fig.1): on the rubbles of medieval Avezzano a new modernist town was re-built with a spatial and functional organization aimed at preventing seismic risk [3]. The possibility of losing one's life and material goods is handled by society through the awareness that the initiatives following a natural disaster are aimed at reducing the risk and at making it acceptable in everyday life [4]-[5]. From the natural event of the earthquake arises a social response that leaves a sediment and it implements itself overtime as it derives from the re-occurring of the same kind of event on average within a few years. In fact, from 1254, year of the foundation of the city of L'Aquila, to the present day 137 earthquakes measuring 5 or more on the magnitude scale (Fig.1), have contributed to the "disaster culture" and promoted the constant updating of buildings. [6]. In other words, the kind and the degree of social disintegration of everyday life, caused by the same destructive agent, produces a "disaster culture" which feeds itself cyclically and contextualise itself, in its expressive forms, in the urban landscape [7]. The mountain area in Abruzzo where the city lies, has repeatedly

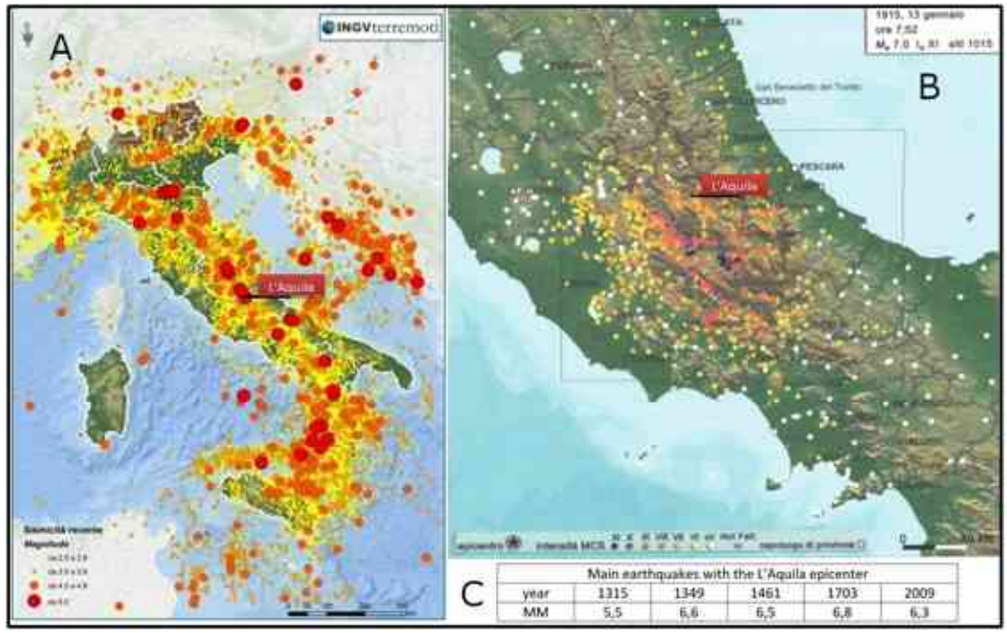

Fig. 1 A: Earthquakes from 1985 to 2014 (source INGV); B: Municipalities involved in the 1915 earthquake (source Guidoboni and Valensise, 2011); C: Main earthquakes with the L'Aquila epicenter (source: Fabio Andreassi).

undergone demolition and re-building processes [8]. In fact, living in a historically hazardous territory stratifies a risk awareness that produces physical facts and cultural approaches traceable in the urban history and in the territorial organization [9]. In other words, earthquakes produce building and urban planning cycles whose effects can be observed in the forms of the buildings, of the open spaces and in the shaping of the urban landscape [10].

Strategies, methods and prevention tools
The post-earthquake re-building is characterised by the inhabitants' response to the damages suffered by the city and by the persistent awareness of living in a hazardous city. In fact, the context conditions produce inflexions or improvements in the quality of the response to the earthquake, with effects on the urban landscape that can reduce or increase risks [11]. Having to respond to the damage caused by earthquakes and not by other natural disaster such as floods, draughts or landslides, promotes an increasing "specialization" in the local expertise, as the inhabitants are cyclically required to assess and evaluate the effectiveness of solutions adopted in the previous disaster. In this way there is an implementation of the competences of society concerning risk reduction: local players translate the awareness of living in a risky environment by adopting preventive approaches regarding the management of the city to be repaired or to be newly built. (Fig. 2) Risk is therefore faced bearing in mind the organizational aspects of re-building, the knowledge acquired through experience and the themes of transcendence (Fig. 2).
The organization of the re-building - or in the case of L'Aquila, its Angevin foundation - is entrusted to the central government, through a designated delegate, who defines the initial settlement strategies as far as financial, fiscal and permit-granting aspects are concerned; whereas the definition of the spatial and functional urban design, as well as the priorities and actions is entrusted mainly to the local players [12] amongst whom the clergy, the prominent citizens, and nobles emerge for their importance and authority [13]. The disaster can also be governed centrally in case it is necessary to relocate an urban area that has been destroyed [14].
Another aspect driving the urban development of a seismic city in the Middle Ages is the implementation of the knowledge gained through experience. The ability of the public city to withstand a disaster is tested through various aspects: the dimensional test on built-in

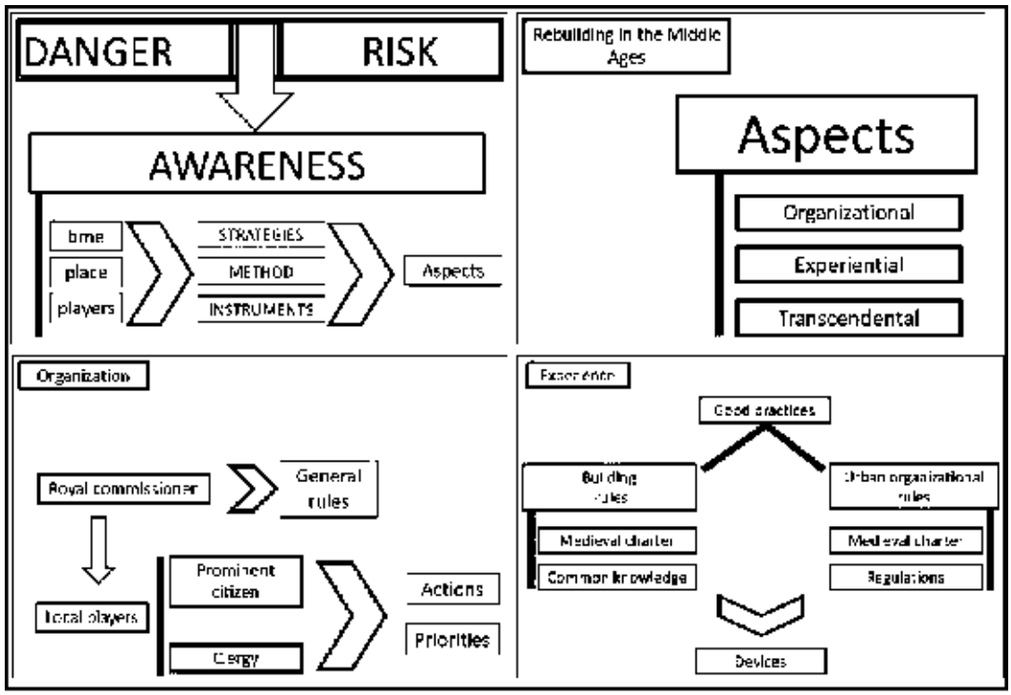

Fig. 2. Steps for the re-building of a city at risk (source: Fabio Andreassi).

and open spaces, the satisfactory provision of gathering open areas, the provision and correct localization of strategic buildings and public open areas dedicated to the sorting of goods; the smooth movement of people and means of transport within the destroyed city and, finally the possibility of food provisioning during the emergency. One can confirm localization choices based on response to the earthquake, from which arises the re-construction *in situ*, or one can delocalize single buildings or the entire city. The settlement choices are therefore dictated by verifying the damages produced by the earthquake in the buildings, as well as the emergency response of the urban organization. The construction and structural themes are dealt with an experiential approach, from which a refinement in techniques, materials and construction details derives. In this way a set of good practices takes form which were regulated in the medieval city charters and dealt with the production aspects of building, architectural and urban planning materials [15].

Sin and God punishment, secondary themes in this article, have a relevant importance in medieval society: one needs to wait for the tens of thousands of victims of the 1775 Lisbon earthquake to start replacing Alexander Pope's "all is good" with Rousseau's enlightenment approach [16].

In general, in the local knowledge the experiences of those who survived the frequent eartquakes that have historically hit the city, together with the analysis of the damages to the urban configuration and organization, introduce innovative themes concerning the definition of preventive and adapting strategies necessary to repair a city centre or the building of a new town. The physical redundancy of spaces and functions dedicated to the emergency and the phase following the disaster, shape the urban landscape: terrains that have responded insufficiently to the tremors because of the presence of cavities for instance, are excluded from re-building; the water system is amplified to allow the satisfaction of vital needs in case of partial interruption of water supply; open public spaces are where the surviving population can gather distributing it capillary in the city centre, to increase the probability of use in case of emergency if some become unavailable; the number and size of strategic buildings is increased so that one can manage emergency procedures from them. Therefore, redundancy allows to tolerate the lost or the failure of parts of the city: the replication of spaces and functions of public settlement solutions increases the resilience of the urban organization to the possible failures caused by earthquakes. In this way the urban landscape starts to take shape in a decisive way [17], [18].

L'Aquila. The evolution of a city at risk

In the second half of the 13th century general historical conditions and the context promote the epiphany of the city of L'Aquila under construction by the victorious Angevine king, Charles I [19]. The building initiative, informally started in the first years of the 13th century with the contribution of the papal power, was abruptly interrupted in 1259 by the Swabian destruction ordered by Manfredi [20]. The subsequent Angevine foundation follows a renewed synechism, involving the inhabitants coming from the pre-existent villages in line with the best and contemporary Northern experiences [21] even if the city, being at the border of the Kingdom of Naples, does not represent the reality of the South, which in turn was more linked to internal conflicts in the city centres between wealthy citizens and urban farmers [19]. In this brief local summary of *rinnovatio urbis* [22], contextualised in the medieval European urban boom [23], the inhabitants involved in new construction of the city can adopt organizational, morphological, functional urban solutions which tackles the subject of seismicity in a preventive way, renewing local knowledge thanks to the introduction of the Angevine expertise who introduced the French concept of the *bastide* [20]. Furthermore, the medieval urban planning culture requires a complex response to the subject of seismic risk through a series of anti-seismic structural devices and good practices envisaged also in the city charters. The 13th century Angevine initiative anticipates a preventive urban "plan" in order to build a city that will need to respond to thousands of future earthquakes and to undergo a continuous process of building repairing or replacing. The seismic organization of the medieval city provides urban anti-seismic structural devices to respond to the needs of preventing and managing the emergency and that anticipate, as a matter of fact, a seismic safety "plan" of the city (Fig. 3).

The founding elements of the "Plan" are:

- the regular road network, which overcomes the orographical obstacles in order to achieve the urban safety goals;
- the dimensional hierarchy of the straights which takes into account the presence of the served polarities and direct connection with the city gates;
- between the edge of the built-in area and the wider perimeter of the medieval city walls;
- vast agricultural near urban areas, located close to the city to be easily accessible in case of a seismic emergency, well irrigated thanks to the river Aterno and equipped with water mills to provide flour. In this way one can respond to the emergency supply needs;
- urbanized open public spaces to assembly the population, provided with public buildings for the emergency and re-building management.

This special attention towards urban planning issues persists through time.

- control on the height of the buildings as far as the private part of the city with rules indicating the type of one-family houses (terraced houses with a vegetable back garden and maximum height of two floors);
- the widespread presence in the urban fabric of neighbourhood support point consisting of an open public space to be used as assembly point in case of an earthquake (square), equipped with a fountain and with a multifunctional public building from which one can organize emergency procedures and post-earthquake re-building (church). It is an expensive solution for public finances as it implies an hyperdotation of the public city.

Other good practices aim at increasing the seismic resistance of the buildings (Fig. 4):

- the construction of expansion joints between private buildings with separating spaces (vernacular ruetta) between the Gothic lots: an expensive solution as it imposes the construction of double walls in stones and no occupation of private ground left free;
- wall continuity between blocks to absorbs horizontal seismic waves through linking arches over public streets.

Finally, the shacks building system, the staked truss, rootings and wooden chains are all examples of good prevention practices introduced in building techniques to limit the damages that earthquakes produce on stone walls [26].

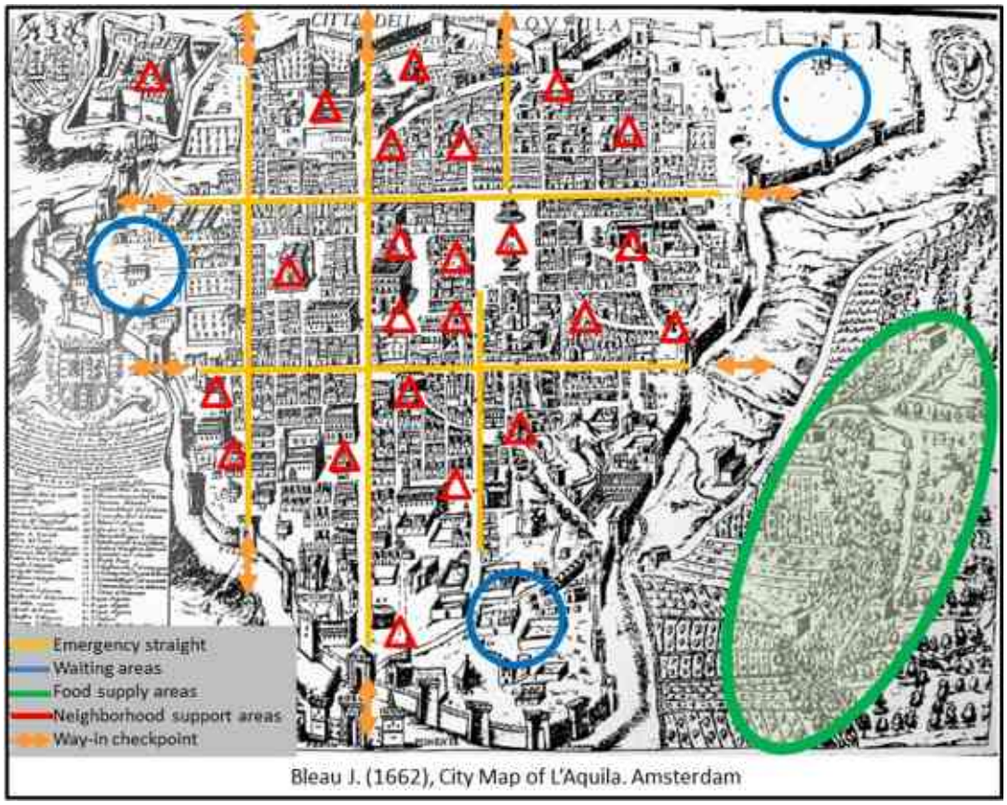

Fig. 3. Elements for a medieval plan of seismic prevention (source Fabio Andreassi).

The Baroque re-building after the 1703 earthquake was addressed with the tax deduction of income from work, which encouraged a process of self-determination of choices on the part of the local élite (clergy, prominent citizens and nobles), from which it derived a renewed spatial organization incorporating the Medieval foundational fragments and the Renaissance reconstructive ones [19]. Funding of the re-building works is borne by the owners: central government and the local council take care of public buildings; that of religious edifices is self-funded by the Church selling or mortgaging wealth and goods, as well as with the help of noble families in exchange for the patronage on private chapels and the possibility of being buried in churches near the altar; re-building of private homes is borne by the owners.

In more recent times, one could mention the vast free waiting area located close to the gate "Porta Napoli" which remained undeveloped until 1915 when it was chosen to develop a new anti-seismic district after the earthquake in Avezzano [24], as well as the widespread presence of squares equipped with public water within the historic fabric of the city [25].

The 2009 earthquake was not followed by urban planning approaches aimed at improving the urban layouts which were in place before the earthquake. Priority was given to the cohesion of the social fabric through the direct involvement of the home-owners in the management of public funding for the re-building of private properties. Furthermore, the fragmented property rights of the residents or of the historical centre blocks, the difficulty to modify the perimeter or the height of the buildings, the concern for the legal consequences that modifications to the pre-earthquake status could have, shifted the attention towards "quieter" themes such as construction sites and technology [11]. On the other hand, the public city pursued productive objectives building about 7,000 temporary homes without consulting the inhabitants [27] and without raising the awareness of living healthily and safely through the reconstruction of the quality bond between inhabitants and places [28].

Cynically, one waits for the benefits deriving from the cathartic removal of the trauma which helps the population living in a hazardous city, but alternating it with heroic memories of the re-building also thanks to a media campaign aimed at glorifying the commander's problem-solving skills [30].

Conclusions

The cyclical nature of earthquakes, the subsequent damage repairing actions, also preventive of future ones, produce a social and settlement vulnerability-resilience which is varied and specific to each emergency. This feature allows to swing between the pre-earthquake assumptions and the post-earthquake verifications and defuses the fatalist approach in favour of a stratified and informed understanding which in turn produces contextualised and variable actions. Therefore, a disaster is not a singularity but a complex process which includes periods of incubation and acceleration in the settlement transformations perceived in the urban landscape.

The price of progress in disaster risk is the continuous vigilance [31]. In fact, the evolution of the spatial and functional organization of the city derived also from the hazard awareness on the part of the inhabitants: the initial medieval foundation adapted the Angevin expertise to the local seismic conditions through the redundancy of the neighbourhood support areas. The subsequent Renaissance and Baroque re-building took place with the experimental verification of previously adopted solutions and with process innovations (building regulations, fiscal policies and self-determination). Finally, the rebuilding after the 2009 earthquake introduced new themes (such as the cohesion of the social fabric), though limiting the innovation of the urban layouts.

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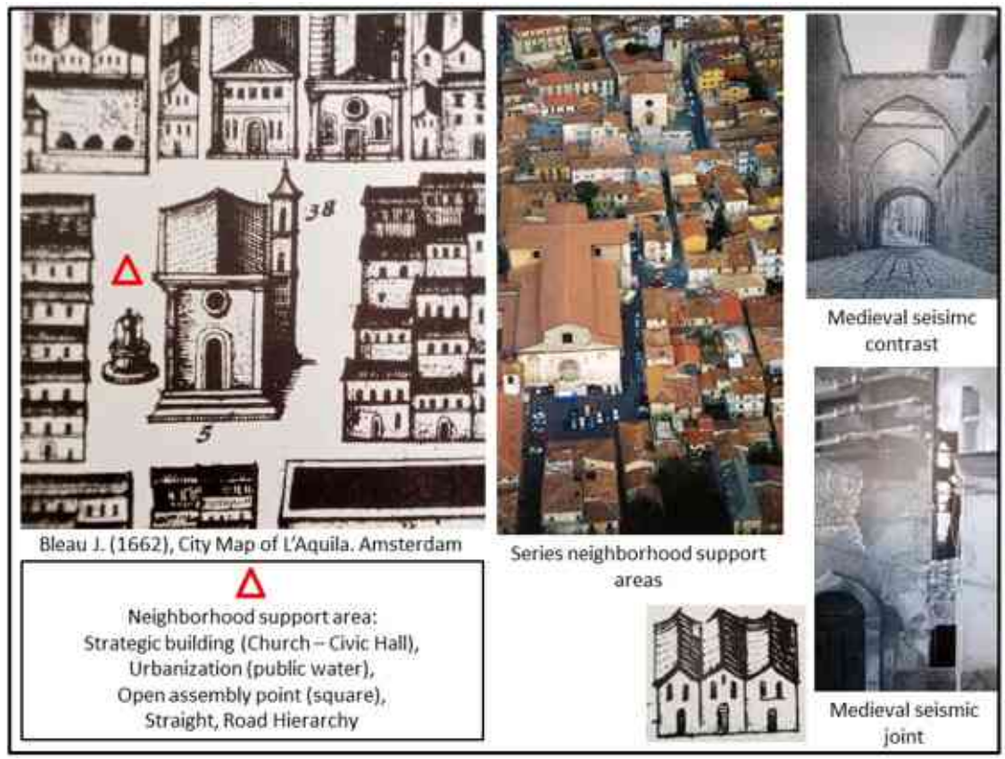

Fig. 4. Medieval urban device in a city a risk (source Fabio Andreassi).

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PLACES AT RISK CALLED HOME

Rethinking the reconstruction in Ischia

Abstract
Disaster hazard depends on both human population and potentially destructive agents. Thus, the vulnerability is strictly related to peculiarities of local areas such as the natural system, the social structure and the built environment. Urban planning and policies contribute to adapt territorial conditions to face natural disaster events, reduce social and physical disruptions. Indeed, the development of reconstruction policies is part of a broader goal that should aim to 'rebuild the community' while considering risk reduction actions and reconstruction plans according to the *build back better* approach. In this framework, the research focuses on the opportunity to rethink the importance of a resilient reconstruction process in contrast with the slavish reiteration of actions detached from the peculiarities of places, society and economic fabrics that mainly led the Italian post-earthquake initiatives. In order to do so, the paper addresses the ongoing recovery process on the island of Ischia hit by an earthquake in August 2017.

Keywords: reconstruction, community, post-disaster recovery, urban planning, scenarios

Introduction
In places where people have a strong bond with the territory, cultural roots and sense of belonging have a role in the risk perception that may weaken the hazard awareness [1]. Thus, people are willing to face natural risks by looking for new building solutions, adaptive measures and emergency prevention, avoiding moving to safer areas. Urban settlements that are affected by the presence of permanent conditions of risk have to deal with reconstruction matters when significant disaster events occur. In this perspective, the development of efficient reconstruction policies is part of a broader goal that should aim to 'rebuild the community'. For public institutions and urban planners this implies to develop post-disaster programs considering risk reduction actions and resilient reconstruction plans according to the *build back better* approach [2].
Post-earthquakes experiences of reconstruction in Italy have benefited from the collaboration of the different levels of post-emergency governance (state, regional, local) that implemented actions tailored to immediate and long-term people's needs. Nevertheless, by considering the lack of a homogenous regulatory and procedural national framework for post-earthquake reconstruction processes, Italian cases have seen the slavish reiteration of a generic model, made up of resolutions and actions that have often been detached from peculiarities of places, landscape features and economic interests affected by the seismic event [3].
The research paper investigates, in the first paragraph, the role of the society in planning landscapes at risk in the frame of resilient post-disaster reconstruction. In the second part, it highlights the chance to define a range of reconstruction scenarios by taking into account the value that the local community gives to areas representative of their identity although places at risk. In the third section, the research study addresses the ongoing reconstruction process of part of the municipalities of Lacco Ameno, Casamicciola Terme and Forio, on the island of Ischia, in the Campania Region – hit by an earthquake on 21st August 2017 (Fig. 1). Specifically, the paper reports on the spatial plans' developing process of the municipalities of Casamicciola Terme and Lacco Ameno. The plans have been carried out by local institutions to face urban issues brought out by the earthquake, through a framework agreement signed by the two municipalities and the Department of Architecture of the University of Naples Federico II[1]. The research study provided urban analysis and addressed reconstruction issues through a 'scenario building' methodology. Although the development procedures of the urban plans have not confronted the participatory phase yet, the research paper points out – through a focus on the theoretical background and the methodology applied – that the development of long- and short-term scenarios can become innovative tools to involve people and institutions in designing a resilient landscape through the reconstruction.

Fig. 1. Island of Ischia. The municipalities of Casamicciola Terme and Lacco Ameno and the localization of the red areas.

A paradigm shift: the social construction of risk
Risk is a widely present issue in public debates. Its interest has grown in scientific research together with communities due to a growing awareness of people's role in preventing and facing disasters affecting human and natural environments. However, early researches on risk were predominantly hazard-orientated and disaster risk was perceived as a sudden event, a direct consequence of natural hazards as the

expression *natural disaster* shows [4]. At the end of 1970s, pioneering studies by Reference [5] introduced the social dimension of risk as a research field whose concept reflected in the definition of risk that was developed during the meeting of the United Nations Disaster Relief Organization (UNDRO), in 1979. Therein, risk is defined through three components: natural hazards, elements at risk, and vulnerability. Thus, it was recognized that disasters result from the combination of multiple variables including the vulnerability of exposed elements and their physical, economic and environmental qualities. This definition was largely adopted in scientific studies and refined by the United Nations International Office for Disaster Risk Reduction in order to promote common understanding and definitions of risks [6]. Studies in the 2000s further investigated the factors of risk highlighting that they are influenced, and must be improved, by policies and plans of governments and disaster risk is an unresolved issue of development. Among these, United Nations Development Programme (UNDP) filled up a comparatively assess disaster risk between countries [7] and assessed that places are not equally exposed to natural hazards because of the role of vulnerability parameters such as poverty, underdevelopment, urban growth and deforestation. Moreover, natural disaster risk reduction has been recognized as a cross-cutting issue, an obstacle to the pursuit of various sustainability objectives: from eradicating poverty to climate change adaptation and building sustainable cities [8]. Nowadays, although worldwide countries have improved emergency tools and policies that lead to decreased deaths and injuries due to natural disasters, the losses affecting the built environment and the socio-economic sphere have been increasing [9] causing damage in the economic growth and making communities vulnerable.

The theory of vulnerability has evolved in many fields including structural engineering, geography, sociology [10] and ecology [11]. It is part of the paradigm shift towards the social construction of disasters and it is strongly connected to the shape and behaviour of settlements and communities affected by natural disasters. Resilience instead describes the capability of communities to react and recover by disaster events. It represents the flip side of vulnerability [12] but the two remain separate concepts, as some communities may be very vulnerable to the impact of a hazard while showing high levels of resilience in the response phase. In summary, both components depend on the triad territory, community and risk. Thus, resilient criteria can be achieved only by involving communities and citizens groups in the planning and development process, and by doing so, contributing to the goals of empowerment and democratization. As it acts on the conformation of territories, urban planning is central to impact vulnerabilities and resilience factors. The case of the island of Ischia shows how the lack of urban planning has led to increased vulnerability of both human settlement and community undermining people's ability to participate in the reconstruction process. This is exacerbated by an unplanned landscape that led to conflicts between the spatial governance and the community's rights of inhabiting the island. Due to the unauthorised urbanization processes, started in the 1900s' [13], part of the local community is still suspended in the dimension of the informal housing. As a consequence, according to current state regulations, the right of access to the reconstruction subsidies is not equal for all the citizens, and this affects economic activities as well. Therefore, the research aims to develop an innovative 'scenario' method to face post-disaster reconstruction in complex environments, overcoming current obstacles to the effective involvement of the community by treating spatial rights and housing issues together, from the phase of the analysis to the design of scenario hypothesis as a base for a collective discussion on urban regeneration.

Living landscapes at risk: the importance of urban planning in pre- and post-disaster events

Living in areas at risk has become an ordinary and unavoidable condition given the demographic pressure of seismic active areas, flood plains or areas prone to landslides. In most of the cases, forcing precautionary people displacement as a planning management choice is not considered a feasible option because of people's reluctance (due to a low perception of risk), and regional conditions such as overpopulation and density of the built environment in the metropolitan area. In this perspective, the relevance that the communities recognize to the 'placelessness' – the loss of the sense of places – is the convergent point between the landscape and the society. It becomes essential in leading the development-planning path in areas at risk and, above all, post-disaster initiatives of reconstruction [14]. By focusing on reconstruction issues, the 'sense of belonging' to places – the intimate feeling of being part of a system made of both tangible elements like squares, buildings, green lands, and of intangible matters like traditional celebrations, local music and food, etc. – also plays an essential role in considering urban landscapes as one of the most relevant dimension to be preserved in order to safeguard the community. Moreover, the act of *inhabiting* is not limited to the concept of home as dwells; rather it is defined by the set of places where the main activities of daily life take place. Indeed, public places are the result of dynamic processes conducted by city users who contribute to give meaning and function to urban spaces [15]. The role of public spaces in creating the bond between citizens and *home landscapes* is peculiar in thinking about the reconstruction beyond the emergency. Indeed, citizens are more likely to experience a severe trauma when they undergo a forced displacement and when the new settlements are planned as a series of houses/shelters with no attention for social gathering places and public activities. In post-disaster crises, the social fabric is one of the most damaged dimensions that needs to be *reconstructed* also through an attentive design of the spatial context. Nowadays, besides the progress of social theories, researchers and decision makers can learn many pragmatic lessons from past disasters. Among the Italian cases, the earthquake of L'Aquila, in 2009, underlined the relevance of public spaces and social cohesion in the post-emergency phases. Here, associations and groups of citizens claimed the need to affirm their role and relevance in the spaces of the city through political actions like public protests and illegal occupations in reaction to top-down decisions to build new neighbourhoods (also known as *new towns*) lacking of collective facilities and public spaces (i.e. the C.A.S.E. project). On the contrary, in the regions of Friuli Venezia Giulia (1976), Marche and Umbria (1997), the public decision stood for the complete reconstruction of the urban settlements that was achieved through a complex bargaining process allowing for the restoring of the public space systems, and the reinterpretation of the morphological and topological legacy of pre-existing urban structures. These experiences shed light on a relevant matter: the built environment exists in human and collective memory beyond the value of construction materials [16]. It has a role in producing the social capital since the physical and ideological structure of spaces influences and reflects social connections and communications [17].

By considering the deep interplay between society, landscape and risk, urban planning becomes a fruitful operational field to outline measures of coexistence and resilient relationships in terms of risk mitigation and post-disaster recovery, also in non-emergency times. A risk-aware urban planning approach aims at improving the preparedness of citizens and decision makers in facing the inevitable transformations in landscape and society once the disaster happens. It means both to enhance the resilience of urban systems and to unburden the emergency phase in developing hurried solutions that are often unsuitable in the long run. The post-disaster reconstruction, indeed, is short-sighted if restricted to a legislative matter that establishes only economic and operational aspects since it will deeply affect future inhabitants' lives. Rather, the reconstruction planning finds roots in the main strategic frameworks of the ordinary planning instruments that, in risk-exposed areas, can anticipate and orient possible post-emergency scenarios by learning from the past events and by highlighting the sources – and thus the resources – of the bond between citizens and landscape. In this subtle relationship between urban plans and emergency plans – too often led by technical specialists in the field of economy and public administration – lays the successful improvement of the *build back better* approach that aims at achieving enhanced physical, social, economic and environmental conditions using the reconstruction process as an opportunity. Hence, the choice to give strategic relevance to places of the local identity becomes part of 'preliminary non-structural reconstruction measures' to be consistently developed with the non-structural and

structural mitigation measures [18].
In this non-structural dimension, the urban and social resilience can be improved by overcoming the mere technical arrangements – oriented to the reduction of the physical vulnerability (i.e. improving riverbanks, reinforcing buildings, etc) - and envisioning shared opportunities.
In this framework, the research study for the development of the urban plans of Casamicciola Terme and Lacco Ameno aimed at addressing both preexisting urban issues and post-earthquake damage by defining strategic development guidelines (on the inter-municipal and municipal scale) and reconstruction scenarios (on the neighborhoods scale referred to the red zones).

The reconstruction process in Ischia: lack and opportunities between post-disaster laws and local planning

The research study addresses the case of Ischia to underline the role of urban planning in tracing the development paths of risk-exposed settlements and landscapes. In particular, it is the chance to understand how the urban plan can manage the conflicts affecting complex urban settlements and communities after natural shocks such as an earthquake.
Seismic events are known in the history of Ischia to the extent that the main urban development plans were led by rebuilding initiatives after disasters [19]. Nevertheless, people persist to live in risk areas also bypassing building regulation and thus increasing local vulnerability. This 'cultural tradition' of underestimating the risk – seismic, volcanic and hydrogeological – led to a high urbanization in the whole island, including hill slopes and water canal banks. The complexity of this urban structure is emphasized by a very weak urban regulation system. Indeed, the lack of local development strategies, together with the gap formed by the region on applying a series of national laws aiming at regulating unauthorized buildings [13], long paralyzed the design of contemporary urban plans. The recent earthquake of 21st August 2017 affected the hilly areas along the municipalities of Casamicciola Terme[2], Lacco Ameno and Forio by destroying populous neighbourhoods, fortunately with limited damage to people (Fig. 2). It accelerated the economic crisis of an area already suffering from a shift of the tourist preferences and, on the other hand, it stressed the inadequacy of the physical form of the public space that has been modified and overloaded by private constructions in the past decades.

Research approach and methodology

The research approach focuses on the topics of post-disaster reconstruction and seismic risk - reduction and prevention at the municipal and inter-municipal planning level by considering the geographies of risk over the administrative boundaries. The research study combined geographical and statistical data in a GIS environment with surveys' validation in order to create an 'atlas of territorial knowledge': maps that are representative of the geo-morphological, historical and legislative characteristics of the territory. On the one hand, the atlas is a large compound of analysis able to support an ordinary planning process; on the other hand, it includes specific studies such as Seismic Microzonation (MZS) levels 3 and historical seismic events to provide a deep knowledge of risk issues in exposed areas.
The article summarizes the results of the research which aimed at developing a fundamental framework to define the urban plans thereafter[3]. The research methodology is based on two cross-cutting actions: (1) the construction of a complete framework of territorial knowledge (atlas) and strategic development guidelines that are the starting point of the urban plans and (2) the definition of reconstruction strategies through a 'scenario building' process. The former refers to the construction of analytical maps - from socio-economic assets to infrastructure, state of law, urban tissues and natural and ecological framework - with a particular attention on informal settlements, hydraulic, landslide and seismic hazard. In coherence with territorial and local needs the output of these studies are a set of strategic guidelines – to be further developed in the next phase of the urban plan construction process – that frame some important topics such as the different urban morphologies and density (built environment) the sustainable development (natural environment), the territorial resilience (risk exposed areas) (Fig. 3). The purpose is to achieve the valorization of urbanized areas and the preservation of natural landscapes by applying adaptation measures and ecological solutions, and by designing specific actions for the most vulnerable and hit areas (red areas).
To accomplish a democratic reconstruction process, the research outcome – concerning *reconstruction guidelines* – avoided a univocal solution as a blueprint and proposed four alternative scenarios (*see next paragraph*). Hence, the latter refers to the most damaged part of the territory trying to contrast the current uncertain legislative reconstruction framework that overlooks the territorial need in favour of a single building reconstruction approach (L. 130/2018 and L. 156/2019).

Fig. 2. Post-earthquake damage and social cohesion (photo credit: Fabio Di Iorio).

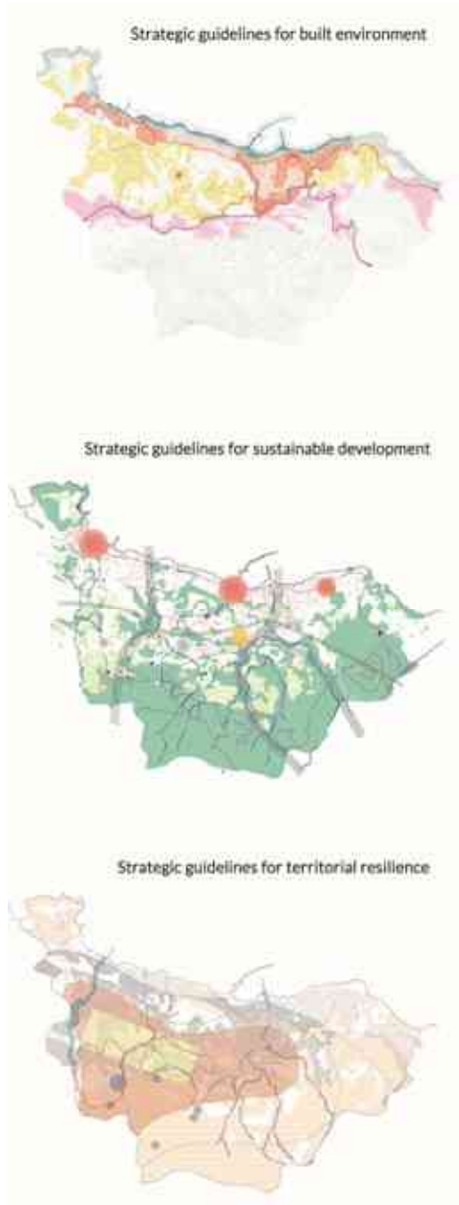

Fig. 3. Strategic guidelines (studies for the urban plans of C.T. and L.A. by DiARC-UNINA).

Alternative scenarios for an inclusive reconstruction planning

The unplanned urban development of the municipalities of Casamicciola Terme and Lacco

Ameno has compromised the ability to respond to disaster and to *build back better*.
In the case of Ischia, this specificity can be traced back to the extension of the illegal settlements phenomenon: people who live in unauthorized buildings, in fact, do not have the right to draw on the funds for the reconstruction – provided by the national government. Therefore, it is difficult to start the reconstruction, freezing a state of things made up of risk and conflicts, even political ones.
The drafting plan tries to overcome this state of stagnation, by subordinating the transformation to a city project discussed collectively on the basis of desirable scenarios and introducing the hypothesis of voluntary relocation of buildings from the seismic crater area. All redaction phases of the preliminary plan, up to the communication techniques of the contents and the design of preliminary scenarios were, in fact, oriented towards the construction of the imminent participatory phase[4].
The scenarios aim at providing *visions* and drawing fundamental concepts that will be further specified in the final planning phase, they have a different transformative gradient and will be submitted to the public debate in order to achieve a common choice, able to be a driver for effectively keeping together resources and projects for a resilient reconstruction:

- Scenario zero is essentially based on the restoration of the places, proposes an intervention of building requalification and seismic adaptation that does not affect the settlement structure.
- Scenario one states the continuing existence of settlements through urban restructuring, providing infrastructural adaptation and new public spaces in the area with no variation of the number of inhabitants or morphological alteration of residential systems.
- Scenario two proposes a partial settlement decompression: by using a chronological criterion, the plan proposes the displacement of the damaged buildings, that are not part of the historical fabric (dated 1965), outside the area with maximum seismic exposure. The aim is to decrease the settlement pressure in an area characterized by high seismic risk and use new open areas as an opportunity to rethink public spaces and to create new places for the community and agricultural production.
- Scenario three proposes to relocate the whole settlement at risk outside the area of maximum seismic exposure for converting it into a green park with amenities. The area is reforested in ecological continuity with slopes of Mount Epomeo, while the new territorial park hosts services and activities according to environmental conditions and expected uses that will be discussed deeper with stakeholders and community. Thermal baths, green areas, squares with commercial and recreational activities coexist on the trails of the old village while some symbolic buildings (e.g. the Church of Purgatory in Maio) could be rebuilt with anti-seismic structures, aiming at the twofold objective of preserving the historical memory and allowing the inhabitants of the island to maintain an effective, collective and innovative use of the places.

Planning phases in the framework of the reconstruction governance

Besides the methodological approach and the research outcomes developed, it is necessary to underline that the planning process, and thus the research, have been affected by the system of laws and regulations that were provided by the national government to face the earthquake of Ischia.
The governance system has produced – so far – a set of top-down rules and regulation focused on the refurbishment of buildings, meaning a fruitless reconstruction concentrated on reactivating previous urban contexts.
The ongoing reconstruction process can be summarized into four phases. In the emergency phase, the committee appointed by the regional emergency department decided with the local mayors, to not displace citizens living in the *red area* in temporary shelters, but to financially support them for moving to hotels or other private accommodations. This choice, on the one hand, preserved the already compromised territory from further urbanization process, on the other hand, scattered the community moving people far from their *home places*, and distant from each other, thus dismantling the social fabric. As a consequence of this very precarious condition, the municipalities with the regional organization of the civil protection, throughout the eighteen months of the emergency phase, restored the main road network and some buildings. In a second phase, the reconstruction guidelines stuck at the government level (Fig. 4) since the national law 130/2018 (including reconstruction measures for the Ischia earthquake) did not lead to regional and local actions either regulations, but just to a centralisation of powers to the special commissioner. In fact, the main institutional acts were the commissarial detailed ordinances (ordinance n. 5 and 7 respectively to cope with low and high damaged building reconstruction procedures) that established a punctual reconstruction – refurbish interventions on specific buildings – completely given to citizens[5].
In the third phase, in this barren situation, between the emergency phase and the await of the operability of the reconstruction law, the municipalities of Casamicciola Terme and Lacco Ameno recognised the need to develop urban plans to define reconstruction scenarios. In the last phase the implementation of the law 156/2019 asserted that the reconstruction of the hit municipalities must be framed in Reconstruction Plans[6] (PdR) in charge of a special committee appointed by the Campania Region. This committee composed by different professionals (mayors, municipal technicians, researchers, etc.) will define the criteria to outline the area where the plan has to be applied without any reference to the areas outside that perimeter – densely populated and exposed at risk as well. In conclusion, the latest proposed reconstruction model makes use of only one assessment indicator: the number of households given back to citizens through financial support. Thus, this mere bureaucratic approach – not inclusive of the community's needs – affords the chance to just *build back* part of the city, losing the opportunity to plan *better* by tackling the town planning problems and taking the chance to reduce risk and restore the balance between the natural landscape, the urban settlements and the citizens.

Conclusion

Despite the several post-earthquake experiences, the national governance (Fig. 4) system still lacks a broad code of actions that can define

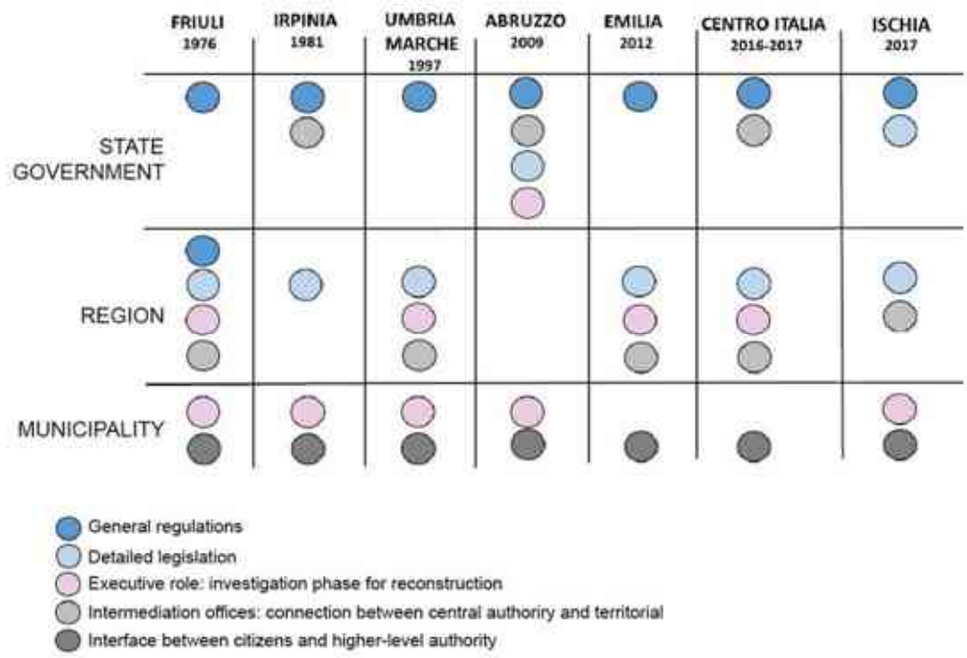

Fig. 4. Post-earthquake governance structures in Italy. Implemented by the authors, based on [22].

institutional roles at the different planning levels by setting time phases' goals and inclusive local processes. A shift from sectoral to whole-of-government [20] approach is needed. This calls for horizontal governance based on a common understanding of problems, resource exchanges, common language and values, official agreements [21] able to root out the conflicts of different interests and values that insist on landscapes. Moreover, the lack of a collaborative ground to interlace citizens' needs with territorial elements and risk components led to a still vague institutional framework for important disaster issues such as the reconstruction phase. Indeed, past events failed at organizing collaborative and inter-scale governance, as a result, the decision-making dimension has been transferred to third parties such as technical committees and government commissioners. Ultimately, the current governance structure misses building a resilient approach by blending the emergency phase with the recovery, avoiding the planning challenge to maintain and enhance the local economy and social connectedness of citizens through *building back better*.

The reconstruction of hit urban areas in Ischia, because of small-scale damage (Fig. 5), allows researchers, urban planners and decision makers to focus on some relevant matters such as the need to design alternative scenarios establishing a desirable development pathway that facilitates a participatory process. It means providing visioning and strategy making to post-disaster phases contributing to restore a balanced coexistence in uneven urbanization of areas at risk. Moreover, the Ischia case study sheds lights on the role of urban plans in designing risk areas not only by applying structural mitigation measures but challenging transformations through foreshadowing efforts. Indeed, if on the one hand urban planning can decrease the vulnerability of places by fostering *green* visions with a lower building impact, on the other hand, urban plans should point out the network of *structural invariants* of the landscape: the common grounds recognized by citizens as key elements (views, monuments, public areas, buildings, etc.) representative of the local identity. These elements are the first step towards resilient transformative strategies, fundamental in reconstruction phases. Finally, by considering disaster as a disruptive action that may force the territory to change, urban plans also contribute to building a *risk culture*, enhancing the risk awareness of citizens and including them in more sustainable urban transition processes.

Although the reconstruction scenarios have not yet been tested in a participatory process, the applied methodology defines a framework to rethink the reconstruction within an urban development process and through the public engagement.

The research study, by tackling the case of Casamicciola Terme and Lacco Ameno, underlines that urban plan represents the opportunity for local institutions and communities to participate in the top-down reconstruction process aiming at avoiding emergency solutions and defining well-designed strategies, finally turning post-disaster planning into an opportunity.

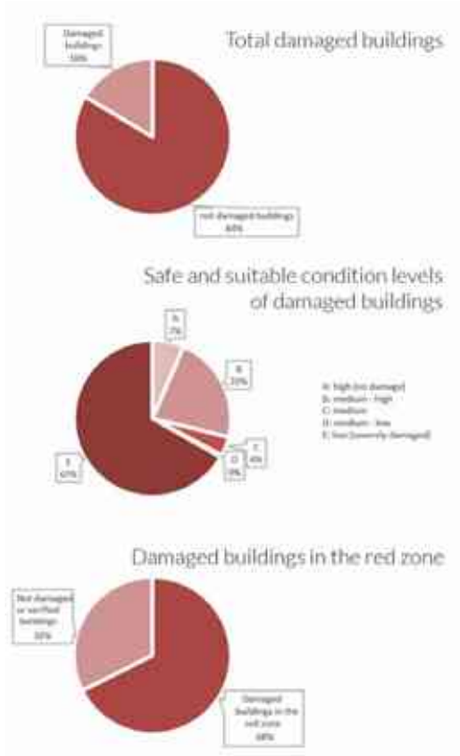

Fig. 5. Damage to buildings in C.T. (graphic by authors based on official data by the Emergency Committee, 2019).

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NOTES

1. The framework agreement was signed in April 2018 by the Department of Architecture (DiARC) of the University of Naples Federico II (UNINA) and the municipalities of Casamicciola Terme and Lacco Ameno. The research unit was led by prof. Michelangelo Russo (principal investigator) and prof. Enrico Formato (scientific coordinator).
2. Regarding the impact of the earthquake on the municipality of Casamicciola Terme see fig.5
3. The first part of the research was concluded in March 2020 with the approval of the preliminary urban plan by the municipality of Casamicciola Terme. On the contrary, the municipality of Lacco Ameno acknowledged the 'atlas' but it was not included in the preliminary urban plan.
4. The development of the urban plan of Casamicciola Terme – the only municipality that included the alternative scenarios as part of the preliminary urban plan – has not yet proceeded with the participatory phase. Thus, the research focused on the development of the atlas, the strategic guidelines and the

alternative scenarios as outcomes of the framework agreement.

5. The law states that in the event of a pending building amnesty a property cannot obtain the contribution for reconstruction. Nonetheless, even after obtaining the building amnesty, the refurbishment work can only be funded on the parts of the building that has not been under amnesty procedure.
6. The Reconstruction plan has the value of “Piano Urbanistico Attuativo – PUA” or implementation plan which is empowered to innovate ordinary town plan. The participatory process, according to the R.L. 16/2004 is about to present observation once the plan is adopted and published by the municipality.

Giulia Motta Zanin

THE ROLE OF EXPERIENTIAL KNOWLEDGE IN RISK MANAGEMENT OF COASTAL LANDSCAPES

A case study in the Mediterranean Basin

Abstract
Coastal areas are among the landscapes facing the greatest challenges. Traditional coastal management approaches to face with risks, based on hard approaches, have proved unsuccessful and inefficacious. They need to be combined with soft approaches, based on nature-based solutions, and on management strategies that include experiential knowledge. Focusing on an Italian coastal landscape, risk perception was investigated using the method Scenario Workshop to understand the level of awareness that different actors have on coastal erosion and associated risks. The study highlighted the necessity to create a diverse, interdisciplinary and scientific knowledge base, combined with an interface improvement between knowledge creation and decision-making, in which local actors can interact and participate into the management processes. In this sense, the production of shared knowledge on phenomena, processes and related risks would help to define appropriate forms of landscape management.

Keywords: coastal risks, participation processes, scenario workshop, integrated coastal zone management

Introduction
The European Landscape Convention (ELC), adopted in 2000, identifies landscape as the territory as a whole, which represents an asset regardless of its intrinsic value [1], [2]. Aiming at promoting the protection, management and planning of the European landscapes [3], [4], it recognizes landscape as a good of the community, which deserves to be protected and enhanced in every case and place, even if degraded or lacking in particular qualities [3]. ELC acknowledges the political nature of landscape and supports principles of landscape governance that actively involve the entire population [1], [5]. In this sense, the Convention gives an active role to people in the perception of their living environment and commits the competent public authorities to involve them deeply and continuously in the interpretation of landscape values and in the definition of objectives for the quality, preservation and management of landscapes [6]. Furthermore, participation must include not only the general public, but also local and regional authorities and other stakeholders in the implementation of landscape policies [5].
Coastal areas are among the landscapes facing the greatest challenges, such as tackling the issue of coastal risks exacerbated by climate change. During the twentieth century, both population and activities have increased dramatically, producing widespread conversion of natural coastal landscapes, overexploitation of resources, and the increase of coastal systems vulnerability [7]. Moreover, such systems are under ever-increasing threat deriving also from their mismanagement [8]-[10] and they are prone to tensions and conflicts between different actors with contrasting interests in such territories [11], [12]. The complexity of such landscapes requires approaches able to address the different technical, regulatory, economic, social, cultural and management dimensions of problems that characterize them.
The traditional coastal management approach to face with risks, based on hard approaches, consisting essentially in hydraulic engineering works and used for many decades as the only way to handle them, have proved unsuccessful and inefficacious [13]-[15].
Thus, the hard approaches need to be combined with soft approaches, based on nature- based solutions, such as nourishments and dune stabilization, and on the implementation of management strategies that include the knowledge of policy makers, stakeholders and the public at large, so called experiential knowledge. As a matter of fact, the comprehension of coastal risks requires not only a deep understanding of the main physical phenomena to be addressed, but also acknowledgment about stakeholders' and local communities' knowledge, role, objectives, interdependencies, and network of interactions [16].
The combination of hard approaches with soft approaches have long been recognized as essential by official documents on coastal zone management. In particular, the Integrated Coastal Zone Management (ICZM) protocol, the first, and as of today the only international legal instrument specifically addressing coastal zones management, aims to connect and systematize protection actions, risk reduction, reestablishment of environmental balances by framing them in the long-term planning and requiring "appropriate involvement" of stakeholder [17].
In line with this, new planning strategies and management activities are required by means of a reliable, understandable, and timely knowledge of processes affecting coastal hazards, getting decision makers, stakeholders and local communities involved [16].
Within the Mediterranean Basin, Italy, with its almost 7.500 km of coastline, is the second longest in the Mediterranean, after Greece [18]. The management of Italian coastal landscapes is characterized by a marked division of competences between the state, regions, and municipalities as well as different sectors of the public administration.
The Italian Code on Cultural Heritage and Landscape (L. 42/2004), while strengthening the importance and extension of planning for the protection and regeneration of coastal areas, neglected management issues as well as the involvement of people in decision-making and implementation strategies [6].
Moreover, even though Italy has signed the Mediterranean ICZM Protocol in 2008, this has not been ratified. As a matter of fact, a clear policy on the application of ICZM has not yet emerged, so each Region is providing autonomous strategies [19].
This paper focuses on an Italian coastal landscape, the small coastal town of Margherita di Savoia (Puglia Region, Southern Italy), among the most exposed to the risk of erosion and flooding in Italy, also due its particular urban form and the close dependence on the sea of its economy. Margherita di Savoia is a narrow strip of land 18km long, enclosed between the sea and the saltworks. Its economic base is centered on agriculture, port activities, salt pans, seaside tourism and related activities. During the last decades, several mitigation measures, based merely on engineering works, have been built to manage the problem of coastal erosion, shifting the erosive process to the west without any significant benefits. As already stated, it is important to include experiential knowledge into risk assessment and landscape management strategies. In this sense, risk perception has been investigated using the method Scenario Workshop to understand the level of awareness that different actors have on coastal erosion processes and associated risks.

Methodology
The Scenario Workshop is an adapted version of the Future Workshop approach (Jungk and Müllert, 1987). It is an approach aiming at changing or transforming the actual situation of a system through three main phases, as described in Table 1. The method is based on the activation of the intuition of individuals, synergy effects in groups and critical potentials that can contribute to the creation of alternatives [20].

Critique phase	Fantasy phase	Implementation Phase
Generate and collect critique issues (brainstorming)	Imaginative warm-up (fantasy plays, storytelling, games, meditation…)	Evaluate the registered ideas
Structuring (clustering of ideas using Mind Mapping)	Turn critique into the opposite (negation of negation)	Formulate in concrete terms the best ideas
Evaluation, Focusing, Prioritization	Generate ideas (brainwriting)	Choose the very best ideas (prioritizing)
	Analysis and elaboration of great ideas	
	Register the ideas in a bank of ideas.	

Tab. 1. Structure of the Future Workshop approach

Thus, starting by a critical understanding of actual problems and following different phases of individual reflection and group interaction, participants point out shared desirable future visions and ways to move from the actual situation to a preferable one. The Future Workshop is a particularly adaptable approach, which can be used in different forms depending on the research context, the issues to be investigated and the results to be obtained [21], [22].

The Scenario Workshop has been designed starting from the Future Workshop approach, modifying its structure to reach the objectives set of the case (as described in Fig. 1). It aimed at understand the perceptions that policy makers and stakeholders have about problems related to the coastal area of Margherita di Savoia and their points of view about the possibility to overcome such problems and to imagine future scenarios for the area by 2040. Representatives of policy makers and stakeholders have been invited to participate in the Scenario Workshop. They were selected according to the criteria of the broadest representation of the interests involved. It was decided to involve different actors, from representatives of policy makers, to technicians of all levels (from local to the national one), as well as representatives of the economic fabric and local environmental association (Tab. 2).

Institution
Municipality of Margherita di Savoia - Mayor
Municipality of Margherita di Savoia - Technical Office (urban planning)
Municipality of Margherita di Savoia - Technical Office (heritage and environment)
Municipality of Margherita di Savoia - Tourism Office
Puglia Region (SVOP)
Port Authority
Basin Authority
Province of Barletta-Andria-Trani – Sector of urban planning
Puglia Region – Maritime public domain
Touristic Information Office (I.A.T.)
Association of beach concessionaires of Margherita di Savoia (A.S.B.A.)
Terre Pietre Association of local farmers
La Nuova Armonia Agriculture cooperative
Fare Natura Per Natura Association
Legambiente Association

Tab. 2. Selected actors for the analysis.

The Scenario Workshop took place on the 9th May 2019 in the Municipality of Margherita di Savoia from 10 am to 6 pm.

Not all the preselected actors participated in the workshop. Indeed, the Basin Authority, Port Authority and Legambiente Association did not show up.

As shown in Fig. 1, it has been conceived and structured in three phases: i) identification of problems and resources; ii) vision; and iii) scenario building and implementation.

In line with the method requirements specified in literature [23]-[25], which suggests that groups do not exceed ten participants in order to enable the work to proceed smoothly, participants were divided into two groups, each of which representing as much as possible the heterogeneous structure of decision-makers and stakeholders. The two groups worked in parallel and in some phases of the workshop exchanged ideas on the results achieved.

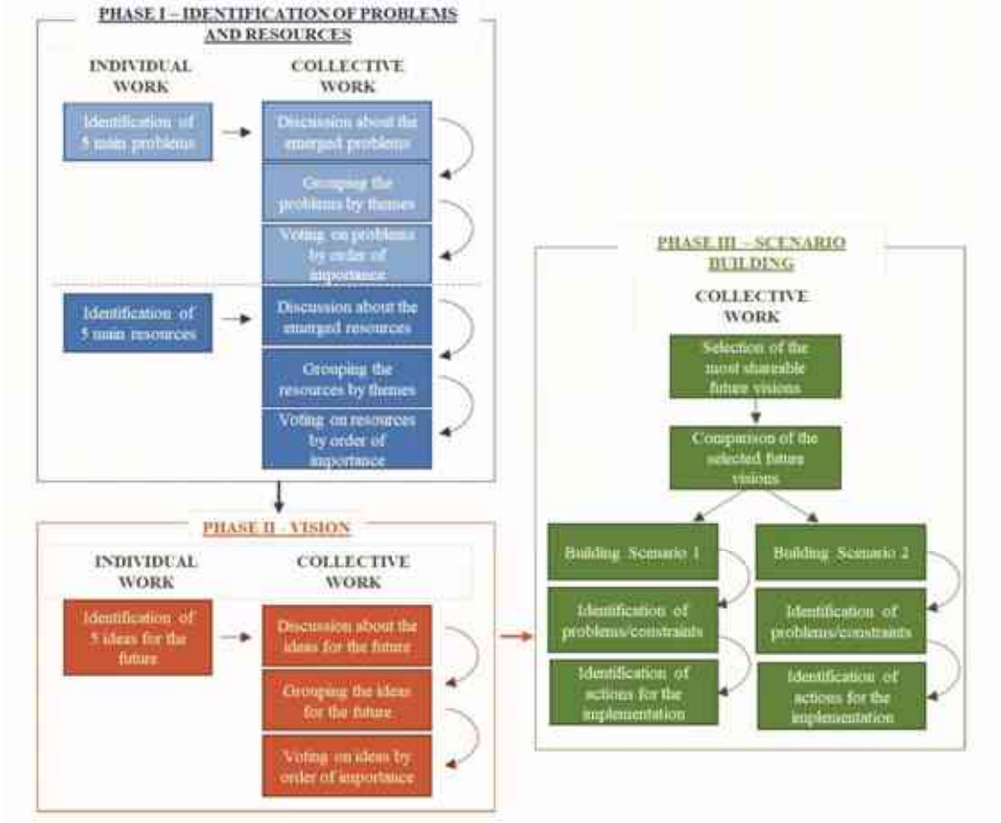

Fig. 1. Structure of the Scenario Workshop.

After this second phase, the two groups of participants were united and asked to select the most shared and desirable future visions of the previous phase, to compare them and to build two scenarios.

The first phase of the work aimed to identify the most relevant problems (criticalities) and resources (opportunities) affecting the coastal area of Margherita di Savoia. Firstly, participants were asked to individually identify the five problems that they considered to be the most significant for the coastal area of Margherita di Savoia and to post them on a panel. Secondly, the posted problems were discussed collectively to eliminate redundancies and to group them into thematic areas. Finally, stamps were given to the participants for voting the posted problems by order of importance.

After that, the same procedure was performed for the resources concerning the coastal area of Margherita di Savoia. Once the problems and resources had been defined, the second phase was moved on, with the aim of creating visions of the future of Margherita di Savoia and its coast by the year 2040. Participants were asked to individually indicate five future ideas of Margherita di Savoia and its coast by 2040. As in the first phase, the visions were then posted on a panel and discussed collectively to eliminate redundancies and to group them into thematic areas. Finally, they were voted by order of importance with the use of stamps.

After this second phase, the two groups of participants were united and asked to select the most shared and desirable future visions of the previous phase, to compare them and to build two scenarios. Finally, they identified the problems/constraints for the two scenarios and the implementation strategies necessary to overcome them.

Results and discussion

Perceived problems

As possible to see in Table 3, participants looked very aware about the problem of coastal erosion characterizing Margherita di Savoia and the ineffectiveness of the existing coastal erosion defense measures and their role in worsening the coastal area situation.
Furthermore, they perceived the presence of illegal buildings as a huge problem as well. As a matter of fact, illegal buildings along Puglia coast is a serious problem, as demonstrated by different quantitative analysis, as in [26].
However, although participants perceived it as a huge problem, Margherita di Savoia is not subject to much building illegality. Moreover, actors perceived the presence of illegal buildings as strictly connected with the absence of spontaneous vegetation, typical of the coastal areas, which has been destroyed by overbuilding.
Another perceived problem is the difficulty in reaching the beach because of the many tourist facilities and illegal buildings present in the coastal area. This overexploitation of beaches has led to a general disinterest in free beaches, causing them to become increasingly deteriorated. However, even though participants are aware about the problems of coastal erosion, they do not perceive the problem of flooding, even though is known that it is an existing problem.

Perceived problems	Level of importance*
Coastal erosion	4
Illegal buildings	4
Coastal erosion mitigation measures	3
Difficult public access to the beach	2
Absence of spontaneous vegetation	2
Lack of enhancement of free beaches	1
Absence of coastal monitoring	1
Excessive anthropic pressure on the coast exerted by tourist facilities	1

* level of importance: from 1 (low importance) to 4 (very important)

Tab. 3. Perceived problems for the coastal area of Margherita di Savoia.

Perceived resources

As possible to see in Table 4, all actors recognized the presence of sandy and equipped beaches as an important economic resource for Margherita di Savoia.

Resources	Level of importance*
Sandy, equipped beaches	4
saltworks	3
Environment and biodiversity of the Ofanto River	3
SPA	2
Valuable agricultural production	1
Fishing	1
Clean sea water	1

* level of importance: from 1 (low importance) to 4 (very important)

Tab. 4. Perceived resources for the coastal area of Margherita di Savoia.

Moreover, saltworks were recognized as an essential element of the local identity, as well as the presence of interesting environment and biodiversity of the Ofanto River for the development of a more environmental-friendly tourism. As a matter of fact, also SPA was recognized as a resource for the touristic point of view but with the necessity to be more valued. Finally, a certain level of importance was given to the valuable agriculture production of the territory and the fishing activities that could be improved also for the clean sea water.
From the analysis of the resources it emerged that policy makers and stakeholders have a good knowledge of the resources present in their territory and the potentials that these resources may have.

Scenario building

Firstly, to define the two scenarios, actors imagined the most shareable and desirable visions for the coastal area of Margherita di Savoia. Furthermore, they choose the scenarios names and they defined problems and constraints for each scenario and finally actions to deal with the desirable futures. The first scenario, called *The city of Water* and shown in Table 5, highlighted the recognition of the importance of the inhabitants' local identity, based on the strong connection that their territory has with the water.
For this reason, they believe there is the need to rethink the ways in which the water could be used as a key element for the area. The city should be open to its territory because there is the necessity to reestablish a relationship with the saltworks because, currently, just linked to the sea. In this sense, they recognized the potential that saltworks still have for the development of their area also from a touristic point of view. They imagine Margherita di Savoia based on a naturalistic tourism and not only on beach tourism.
Moreover, many obstacles and constraints that prevent the implementation of the scenario City of Water were identified, related to three aspects. The first concerns the privatization of saltworks. This has made saltworks completely inaccessible increasing the distance between this resource and the local community. The second refers to bureaucracy, because it is complex and long-lasting, and it usually prevent the possibility to propose innovative interventions for the development of the area. The third refers to obstacles and constraints for fishermen. On the one hand, the port is not suitable for them because the seabed is not deep enough for allowing the ships to enter. On the other hand, the rules imposed by the European policies are too restrictive regarding the sizes of the nets meshes that are too large for the catches of this territory. Another aspect recognized to be an obstacle is the presence of "hard" defense systems for the protection from coastal erosion.
The participants identified a second scenario called *The city of Health* (Tab. 6). In this scenario, participants imagined three same desirable visions as for the Scenario 1: Margherita di Savoia to be a city open to the territory, for a more naturalistic tourism and to have a multifunctional and documentary center of the history of the saltworks.
The City of Health has imagined as a city where SPA, sports, hobbies, and wealth are predominant. Moreover, they imagine a coastal area accessible for everyone with no obstacles for the access to the sea. Finally, a valorization of the typical agriculture resources with more interest from young people is seen as a willingness to maintain alive one part of local identity of this territory. Regarding to this scenario, participants identified many obstacles and constraints related to urban planning and to the lack of land owned by the municipality.
In both scenarios, the landscape, understood as built by the indissoluble relationships between natural elements and cultural factors in the long history, is identified as a central element.
Finally, participants identified some actions necessary to build a strategy to address the desirable futures and to counter the fearsome futures for Margherita di Savoia and its coastal area. The analysis of the proposed actions reveals a high level of awareness of the complexity and fragmentation of the multilevel and multisectoral governance that characterizes not only Margherita di Savoia, but the management of coastal areas throughout Italy. Furthermore, policy makers and stakeholders think that this problem could be solved through participatory planning strategies and through giving more competencies to municipalities. As the matter of fact, although strategies for more effective coastal management should be based on integrated strategies built between different policy levels (from national to local) to avoid a higher fragmentation, local authorities would need more competences to better manage their coastal landscapes, because of the many differences and specificities of such territories.

Visions
The city open to the territory
Margherita, city of naturalistic tourism: creation of cycle-pedestrian routes with Ofanto, Ofantina and Aloisa mudflats
Saltworks village and Torre Pietra multifunctional and documentary center of the Lake Salpi
Saltworks important resource with advanced technology and reduced unemployment
Saltworks back to saltworkers
Sea landing and stop of the sea subway
Naturalistic restoration of the western coastal dune for the coastal ecological network
Saltworks as public space of the calm waters

Tab. 5. Shareable and desirable visions for Scenario 1 "The city of Water".

Visions
The city open to the territory
Margherita, city of naturalistic tourism: creation of cycle-pedestrian routes with Ofanto, Ofantino and Aloisa mouths
Saltworks village and Torre Pietra multifunctional and documentary center of the Lake Salpi
Agrarian mode of the Adriatic ridge for the functions of "City of Health"
Margherita becomes a barrier-free tourist destination (accessible to children, elderly, disabled)
Recovery of the relationship of continuity between the city and the sea without more physical obstacles
Margherita a marine fishing area
Margherita di Savoia "City of Health" (SPA, sport, leisure, wellness)
Margherita, capital of water sports in Puglia
Margherita, city of sport
Local and non-local young people interested in agricultural works
Creation of urban parks on the urban perimeter of the saltworks with urban cycle/pedestrian routes

Tab. 6. Shareable and desirable visions for Scenario 2 "The city of Health"

Conclusions

The Scenario Workshop allowed to understand if the actors perceive the problems and related risks affecting Margherita di Savoia and its coast and to find out their level of knowledge about possible strategies for action to overcome the critical situation of such territory. As participants represented specific categories, they had an initial inclination in looking out for their own interests. Despite this initial drawback, the overall process was constructive, and the participants' attitude was proactive, and they were interested in the constructive exchange of ideas.

They recognized participatory planning as a strategy to overcome the predefined problems and to build the desirable scenario they have imagined for their coastal area. Despite the predominant coastal risk affecting this area is the erosion, participants do not identify strategies to face with it.

Therefore, to analyze and manage coastal landscapes in an effective way, firstly there is the necessity to create a diverse, interdisciplinary, and scientific knowledge base, due to the inclusion of different actors with different backgrounds. This should be paralleled by an improvement of interfaces between knowledge creation and decision-making in which stakeholders and local society can interact and participate into the management processes. In this sense, the production of shared knowledge on phenomena, processes and related risks would help to define appropriate forms of landscape management.

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Renato Marmori

REBUILDING THE SCHOOL ACCORDING TO THE LANDSCAPE WIDE OF THE LOCAL COMMUNITY

Abstract
Can a local community, rooted in its daily landscape, upon a dramatic event such as an earthquake, come up with a vision and rise once more from its own "idea" of landscape?
Set by a team of the University of Brescia, the project of the new school in Gualdo (Macerata, Italy) started with an interactive Workshop aligned with the orientation of the European Landscape Convention on the theme of recognizing the quality of places by inhabitants. This experience has demonstrated that it is possible. The children involved in the Workshop have elaborated their idea of school through indications of spaces and functions; but, above all, they expressed their desire for landscape in the form of detailed and precise indications of panoramic views that the new building had to have. The experience of this participatory Workshop, clear in the new building, has confirmed that the local community recognizes the landscape as a place of identity: the landscape idea may be the starting-point to live again in a town that has been damaged.

Keywords: Gualdo, Earthquake, Partecipatory Laboratory, Landscape, School

Introduction
Can a local community, rooted in its daily landscape, upon a dramatic event such as an earthquake, come up with a vision and rise once more from its own "idea" of landscape? This question is even stronger if the members of the community are children between the age of three and thirteen.
It is this issue that gives rise to the research hypothesis which is the baseline of the field experience illustrated here. Our aim is to investigate whether, following a traumatic event, a local community made up of children has a common and shared perception of the place where it lives and, at the same time, whether it is cohesive and pro-active in providing indications and scenarios on new school spaces, to restart daily activities safely. Since the project was directed to an age group ranging from childhood to pre-adolescence, one of the approaches chosen relied on their memories and/or perceptions of the landscape itself and of the buildings no longer existing. In other words, has the young community an emotional attachment to the local heritage, described as "sense of place" [1]?
Another approach used was to stimulate the imagination of functional spaces as never seen before according to the specific needs of the population that would occupy them. The focus was on the integration between memories and imagination reflecting upon the characteristics of the new school building, making it be familiar and unprecedented at the same time.
The entire paper focuses on the phases and results of the project itself rather than on the theoretical framework. The objective was to bring real-life proof of the post-seismic reconstruction which also helped the inhabitants to psychologically process the loss and mourning of places and spaces lived on a daily basis. In this case, the key to understanding does not consider the risk of "*alteration, decay, depletion or loss of material and immaterial assets that mark out landscape*" (to mention the topics of the Conference); it shows instead that, in the case presented, the "*risk of alteration or interruption of the relationship between community and places*" did not occur.

A field research experience: first assumptions
The project we would like to present is part of an institutional activity of the University of Brescia[1], and it started after an environmental event that had a strong influence on the landscape of central Italy: the earthquakes that struck Marche region on August and October of 2016.
Many school buildings in those areas were destroyed or seriously damaged. After these events, the newspaper "Giornale di Brescia" launched a public fundraiser to help the community of Gualdo (a little village in the area of Macerata) in the reconstruction of the school, so severely damaged like the historical downtown declared red zone and completely impassable (Fig. 1).

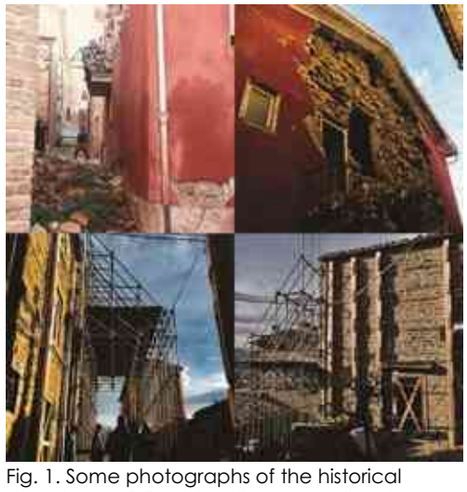

Fig. 1. Some photographs of the historical downtown of Gualdo, all red zone (photo credits: I. Passamani, 25/11/2017).

The Department D.I.C.A.T.A.M. of the University of Brescia[2] offered its skills to analyze the destroyed building and the opportunity to arrange the new layout of the area where the school is and to plan a new building. The entire study and the proposal were offered as a donation to the community of Gualdo.
This activity needed to be coordinated with an Association founded by a local newspaper ("Giornale di Brescia"); it was called "Don't leave them alone".
A similar title was given to our procedure: "School in Gualdo#Don't leave them alone".
The following considerations were made clear and evident at the first official survey and after the meetings with the community of Gualdo:

- the local community was very fond of Gualdo and did not want to abandon it for any reason;
- the local community considered the school as a relevant building;
- the local community was afraid and did not accept the idea to go back to the old building, despite the widespread affection to the institution itself;
- the local community wanted the new building in the same site and having the same size. The old building, actually, had a very particular position in the urban context, as we explain here later [2].

All these considerations led us to the decision to involve the beneficiaries of the new school in a Laboratory project activity (a simplified version of "Participated Planning Laboratories" mostly used in urban space design[3], preventive and functional to the project itself. After the dramatic event of the earthquake, we thought the students could envision a design taking off from their idea of landscape. The interactive Workshop was aligned with the orientation of the European Landscape Convention on the theme of recognizing the quality of places by inhabitants. This involvement is very important and meaningful, because it increases awareness and education for a landscape culture [3].
In the book "Mindscapes" [4] it is highlighted that in the Convention the psychological aspects of the landscapes are not dealt with. However, in the case of Gualdo, it was evident that there were situations of damage or risk, shown in the words and drawing of the children. In some maps drawn by memory, for example, the young students marked with red pencils the barriers used to divide the red inaccessible area, severely damaged by the earthquake (Fig. 2).

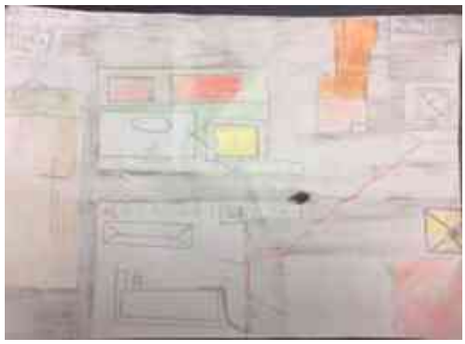

Fig. 2. Map of the area of the school and its surroundings, by memory: the red line clearly divides the inaccessible red zone downtown (Francesco, 16/12/2016).

Methodology

The field experience "School in Gualdo#Don't leave them alone" was organized in three different phases:

- Phase 1_Workshop "The school from which we'll see the world" by DICATAM[4]; Assisted workshop, aimed at girls and boys, to prepare the project activity of the new school as a multifunctional building;
- Phase 2_Project of the new building (Surveys of the area, detailed plan, architectural project) by DICATAM[5];
- Phase 3_Final executive project by professional Association of Architects and professional Association of Engineers, with partecipation of DICATAM[6].

The children involved in the Workshop "The school from which we'll see the world" elaborated their idea of their school building through indications of spaces and functions; but, mostly, they expressed their desire to see the landscape in the form of detailed and precise indications of views that the new building had to have.

The workshop "The school from which we'll see the world" (Phase 1)

Based on the age, three groups were formed (kindergarten, elementary school, middle school); the workshop had different activities, depending on the grade level: games, practical-graphical activities and discussions allowed the children to think about the school as a place from which to look at the future with recovered confidence.
We proposed some questions: which features should be saved from the old building? What would they like to recover in the new setting? We invited children attending the elementary classes to reflect about the links between the location of their school and the surrounding space. They expressed an impressive "sense of landscape" requesting panoramic views of the Sibillini mountains and of the high trees, swaying with the wind; the kindergarten children worked with modeling clay on wood tablets and they suggested familiar and comfortable spaces they would like to have in the new building. The older boys and girls of the middle school, with sense of responsibility, designed new spaces to take care of, even during extracurricular time.
The suggestions of the children found confirmation in the indications received from the entire community of Gualdo, during our meeting.
School is an important landmark and it plays a role as a significant symbol, a fulcrum of the collective life; for this reason, it is consolidated in the landscape. It is important that its image, its perceptibility remains unchanged.
In summary, two thoughts emerged:

- the school (blue) as a link (red axis) between the historical downtown and the ancient monastery, present day nursing home;
- the downtown has been defined as "the heart of the village, where life pulsates" and the nursing home as "the heart of the memory, where grandparents preserve the history of the community";
- the position of the building on the ridge of the hill allows a double panoramic view of the gentle landscape of the Marche hills on the north, and of the Sibillini mountains on the south, making the school an amazing "view-bridge" (Fig. 3).

Those thoughts demonstrate that young people identify themselves with landscape [5].
We are dealing with "mindscapes: paesaggi raccolti nella psiche e psiche immerse nei paesaggi. Percezioni visive che diventano visioni mentali" [6] which can be translated as "mindscapes: landscapes gathered in the psyche and psyches nestled in landscapes. Visual perceptions that become mental visions".

Characteristics of the project

A traumatic event, such as an earthquake, causes a sudden change in the characteristics of the building and, in general, of a consolidated landscape, imposing serious reflections on what must be done when you think you can carry out its reconstruction[7].
Each building becomes a case in itself, being the object of diagnostic investigations, mainly aimed at identifying the damage and possible consolidation interventions, but when all this testing highlights structural problems that do not justify its maintenance, the conclusion is to demolish the construction.
A similar situation has been found for the school of Gualdo with evident static issues and a constant fear of accepting its reuse (Fig. 4).
Being any technical insurance, not possible in the case in question, the community did not accept that their children's return to that building, despite the widespread affection that the institution possessed.

Fig. 4. Gualdo, the old school "Romolo Murri" after the earthquake: the main façade and a classroom (photo credits: R. Marmori, 16/12/2016).

It was therefore necessary to choose to operate the demolition/reconstrution intervention.
The first aspect to deal with was to confirm the location of the construction, as well as to establish the formal arrangements, especially volumetric, of the new building.
These assessments were significant, since the introduction of any variation would have produced an alteration of the characteristics of a consolidated landscape, sufficiently homogeneous for the type of construction and finishing materials.
For this reason, workshops with children were activated and, at the same time, discussions with the community, well represented by its Mayor, Giovanni Zavaglini.
Following the meetings, it was understood that the school should have been rebuilt in the same place, being a site always designated to host it, and that a compact volume with typical finishes of the place should have been proposed in order to recall the ones in the historic center of Gualdo.

Project of the new building (Phase 2)

Thanks to these indications and to the commitment made by the University of Brescia, in particular to DICATAM, we began to develop a general design, addressing all the possible aspects of future intervention.
As a matter of fact, the city of Brescia, which wanted a concrete gesture towards compratriots who lived difficult times, had chosen to offer the reconstruction of a symbolic building using the money quickly collected with the subscription launched by the "Giornale di Brescia".
In the spirit of solidarity, the University of Brescia also wanted to offer its contribution. It was decided to donate to the Association "Non lasciamoli da soli", which was specifically set up

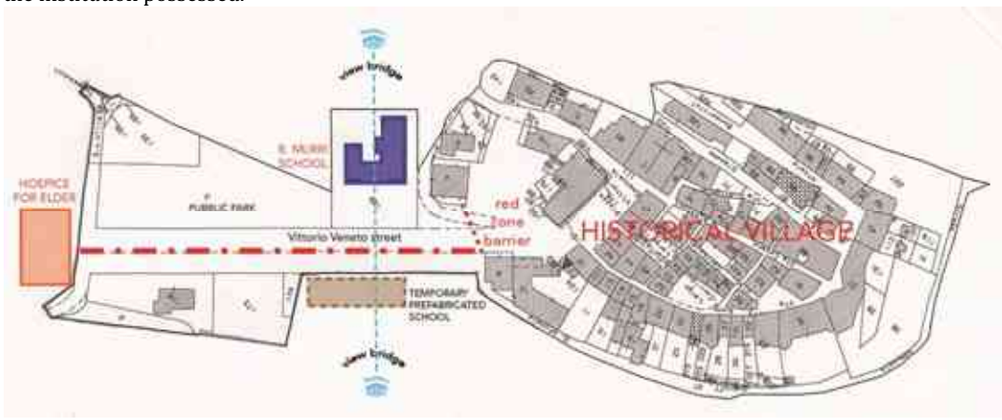

Fig. 3. Gualdo, cadastral map with some focus and remarks during the briefing with children: it is evident the role of the school both as a "view bridge" to the landscape, and as central point between the nursing home and the hearth of the historical downtown (source: I. Passamani, 16/12/2016).

for the initiave, a design hypothesis to verify the feasibility of the intervention and and make it possible.
In order to operate, a working team was created at the DICATAM, involving the Professors of the design disciplines, in which I played the role of coordinator, because of my decades of experience in the professional field.
Thanks to the awareness of the indications provided and the expectations of the children, it was created a new school building that would improve the quality and functionality of the spaces compared to the pre-existing ones, respecting every municipal, supra-municipal ruling aspect and every directive about the construction of school buildings.
The ultimate goal was to create a building ready to be used at the opening of the school year, despite the difficulties encountered. In fact, the building should have housed in addition to the kindergarten classes, primary school and middle school classes, as well as a series of spaces for the community, in order to allow a rapid recovery of public and social activities, explicitly requested by the Mayor.
The timing was immediately very tight due to the fact it was not easy to reach the definition of a shared compact scheme and it was necessary to carry out several meetings on site. Not to mention that, once our part was completed, the executive project would have started, the urban/building procedures to legitimize the construction completed, the process for awarding the contract activated and finally the building physically built. This is why it was chosen to develop the project in depth, in order to contain the subsequent times and to delegate the definition of construction details, the structural and plant engineering aspects to the executive.
All regulatory issues were previously addressed and in this way, it was possible to set up documents that did not encounter any problem when issuing authorizations.
The first aspect to resolve was the preparation of a “Piano Particolareggiato” expressly required by the town planning legislation in force in the Municipality of Gualdo.
This implementation tool, including a precise Implementation Standard, could only be used after the overall volume had been shared, accepted and verified.
For this reason, the path followed was to prepare an architectural distribution draft, question it with future users, with the explicit request to be able to introduce only minor variations, and develop on the proposed dimensional data the “Piano Particolareggiato”, safeguarded by appropriate margins of flexibility.
In the tables prepared for the Piano it is possible to recognize the fundamental choices of the entire architectural project. It is clear how the new construction follows the legacy of the pre-existence, respecting a desire of the Community, but also a hierarchization of the external spaces due to the levels of use. It is evident the presence of open spaces, well exposed and oriented towards the best panoramic view, available only for classes for younger children, as well as the presence of an open space, located inside the new building, therefore well protected with perimeter walls,

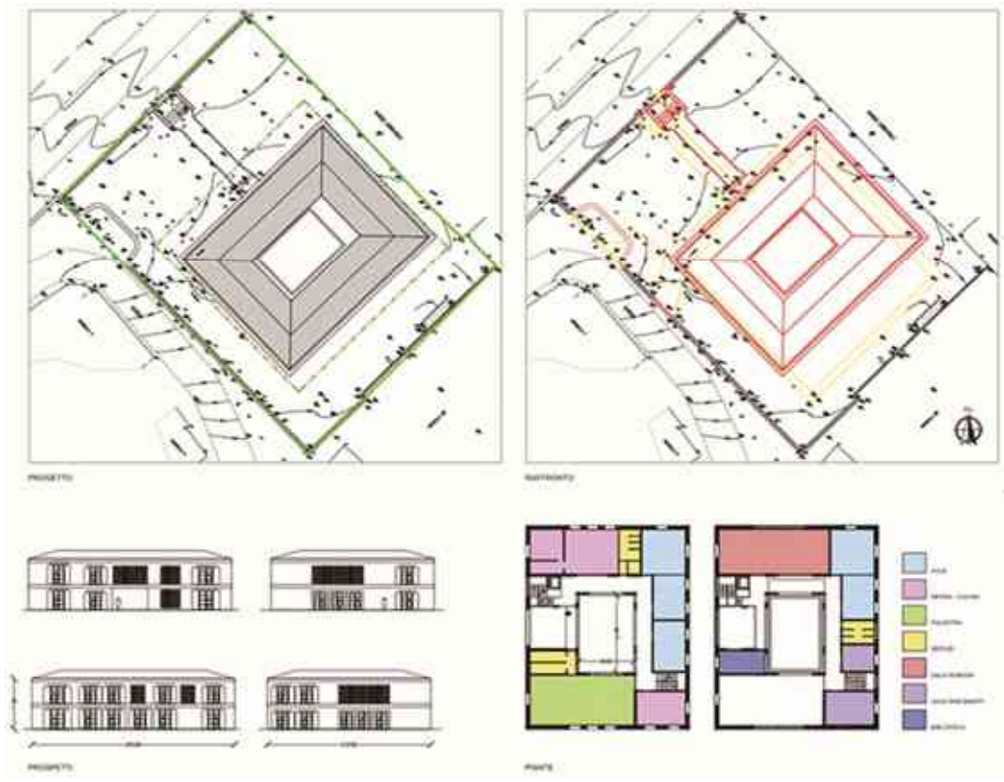

Fig. 5. Project of the new school “Romolo Murri” of Gualdo. Planivolumetrico and typological model: classrooms (light blue), refectory and kitchen (pink), gym (green), toilets (yellow), meeting room (red), teacher’s rooms (violet), library (blue) (source: R. Marmori, 24/03/2017).

available to all students.
For the entire Community, however, are the garden space of access to the building, around which the parking areas for public and private transport are appropriately identified.
The bureaucratic times for the approval of the urban variant were used to define the architectural project on time: thus, all the distribution choices were made, in order to definitively establish where to locate each activity, at what level to insert it and which were the spaces of relevance for each class group (Fig. 5).
Therefore, each room was checked and calibrated in its optimal sizing, in reason of the number of students, of furnishings and equipment to install, in order to offer the best functionality. Moreover, some large rooms have been inserted in the building, with independent entrances, to be used in moments of closure of the school activity, by the Community of Gualdo.
This has led to the definition of plans in plan, elevations and complete sections, which constitute the basis for the executive project, indispensable for activating the tender procedures.
The scheme coherent with what was then carried out included, on the ground level, the kindergarten and primary school, and on the first level the secondary school.
In addition to the classrooms, the canteen and the gym were also located on the ground floor; on the first level the remaining functions such as the library, the teachers’ room, the multimedia room, the laboratory and the multipurpose room (Fig. 6). At the compositional-architectural level, an attempt was made to give an internal breath to the "closed", monolithic volume of the building thus obtained, with the creation of the so-called "cloister".
It is a space – a place – inside the school volume, but outside, not covered, not air conditioned (Fig. 7, Fig. 8). A choice with an important functional and symbolic value, as a "central reference", perceptible from all environments, as well as the portico, a point of contact, the border between

Fig. 6. Project of the new school “Romolo Murri” of Gualdo. Plan of the ground floor with the open space-cloister and a covered space-Agorà for socialization, 3 classrooms for primary school, a classroom for kindergarten school, a gym, a kitchen, a canteen, toilets. Plan of the first floor with 2 classrooms for middle schools, 2 laboratories, a multipurpose room, a teachers room, a library (source: L. Notarantonio 22/09/2017).

the interior and exterior of the building, and "sign" in the prospect that identifies the entrance to the school.
Overall, the project proposes a new block-type building, with a rectangular shape, whose sides measure 29.46 x 24.27 m, for two floors in height, inside which there is a square courtyard, 8.16 m per side, which offers adequate brightness to all internal views.

Fig. 7. The main staircase with two continuous ramps of the new school "Romolo Murri" of Gualdo, from the square courtyard (8,16 m per side), which offers adequate brightness to all internal views (photo credits: I. Passamani 15/09/2018).

The total gross area is 1,251.60 square meters, more precisely 615.40 square meters on the ground floor and 636.20 square meters on the first floor. As children requested during the Workshop, the project has also been set up to guarantee the use of some spaces, such as the gym, the library or the multipurpose room, even outside the school hours so that the community could have new public areas: in fact both gym and library have a completely independent access or use vertical connections placed in immediate contact with the main entrance.

Phase 3: Final executive project
A working team was established between professionals outside the University, in order to gather all the professional skills necessary to develop the documentation of a contract.
Only a few months have passed since January 2017, the start date of the adventure, and the rest belongs to real life: the executive material is ready at the end of summer, the contract is awarded, the first stone is laid on 25 November and the "Romolo Murri" School is inaugurated on 15 September 2018, ready for the new school year.
The very short time and quality of the work carried out have been extremely satisfactory for all those who participated and the correct crowning of the exceptional gesture of solidarity made by the Brescia community.

Results
Can a local community, rooted in its daily landscape, upon a dramatic event such as an earthquake, come up with a vision and rise once more from its own "idea" of landscape? The question, at the end of this particular field research experience, got an affirmative answer. The young citizens were at the same time both actors and spectators of their own daily landscape, according to the interpretations by Turri [7]. They were able to give their definition of landscape [8].
The experience of the Workshop confirmed that they recognize the landscape as a place of identity: the landscape idea may be the starting-point to live again in a damaged town and to help and steer the project too, supporting the choices of the best solutions not only for the safety but also for the well-being of the future users. In this way, they moved from the "identity" point of view to one of "belonging" [9].
The Workshop, aligned with the orientation of the European Landscape Convention on the theme of recognizing the quality of places, helped young students become better citizen in the future. The children that lay their "first stone" during the official ceremony will remember this meaningful gesture in the future: touching the stone to create a new architecture [10]. Probably, while they reflect on the dramatic event that destroyed the school, they will think about the different steps of their experience: the tents, the temporary prefabricated wooden school, the demolition, the groundbreaking... and finally the new building also designed by themselves (Fig. 9, Fig. 10).

Fig. 8. Project of the new school "Romolo Murri" of Gualdo. Cross section of the open space-cloister in the middle and of the covered space-Agorà. The maximum height are 7.43 m at the eaves extradion and 9.16 m at the top higher (source: L. Notarantonio 22/09/2017).

Acknowledgements
Despite having shared objectives, methodologies and results of this field research experience and planning activities, it is highlighted that Passamani is the author of Abstract and Paragraphs 1, 2, 3, 4 and 8; Marmori of 5, 6, 7.

Fig. 9. Some steps of the experience about the new school "Romolo Murri" of Gualdo. The old unfit school; the classrooms-tends; the official groundbreaking; the opening of the new school (photo credits: I. Passamani 14/11/2016; 25/11/2017; 15/09/2018).

Fig. 10. One of the panoramic views from the classrooms of the new school "Romolo Murri" of Gualdo, according to the requests of the children (photo credits: I. Passamani 15/09/2018).

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NOTES

1. I. Passamani coordinated the whole institutional project "Scuola a Gualdo #Nonlasciamolisoli" as Rector's Delegate for Buildings and Properties of the University of Brescia.
2. The first official proposal was by the Director of the Department, Giovanni Plizzari.
3. http://www.mappadicomunita.it/
4. B. Badiani (D.I.C.A.T.A.M.) designed and coordinated the Workshop, teamwork B. Badiani, C. Manfredini, I. Passamani.
5. R. Marmori was the team-leader of the equipe of D.I.C.A.T.A.M. (Angi, Arenghi, Badiani, Clerici, Colleselli, Fappani, Longo, Metelli, Passamani, Plizzari). To ensure a cultural-compositional continuity and not significantly modify the basis handed over to the "Don't leave them alone" Association, the development of the architectural executive (Phase 2) was by arch. Luca Notarantonio, who has collaborated with the studio of Marmori.
6. M. Belardi was the Project Manager of the equipe of experts: "Don't leave them alone" Association (Belardi, Ferrari, Meini, Seccamani, Streparava Torri); UNIBS-D.I.C.A.T.A.M. (Marmori, Metelli, Passamani, Plizzari); professional Association of Architects (Camadini), professional Association of Engineers (Armanini, Bettini, Castioni, Guerra, Manfredini, Perani, Poli, Tininini, Torquati).
7. Bibliographical references about the focus earthquake/consequences/activities mainly deal with relevant and technical aspects about survey and reconstruction activities [11] [12] [13] [14].

Carlo Gerundo

Daniele La Rosa

CLIMATE CHANGE MITIGATION AND ADAPTATION FOR URBAN AND RURAL LANDSCAPES

Abstract
Spatial development processes and climate change are the main processes that lead to an increased level of risk for urban and rural landscapes. In particular, hydro-meteorological extreme events are increasing in frequency and intensity, generating dramatic negative impacts on ecosystems and increasing the hazards of other risks, such as fires, sea-level rise and biodiversity loss.
Moreover, climate change can alter the value system, which local communities traditionally use to interact with landscape. However, the need to face climate change can also push researchers, local authorities and policy makers to find and test, both at the urban and wider scale, sustainable solutions that can transform the relation between landscape and its community and make them more resilient.
This section presents studies and researches investigating how to ensure the reduction of risk by climate change with the landscape preservation and promotion.

Keywords: climate change, mitigation, adaptation, landscape enhancement

Striking a balance between the contrast to climate change related risk and landscape value enhancement

Climate Change is acknowledged as one of the defining issues of the 2000s [1] and the methods to contrast its dramatic effects on urban and rural areas are one of the most investigated topics in the fields of urban planning, architecture and civil engineering in recent years. The constantly increasing climate change related phenomena, such as storms, droughts, heat waves, afflict the territory and its functional subsystems at different scales, ranging from the public health to rural productivity, including urban settlements and infrastructures efficiency.
According to the "The Lancet", one of the most eminent medical journal, Climate Change could become the greatest threat of the 21st century for public health [2], [3], since the increase in the intensity of climatic extreme events, such as heat waves, contributes to the worsening of cardiovascular and respiratory diseases, especially among the elderly, and endanger water and food supply [4], [5].
Moreover, the presently available models, considering current greenhouse gas emissions, estimate a potential sea level rise by between 0,6 and 1,8 meters by 2100. In some parts of the world, such as some nations bordering the Indian Ocean, this phenomenon could force millions of people to abandon the place where they live in. As well as the above-mentioned heat waves increase, a higher temperature will accelerate the water cycle leading to more floods and droughts and heavily impacting on world agricultural production, especially in places where water scarcity is a critical problem [6].
In this described risk scenario, cities are the elements having the highest exposure due to the density of population, dwellings, and economic activities. Furthermore, climate change can also have catastrophic impacts on infrastructure, worsening the access to basic urban services and, therefore, the quality of life in cities.
Landscapes, both urban and rural, as conceived by European Landscape Convention [7], are not immune to climate change effects, since they alters the value system through which local communities traditionally read and perceived landscape.
However, despite Climate change is the main cause of rapidly changing landscape scenarios (e.g. ever more intense coastal flooding have been eroding the Italian coast line for a total amount of 35 km^2), it can also produce positive implications, since adaptation and mitigation strategies to be implemented in order to face its impacts could become drivers of relevant transformations. As a matter of facts, the solution to face climate-related risk that researchers, local authorities and policy makers have been trying to find and test in recent times will significantly modify – and in some cases has already modified – urban and rural landscape and its perception.
For instance, at the territorial scale, climate-sensitive management of agriculture (e.g. by shifting to crops with higher carbon storage potential or reducing forest clearing for agricultural expansion) can contribute to not only to a relevant reduction of atmospheric concentrations of CO2, but also to support natural landscape conservation policies.
Furthermore, some mitigation strategies at the urban scale to limit greenhouse gases emissions, such as the implementation of sustainable mobility-oriented traffic policies are able to transform the landscape-community relation. Road policies and management (e.g. restricted traffic areas, bike lanes, etc.) can create a sense of landscape and increase visual landscape perception, in addition to the functional benefits of a more efficient traffic circulation [8], [9].
Moreover, in recent times, the adoption of climate-sensitive design principles within urban regeneration intervention is becoming increasingly common. It is no coincidence that urban regeneration is considered, among urban policies, the most suitable tool to implement efficient strategies to face Climate Change: ranging from low-carbon urban environment creation through land uses rearrangement, to real estate requalification as a result of buildings retrofitting or their replacement with new ones with better energy performance, including the enhancement of vegetated and permeable spaces provision within densely urbanized tissues [10], [11], [12]. Moreover, in recent years, urban regeneration projects provided the opportunity to implement the ecosystem-based approach, theorized in the 1990s by Grumbine and configured as an integrated resource management strategy towards the sustainable use of the resources themselves [13], [14]. Researchers and policy-makers have identified in the ecosystem-based approach a criterion for introducing sustainable and economically viable solutions in government decisions in order, on the one hand, to face and solve urban problems such as water and urban run-off management, air quality and temperature control and, on the other, to deal with cross-cutting issues such as the defence and promotion of biodiversity, public health, social justice, economic development. Given the multiplicity and heterogeneity of the targets addressed by these solutions, recent studies and researches preferred to adopt, instead of ecosystem-based approach, the name nature-based solution (NBS), defined by the European Commission as «inspired solutions and assisted by nature, economically convenient, which simultaneously provide environmental, social and economic benefits and which help to 'build' resilience» [15]. The NBS concept combines the ecosystem-based approach, which includes ecosystem services, green and blue infrastructures, environmental engineering interventions and the low-impact development approach, with the economic and social benefits of systemic solutions capable of producing technical, regulatory, social, financial innovations and ensuring the efficient use of resources [16].
Among Climate Change adaptation strategies, nature-based solutions adoption and ecosystem services supply will produce relevant transformation in urban and rural landscapes in the next years, and their implementation will require integrated and multidisciplinary methodological approaches able to develop multi-target projects aiming at infrastructural efficiency, risk prevention and mitigation, urban spaces quality enhancement and landscape valorisation.

This section aims to investigate if a positive reconciliation between safety enhancement and risk reduction with the landscape preservation and promotion is possible and which is the way to pave, in order to achieve it.
It is evident that, to gain these results, it is necessary to analyse practical examples regarding landscapes that have been tangibly modified by climate change, the social and economic impacts produced and the actions implemented to tackle them.
Furthermore, special attention is paid to assessment methods and tools capable of measuring ecosystem services in different landscape settings to understand the added value of NBSs to landscape quality.
In addition, it is relevant to observe how the application of proper cost-benefit analyses to urban context having peculiar landscape values, such as historic urban landscapes, could support public administrations decisions in the choice of the most sustainable structural and non-structural mitigation measures for Climate Change related risks, not only from an environmental and social perspective, but also from a financial and economic one.
Finally, particular consideration is given to methodological design or urban planning approaches based on NBSs, green and blue infrastructures and ecosystem services, aiming at striking a balance between facing Climate change and its effects and landscape value enhancement.

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Oscar A. Alvarado

A REVIEW OF QUANTITATIVE TOOLS FOR MEASURING MULTIPLE URBAN ECOSYSTEM SERVICES

Abstract
A growing number of tools have been developed to measure the benefits that ecosystems provide to human well-being. However, few of these tools have been specifically designed for cities, which could be a reason for their limited adoption by urban decision-makers and spatial planners. This has resulted in widespread under-estimation of the ecosystem services that nature-based solutions can provide within cities. This study applied a comprehensive and systematic methodology for screening, comparing, scoring and ranking ecosystem services assessment tools according to scientific criteria and practical considerations. A scoring matrix was developed to evaluate the suitability of open-access, quantitative tools in capturing multiple ecosystem services across different urban landscape domains and societal challenges. This matrix was composed of evaluative criteria derived from the scientific literature, the needs and capabilities of practitioners, and expert interviews.

Keywords: urban ecosystem services, quantitative assessment tools, comparative tools evaluation, nature-based solutions

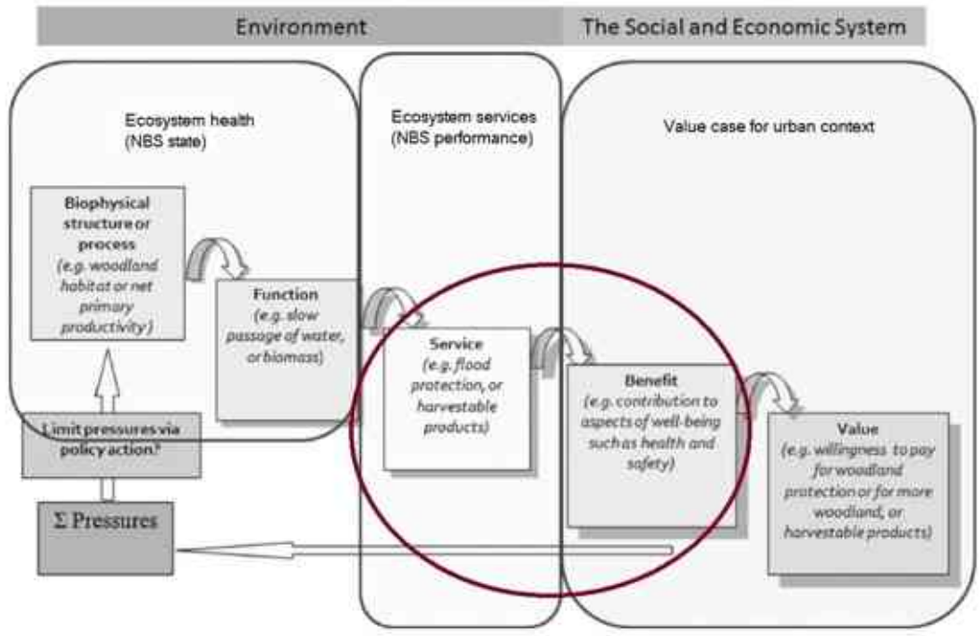

Fig. 1. Modified version of the cascade model for ecosystem services [19]. The red circle represents the elements of the model that ecosystem service assessment tools are often designed to capture.

Introduction

As cities and their populations continue to expand at an unprecedented rate, natural landscapes around the world continue to be transformed into sprawling urban settlements where 'grey' urban infrastructure such as roads, pavements, buildings and constructed assets displace previously existing natural habitats and ecosystems [1]. These patterns of development place intense pressure on local, regional and global natural ecosystems, resulting in extensive habitat fragmentation, biodiversity loss, collapse of natural resources and degradation of important ecosystem functions [2], [3]. At the same time, growing urban populations are facing numerous environmental, socioeconomic and public health challenges that significantly impact the liveability of cities. Lately, there has been growing acknowledgment of the role that nature-based solutions (NBS) can play in addressing these societal challenges while simultaneously providing a range of long-term benefits to human well-being and biodiversity (Fig. 1). Yet the unceasing, large-scale loss of natural areas in cities implies that local authorities are failing to consider the benefits of NBS, and thus incorporate their value, into urban spatial planning decisions [4].

A number of authors have highlighted the urgent need to compare, test and validate the performance of a rapidly growing range of benefit assessment tools across a wide variety of settings [5]–[7]. This study aims to apply a quantitative and systematic approach for screening, evaluating, comparing and scoring a variety of 'off the shelf' assessment tools that capture multiple ecosystem services (ES) from NBS in an urban context. The guiding research questions for this study are:

1. What are the main strengths and weaknesses of a selection of existing assessment tools for measuring multiple ES from a wide range of urban NBS?
2. How can such assessment tools be evaluated and ranked in terms of scientific validity as well as feasibility for everyday use in measuring ES?

Methodology

For this study, ES that were deemed relevant for common urban societal challenges and quality of life indicators, as classified by [8] and [9], were prioritized. As the main focus of this study, ES assessment tools are designed to provide comprehensive, replicable and quantifiable estimates of ES provision as well as their impact value to human welfare [10]. As opposed to ad hoc measurements of single ecosystem services, 'pre-packaged' or 'off the shelf' assessment tools are flexible enough in scope (multiple ES) and scale (spatial and temporal) to capture the multi-functional characteristics of NBS and their contribution to human well-being [2] while facilitating consistency in comparative analyses [7].

The overall approach (Fig. 2) first sought to identify and understand the current selection of assessment tools developed for measuring a wide range ES in diverse landscape settings. Only those assessment tools that met the screening criteria were chosen for further evaluation. The criteria used for scoring the remaining assessment tools were developed by the author and adapted from the literature. Finally, a scoring matrix was developed for ranking the assessment tools according to the selected criteria.

The identification of existing ES assessment tools was carried out through a review of online platforms related to NBS and/or ES (Ecosystems Knowledge Network, OpenNESS, Oppla), participation in NBS workshops, and a search on Google Scholar using the keywords "urban multiple ecosystem services assessment tools". A total of 30 'off the shelf' ES assessment tools were identified during this initial process.

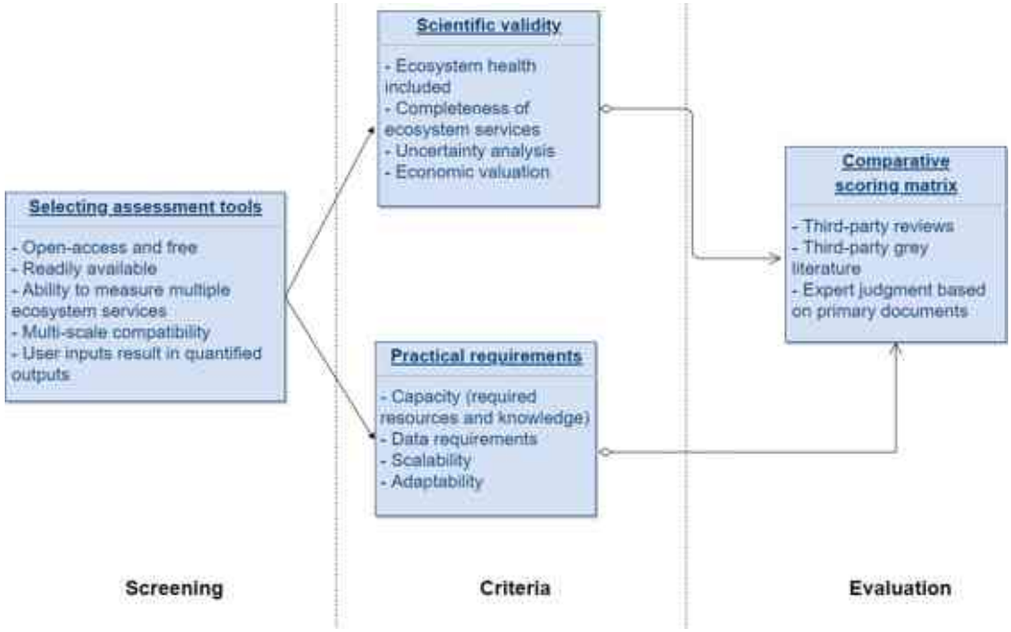

Fig. 2. Research framework.

Given the wide range of identified tools, screening criteria were developed (Tab. 1) to specifically select 'off the shelf' assessment tools that could be readily employed without proprietary restrictions across relevant urban scales to quantify multiple ES through the use of user generated data.

Scoring criteria

To systematically evaluate and compare the selected assessment tools, a set of criteria was developed for which scores would be applied. These criteria aim to address two equally important perspectives when undertaking ES assessments; scientific validity and practical requirements. The selection of criteria began with a desktop review of scientific and grey literature regarding previous urban ES assessments. Specifically, the work of [11] in synthesizing and organizing criteria for selecting individual indicators for ES was adapted for assessment tools. Additionally, informal discussions were conducted with a range of actors including colleagues, external researchers, and local proponents of NBS in cities. The purpose of these discussions was to understand the needs and priorities of different NBS stakeholders that may not be immediately evident when reviewing literature.

From a scientific validity perspective, the inclusion of *ecosystem health* and performance indicators within the each assessment tool was deemed to be of critical importance during the evaluation phase. An ecosystem's *structure* and *integrity* are key factors that enable resistance and recovery (i.e. resilience) to the kind of external perturbations that NBS often face in urban environments [12]. It is difficult to understate the importance that resiliency has on an ecosystem's ability to provide future flows of services, particularly those related to risk reduction and climate change adaptation. Thus in order to be relevant for urban areas, any comprehensive assessment of the performance of NBS should be able to link ecosystem service flows to the underlying ecosystem's structure and integrity.

To fully capture the multiple dimensions of human well-being that NBS can positively affect, assessment tools should encompass all three categories of *ES*; provisioning, regulating, and cultural [7]. Furthermore, the ability to include as many relevant ES as possible in an assessment can lead to a more in-depth understanding of the complex relationships between ES (i.e. trade-offs, synergies and bundles) [13]. Table 2 presents a checklist of relevant urban ES that was used to determine how each assessment tool scored in terms of *completeness*.

The inherent complexity of NBS, and the underlying ecosystem properties and functions, implies a great deal of *uncertainty* when attempting to quantify ES [14]. This uncertainty may differ across assessment tools, complicating the comparison and interpretation of outputs. Therefore, it is important to consider whether each assessment tool acknowledges this uncertainty and how it is incorporated into final outputs. Some assessment tools include their own economic analysis of measured ES. Incorporating this feature within an assessment tool is beneficial but not critically necessary given the existence of independent valuation methods for ES, however discrepancies can arise when combining different economic approaches and so as much consistency as possible is preferred [2]. It should be noted that the inclusion of monetary valuation within an assessment tool does not prevent additional forms of ES valuation.

Criteria	Description	Rationale
Open access and free	Open access and free to use without the purchase of software licenses or contracting with third parties	Assessment tools that are in the public domain allow them to be independently applicable without restrictions for the current study and future research
Readily available	Available in English as of 2004/2019	To ensure that every assessment framework included for evaluation is sufficiently well-developed and well-documented, which promotes greater transparency and credibility
Measure multiple ES	Explicit, central focus on measurement of multiple indicators for several ES	NBS are multifunctional by nature therefore capturing as many ES as possible is highly desirable
Multi-scale compatibility	Compatible with site, local and/or landscape scales that are most relevant to urban contexts (i.e. NBS, neighborhood, city scales)	Assessment frameworks that are applicable across multiple spatial scales are attractive because it is easier to learn one tool than many
User inputs results in quantified outputs	Quantitative and qualitative data can be input into the assessment tool to obtain outputs that reflect ES provision and distribution (supply)	Quantified results are essential for measuring ES and their trade offs, though qualitative assessments are also appropriate for cultural ES and ranking preferences

Tab. 1. Screening criteria to select assessment tools.

Category	Urban ES	InVEST	ARIES	SolVES	B£ST	ESTIMAP	i-Tree
Provisioning	Food supply	√	√	√		√	
	Fresh water supply	√	√		√		
	Raw materials			√			
Regulating	Local cooling effects						
	Building energy use				√		√
	Air purification					√	√
	Carbon sequestration	√	√		√		√
	Water flow regulation	√	√		√	√	√
	Sediment regulation		√				
	Wastewater treatment	√	√		√		
	Coastal protection	√	√			√	
	Pollination	√	√			√	
	Noise attenuation				√		
Cultural	Recreation	√	√	√	√	√	
	Mobility				√		
	Aesthetic	√	√	√		√	
	Mental health			√			
	Physical health				√		√
	Child development						
	Spiritual			√			
	Social cohesion						
	Education			√	√		
	Jobs / productivity				√		
	Property prices						√
	Tourism			√	√	√	
	Heritage			√			
	Bequest			√			
Total ES included (max = 28)		9	10	10	12	8	6

Tab. 2. Checklist for measuring ES completeness of each tool.

From a practical perspective, a clear understanding of the *feasibility* requirements for using each assessment tool is essential for widening their adoption among technical and non-technical decision-makers [6]. Common limitations and barriers for the use of existing assessment tools include *data and resource needs*, especially *human or technical capacities* [15], as well as the *flexibility* to apply the same assessment tool over *multiple scales*. Therefore, the inclusion of user-centered feasibility criteria reflects the perceived and actual needs of end users undertaking ES assessments [11]. For each of the above criteria, every selected assessment tool was quantitatively evaluated through a scoring matrix (Fig. 3) with scores (ranging from 0-3 for simplicity) and colors assigned to each tool based on a review of relevant sources (Tab. 3). The creation of a scoring matrix allowed for a direct comparison of several assessment tools based on cumulative scores and resulted in one tool achieving the highest score based on the aforementioned criteria.

Results

The final six assessment tools that met the criteria of the screening process (Tab. 1) were selected for more in-depth evaluation. This final list features readily available assessment tools that are replicable and flexible enough for use in diverse but relevant urban spatial scales, using context-specific data to quantify multiple urban ES within the tool's own framework.

Fig. 3 shows the results of the scoring matrix for the selected assessment tools, including the nine evaluation criteria, total cumulative scores and color scheme used to highlight the type of literature source that was used for each assigned score. Overall, the six tools mostly focused on provisioning and regulating ES (Tab. 2) while cultural ES were often poorly taken into account within the tools' capabilities, thus ignoring the contributions that NBS can provide to social well-being, not just physical well-being. An obvious exception to this is the SolVES tool, which has been specifically designed to measure societal valuations of ES and thus is better equipped to capture cultural ES (Tab. 2).

Tab. 3. Scientific papers, grey literature and primary tool documents used in scoring matrix.

In terms of spatial scalability, analysis was limited to whether tools could capture ES at scales relevant to urban settings, namely site (i.e. park), local (i.e. neighborhood) and landscape (city-wide). Most tools (except B£ST) were able to measure ES at a city-wide landscape scale, which would allow for an integrated assessment of ES across heterogenous urban settings, including surrounding peri-urban areas. In the end, *i-Tree Eco achieved the highest cumulative score* out of all assessment tools, narrowly beating out ARIES and B£ST.

Discussion

The wide range of available 'off the shelf' ES assessment tools necessitated narrowing down the list to a more manageable number for evaluation and scoring. Screening criteria (Tab. 1) reflected practical needs (open access, free, readily available) and the type of assessment desired (multiple ES, urban scales, quantified outputs). Some tools still in the prototype stage (LUCI, Naturvation Index) could eventually meet the current screening criteria once fully developed, while other tools restricted to narrow geographical areas (GI-Val, TESSA) are planning to expand their transferability in the future. In particular, TEEB Stad and Atlas atlas Natuurlijk Kapitaal may be promising options for future ES assessments based on their incorporation of extensive data sets and models, though they are limited by their availability in Dutch only.

By modifying the screening criteria according to specific requirements, it would be possible to further broaden or narrow the range of tools that can be evaluated. This would largely depend on the needs and capabilities of potential end users. For example, it may be an important prerequisite for tools to be open source so that the underlying methodology can be modified. Furthermore, a certain level of technical support may be necessary for studies that rely on community participation. While the exact composition of screening criteria is open to modification, those used in the current study represent a strong basis for selecting 'off the shelf' assessment tools that can be readily employed without proprietary restrictions across relevant urban scales to quantify multiple ES through the input of user generated data.

While there is a clear shift in the academic and research communities away from individual indicators that measure single ES towards 'off the shelf' tools that measure multiple ES at a time [16], there continues to be a lack of information on the existence, capabilities and requirements of these tools [6]. This study is the first attempt to comparatively score and rank a selection of ES assessment tools in a systematic fashion that takes into account two separate but equally relevant perspectives; scientific validity in incorporating ecosystem health alongside the measurement of multiple ES, and practical requirements that reflect the feasibility of applying each tool in situ.

(a)

Criteria		InVEST	ARIES	SolVES	B£ST	ESTIMAP	i-Tree
Ecosystem health	*Structure*	3	2	1	1	3	3
	Integrity	3	2	1	1	3	2
ES	*Completeness*	1	1	2	2	1	0
	Uncertainty	0	3	0	3	0	2
	Economic analysis	3	3	0	3	0	3
Feasibility	*Capacity*	1	1	2	3	1	3
	Data	1	2	2	1	2	1
	Scalability	2	2	2	2	2	3
	Adaptability	3	3	3	3	3	3
Total score (max = 27)		17	19	13	19	15	20

(b)

Score breakdown	Types of sources
3 = Desirable (excellent)	Peer-reviewed scientific papers that independently reviewed or applied a tool
2 = Acceptable (fair)	Third party grey literature that provide summaries and descriptions for a tool
1 = Undesirable (poor)	Peer-reviewed scientific papers authored by a tool's own developers
0 = Absent (not applicable)	Expert judgement based on a review of primary documents for a tool

Fig. 3. Scoring matrix. (a) top: final cumulative score for each assessment tool; (b) bottom: description of scoring methodology and color-coding.

Although there have been several useful reviews of standardized 'off the shelf' assessment tools in the literature, certain limitations of those previous reviews include: being limited in scope in the number [16] and type [14] of tools reviewed, being purely qualitative in nature [6], and focusing only on general trends in data sources [17], ES measured [2] or frequency of particular indicator types [18]. The screening and scoring methodology presented in this study is designed to overcome these previous limitations and in the process, facilitate the comparison and selection of relevant ES assessment tools for a given set of circumstances.

Beyond identifying i-Tree Eco as the most suitable tool within the parameters of the current study, the results of the scoring matrix (Fig. 3) also demonstrate the unequal representation of each tool across the scientific and grey literature. While there is some merit in weighing the individual scores according to source type so that independent, peer-reviewed scientific analyses are more highly valued, the disparity in sources would skew the results and prevent recently developed tools, for which third party reviews are rare, from outscoring more established tools. Instead, an additional criterion such as peer-reviewed scientific backing could be inserted to reflect a preference for objective analyses of the tools under evaluation.

The narrow edge that i-Tree Eco received over other tools implies that the results of the scoring matrix are not as definitive as one would prefer when deciding on a tool to use. The use of different criteria, or a different interpretation of the primary documents for each tool, could easily result in another tool achieving a higher score. Thus it is important that the source and reasoning (Tab. 3) behind each assigned score is presented as a reference for future comparative scoring exercises. Some of these explanations are based on the analysis and opinion of third party reviewers, whereas others are derived from interpretation of each tool's primary documents. Any attempt to score multiple tools across different types of literature sources will always involve some level of subjectivity. However, under the current circumstances and through the use of independent reviews where possible, the results of the scoring matrix are considered to be a reliable enough reflection of the performance of each tool according to the chosen evaluation criteria.

Future applied research in this field could include the use of additional methods for selecting appropriate evaluation criteria, whereby the scoring matrix is modified to accommodate different needs of end users. One possible option involves the use of surveys among end users to rank criteria. This could result in a straightforward process where the criteria with the highest votes are selected for insertion into the scoring matrix. Another approach could involve the use of multi-criteria analysis to rank criteria against each other, also through the use of surveys. Each of these approaches would better reflect end user priorities yet would require additional time and resources for collecting and analyzing survey results.

One of the limitations of the current evaluation approach is the lack of a "comparative concurrent application of multiple tools to a common location" as a way of measuring tool feasibility under practical conditions [6]. By simultaneously applying several tools to a common case study, feasibility criteria in the scoring matrix (i.e. capacity, data, adaptability) could be more accurately evaluated and compared, especially when contrasted with the current scoring method which is based on literature review. This type of practical assessment is an encouraging prospect for future research in evaluating these tools, however the significant amount of data and time that would be required to undertake such an assessment would necessitate a large team and coordination across each tool's application.

An immediate next step to build on the current study could therefore involve a limited practical assessment carried out with two or three of the highest scoring tools (i-Tree, B£ST, ARIES) to further validate the feasibility scores that each of them received in the scoring matrix.

Conclusion

This study sets up a useful methodology to comparatively evaluate and rank a selection of open-access, readily available, 'off the shelf' ES assessment tools designed to quantify multiple ES across relevant urban scales. Screening criteria can help practitioners quickly narrow down suitable options from a wide range of existing ES assessment tools. The scoring matrix highlights the performance of each tool across several criteria, thus allowing for their direct, quantitative comparison in terms of scientific validity and feasibility. At the same time, every aspect of the methodology is flexible enough to accommodate specific project needs, which can be expressed through chosen criteria. The practical application of one or several of these tools on an urban NBS case study is a logical next step for subsequent research, which can validate (or update) the results of the scoring matrix while revealing additional strengths and weaknesses for each tool.

By demonstrating the value that NBS can have on human well-being in cities, through tools that measure and quantify urban ES, cities can increasingly incorporate ecosystems and biodiversity into spatial planning. Bringing nature back into our cities can restore our collective physical and mental health, improve our resiliency to meet future challenges, and actively strengthen the living ecosystems that all species depend on for survival. This study supports this transition to a more nature-inclusive urban landscape by facilitating the selection and use of existing ES assessment tools to capture the value of urban NBS.

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Philippe Clairay

THE END OF SEASIDE RESORTS?

Abstract
Seaside resorts, which appeared at the end of the 18th century, first for medical reasons and then for purely idle reasons, were English inventions that first spread over the European coasts and then worldwide. Today, they represent a particularly important tourism issue. However, European coastlines, from the English Channel, the Atlantic to the Mediterranean Sea, are currently in a situation of great vulnerability to environmental change. The rise in sea level and the accelerating rate of coastal erosion and submersion are tangible signs of global warming, which in turn is leading to an increase in certain types of pollution that have been contained until now. There is now talk of the disappearance of some of these stations and the relocation of others, where possible. Submersion, erosion, pollution, stronger storms: a whole model of tourism seems to be under threat of extinction. The study cases developed will be limited to Europe, with a few exceptions, and are taken mainly in France.

Keywords: seaside resorts, sea level rise, coastal erosion, global warming, pollution

Introduction
As creators of landscapes, image systems and touristic clichés, Europe's seaside resorts, like all human activities, are confronted with the climate change and various other risks that threaten their very existence. From this point of view, seaside resorts and their natural setting perfectly fit the definition of landscape as given by the European Landscape Convention (Florence, 2000): "Landscape is a part of territory, as perceived by local inhabitants or visitors, which changes over time as a result of natural forces and human action". Today, an entire economy, dynamic and essential, the tourism economy, could collapse with the disappearance of the resource: the beach.
Historically, the aristocratic practice of therapeutic sea bathing and its first developments in England [1] was followed on the continent by a constellation of seaside resorts whose medical original function [2] quickly gave way to purely hedonistic activity [3]. Thus, seaside resorts, cities of pleasure, spread along the European coastlines, and then worldwide [4]. Since the 1960s, the growth in tourism has contributed to the construction of these new places of relaxation [5], while often forgetting their natural environment. These new tourism landscapes, which have been strongly anthropized, are now revealing their fragility. As a historian, a specialist in the history of the seaside resorts of Western France and involved in the Mediterranean Association of Sociology of Tourism, this subject is interesting for it reveals a real paradox. Indeed, as a researcher, it is my object of study itself that could tend to disappear, and this, on the scale of a human life. And the phenomena that will be described below are formidable. One can see the consequences on the coasts every year more and more. This study tends to demonstrate the relative fragility of seaside resorts and their underlying economy in the face of various risk factors which will be detailed in this article, the main ones being of an environmental nature. The selection of case studies detailed in this text is taken from the different seaside resorts known to the author, and from the experiences reported by his professional network. These reflections propose lines of research and results that open the debate on the very existence of seaside resorts and their future. Volcanic, seismic and tsunami hazards are excluded from this research, although they may be associated to some of the hazards studied here. The choice was made to focus on four major risks facing the coastlines, each of which is the subject of case studies, limited to Europe, with a few exceptions, and are located in France, main field of research.

Study cases

Sea level rise

Coastal erosion
The French coasts, from the highest cliffs of Normandy to the lowest sandy expanses of Aquitaine, are today confronted with increasingly significant movements of their coastline [6] [7]. Historically, seaside resorts have always had to fight, for the most exposed, storm damage on their coastline. In the Norman or the Breton departments for example, this involves the usual, almost annual, work to consolidate their dikes and riprap. However, in recent years, things have got much worse, with an over-frequency of serious "exceptional" phenomena, which worries local decision-makers a great deal.
Soulac-sur-Mer (Gironde) is a seaside resort that is extremely popular with tourists and has become, in spite of itself, the sad symbol of coastal erosion. Situated in the Médoc, on the Atlantic seaside, in a region with a low, sandy coast, the seaside resort is currently threatened with disappearance due to sand movements, which has caused its coastline to recede by about 200 meters [8] [9]. A building, completed in 1967 150 m from the shore, the "Signal", is today emptied of its inhabitants, by municipal decree (Fig. 1.).

Fig. 1. "Le Signal", building in Soulac-sur-Mer (Gironde): evolution of coastal erosion (source: Région Aquitaine-La Dépêche-Philippe Clairay).

The erosion is such that the building is condemned, it will disappear, the sea is already gnawing at its foundations [10]. The inhabitants consider themselves as climatic refugees. The situation is such that the seaside resort is studying a global solution of withdrawal with a reconstruction of the urban core several hundred meters from the shore.
In Normandy, the communes on the west coast of the Channel are strongly affected by coastal erosion. Entire beaches are tending to disappear, especially between Saint-Jean-le-Thomas and Dragey-plage, in the bay of Mont-Saint-Michel. The withdrawal is very impressive. The coastal road, which was in 1947 about 300 m from the shore and separated by a barrier of dunes, is now a few meters from the waves. The small seaside resort of Saint-Jean-le-Thomas is clearly endangered (Fig. 2).

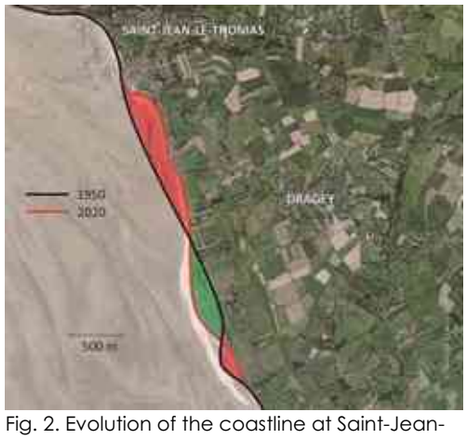

Fig. 2. Evolution of the coastline at Saint-Jean-le-Thomas (Manche) 1950-2020 (source: Philippe Clairay)

To counter this inevitable movement, rockfill is regularly laid and sand is constantly added. But these measures, in the long term, can only slow down this phenomenon, without stopping it. At the beginning of 2020, the prefect of the Manche department warned in the press: "We will have to defend ourselves from the sea, with a global vision. We cannot do just anything. Riprap is not enough, faced with the sea's advance, we'll have to move" [11]. In this department alone, 18,000 buildings are threatened by the rising sea level. Wherever necessary, coastal communities are adopting risk prevention plans and adapting their local urban planning. This phenomenon is of course worldwide, and solutions are being sought everywhere, as is the case in the USA, whose low-lying coastlines are also particularly exposed [12].
On cliff coasts, sea erosion is coupled with wind and water erosion. More and more cliffslides are to be deplored in south England coastline, and in north coasts of France in Normandy and Picardy, with disastrous consequences. The seaside resorts of the Seine-Maritime, of which Etretat is the most famous, see their coastline also receding, and whole sections of cliffs disappear. The landscape is, objectively, in danger. During the summer of 2013, a few meters away from bathers, part of the cliff of Saint-Jouin-Bruneval (Seine-Maritime) collapsed, without causing any casualties [13]. Further north, the small town of Criel-sur-Mer is experiencing an unprecedented crisis, with the disappearance over the last 50 years, of part of the municipal territory, literally fallen into the water, with the cliff. As the mayor of the town, Alain Trouessin, points out, "The cliff is receding by ten to thirty centimeters a year. It is an average, but it is possible to have very locally a more important retreat: five meters, ten meters. And we don't know where or when..." [14].

Marine submersions
The rise in sea level is causing fearsome submersions, anywhere in the world [15]. In France, the worst of these examples was caused by the storm Xynthia [16]. During the night of February 27th to 28th 2010, by a combination of a high tide and a very strong storm, a catastrophic submersion (a height of almost 2 meters of water in places), led to a tragedy in the communes of La Faute-sur-Mer and l'Aiguillon-sur-Mer in the Vendée. The death toll was extremely heavy: 47 dead throughout the region, and the event traumatized French people. The submerged houses, the vast majority of which were second homes, were built in an area below sea level, protected by a dike that gave way (Fig. 3).


Fig. 3. La Faute-sur-Mer, aerial picture, February 28, 2010 (Ouest-France).

The real estate pressure, encouraged by some unwary town councilors, and whose memory of ancient disasters has failed, has had these appalling consequences. After the tragedy, zones of total constructability were established, the black zones, where 915 houses were razed to the ground [17]. Another sad example of this risk is given by the seaside resort of Carnac-plage (Morbihan). During winter 2019-2020, the resort has placed sandbags in front of its beach accesses to avoid submersion, a visible sign that this is indeed a worrying reality. These examples can unfortunately be multiplied and the collective amnesia of older disasters that have occurred over the centuries is also an aggravating factor [18] [19].

Sand recharging: Sisyphus on the beach?
Every spring, beaches whose sand disappears with winter storms, are "recharged". This is the case on beaches in northern Europe with low coastlines (Netherlands, Belgium, England, France). In England, the seaside resorts of the sandy coasts of East Yorkshire: Aldbrough, Withernsea, Hornsea and Spurn Point, are very impressive and well-known examples [20].
In France, on the Normandy coast, the beaches are "renovated" after each sea blow. During the winter 2019-2020, the seaside resort of Jullouville saw part of its concrete seawall destroyed by a strong tide. Riprap and a new sand glacis were built as a matter of urgency: the most urgent repairs were carried out. The question is how long these structures will last.
In Brittany, La Baule-les-Pins (Loire-Atlantique), "the most beautiful beach in Europe" with its 5.4 km long bay of fine sand, sees every winter an incessant ballet of construction machinery bringing tens of tons of blond sand to the very long beach whose coastline is constantly eaten away by strong currents. The resource, the sand, is gone every winter. Thus, for nearly twenty years, enormous quantities of sand have been brought to the beach, about 10 to 15,000 cubic meters per year, with a very large 310,000 cubic meters input in 2005. Indeed, the central part of the beach regularly loses sand the most. This "new" sand is collected offshore, just where it accumulates after storms (at the Banc des Chiens).
Taking Les Sables d'Olonne (Vendée) as an example, La Baule-les-Pins has invested in an Ecoplage during the winter of 2018-2019 to guarantee the stability of its coastline (Fig. 4). Ecoplage, with its flattering name, is a company brand created about ten years ago, which takes up the codes of ecological themes in its communication, arguing that the purpose of this process is to stabilize beach sand, and not to move or replace it, and therefore to provide both an economic and ecological solution to the cities concerned.
The cost of the operation is around 2.3 million euros, with exceptionally large works. The principle is to drain the beach to stabilize the sand and prevent it from flowing back into the sea. The aim is to preserve the seaside landscape, the image of the resort and, of course, the whole economy. But only large resorts have sufficient financial means to embark on such an adventure.
In Cannes (Alpes-Maritimes), on the French Riviera, 11 million euros were spent during the winter 2017-2018 to widen the beaches and reshape the famous "Croisette" (coastal promenade of the city of Cannes). The city wanted to replace its pebble beach with a new coastline of fine sand... But as soon as the first storms hit, some of this sand was washed back into the sea [21]. This reveals both the power of the waves and the very sudden changes that can naturally occur. The artificialization of the coastline is a dangerous game.
As we have seen, to save the resource that is the sand on their beaches, the most important seaside resorts are investing colossal sums of money. It is a question of maintaining their tourist image and the pleasure that tourists have in visiting their coastline. But they do not, or cannot, so a vicious circle begins, from which it is exceedingly difficult to escape (Fig. 5).


Fig. 4. Work for the creation of the Ecoplage, on the beach of La Baule, january 2019.

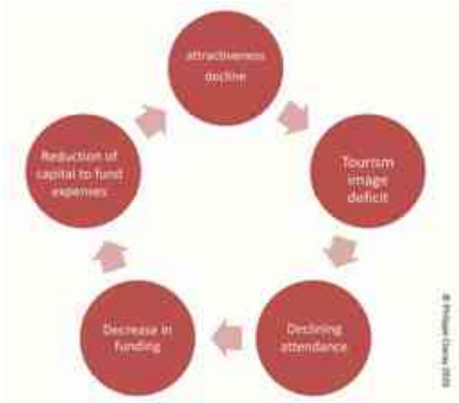

Fig. 5. Consequences of the destruction of the coastal landscape on the tourist economy of seaside resorts (source: Philippe Clairay).

Green algae pollution

The bay of Saint-Brieuc (Côtes d'Armor) had during the summer of 2019 concentrated 70% of the tonnages of green algae removed along the entire Breton coastline, 35.000 tons in total in 2019 (Fig. 6).


Fig. 6. Removal of green algae in the bay of Saint-Brieuc (Côtes d'Armor), 2018.

This shows the scale of this disaster, which began in the 1970s, but whose episodes became more frequent in the 2000s [22]. Here again, the combination of very significant human activity (intensive pig farming, overexploitation of the land) and global warming is causing an inordinate multiplication of green algae (ulvae that run aground by thousands of tons each spring and summer), which strand and make life literally unbearable for the inhabitants of the Brittany coastline. Worse still, these decomposing green algae, caused deaths: the hydrogen sulfide released during putrefaction has already claimed several victims, particularly in the Côtes-d'Armor department.
A plan to combat green algae, called "PLAV 2", was set up by the regional authority and the State for the years 2017 to 2021. The aim is to reduce the flow of nitrates in rivers by 30% to avoid the proliferation of green algae in the eight Breton bays most affected by this pollution [23].
Tourists, for their part, are fleeing these coastlines, which nevertheless have very great assets. The beach of Saint-Efflam, on the seaside called “Lieue de Grève” (communes of Saint-Michel-en-Grève and Plestin-les-Grèves, Côtes d'Armor) is only a memory... the hotels are closed and the modest seaside resort is totally deserted: it is literally disappearing. This phenomenon of green tides is also beginning to affect Normandy and the Gironde in recent years.
The only alternative for the municipalities concerned is the removal, by construction machines, of these tons of green algae which already reek and fill all the storage points along the coast, which in the summer of 2019 very quickly reached saturation point. The recovery of this waste is also a major problem. Ironically, it could be transformed into... fertilizer!
In addition to the tragic oil spills, which we will not deal with here, another factor in the pollution of bathing water is becoming increasingly frequent, namely microbiological pollution, due to overflowing sewage treatment plants, which are not adapted to the summer demographic pressure of the coastline. Beaches are regularly closed, sometimes at the height of the season, and fishing on foot is prohibited in order to avoid contamination.
Economically, the coastal communities affected by this pollution suffer doubly: their coastline is polluted and unusable for tourism, their image is destroyed and the cost of cleaning up the beaches is extremely high and difficult to bear, despite State aid.

War or armed conflict

Three particularly impressive examples are proposed, to evoke the risk of outright abandonment of seaside resorts and the destruction of their landscape by armed conflict. The first example is that of the Cypriot seaside resort of Famagusta and its beach in the Varosha district. Major investments were made in the fledgling seaside resort from 1972 onwards. But in July 1974, the Turkish army landed in the north of the island and fighting began with the Cypriots. The result of this conflict was the partition of the island, which is still going on today. The city of Famagusta was then abandoned. And since that time, this beautiful waterfront is totally ghostly.
The two following examples relate to the war in the former Yugoslavia (1991-2001). In this part of Europe, the tourist economy, which was booming in the 1980s, was brutally shattered by the war which lasted for several years until the independence of the former belligerents. On the Croatian coastline, Kupari Resort came out of the ground in the 1960s and 1970s. This modern seaside resort offers then very impressive hotels, in a small paradise near Dubrovnik.
When the war broke out in 1991, everything stopped. The beach was then abandoned, as well as the whole tourist infrastructure. Hotel frontages still carry the bullet impacts. Never resumed or renovated since, despite a project in 2013 [24], the establishments are left in disinheritance, and then looted. Since the end of the war, the inhabitants and tourists have been visiting this beautiful beach again, in an apocalyptic setting (Fig. 7.). The Croatian State plans to take over the site with a purchase of the hotel complex by the end of 2019.
Further south, in Montenegro, Sveti Marko has suffered a similar fate, without, however, being directly bombed [25]. On this small island in the Bay of Kotor, a “Club Méditerranée” was established in the 1960s. The first of its kind in a communist country: Yugoslavia. Very well-known and very popular, this holiday center enabled the local population to find jobs and above all contacts with tourists from Western Europe. Boating activities were very popular, and foreign currency was the lifeblood of this then booming region. But, as for the previous example, the war was to make all the actors of the local tourist activity, as well as the summer foreigners, leave in a few days at the beginning of July 1991. The club closed never to reopen. Today on the island, only remains of the buildings are visible, some moving traces of this happy past, in a real time capsule (Fig. 8).
There are plans for the future of Sveti Marko, but for the moment, nothing concrete. In these last three cases, we can talk about tourism archaeology.

Economic crisis

Among the elements of fragility of seaside resorts, their economy figures prominently. This invites us to tell a story older than the previous ones, that of a singular resort, Sables d'Or-les-Pins (Côtes d'Armor), built just before the great financial crisis of 1929, which hit France hard in 1930 and 1931. This seaside resort was created ex nihilo, in the dunes bordering a beautiful bay. Its urban planning bears the trace of a technological concern. It is a city designed for the automobile, with, from its creation, a gamble, choices, and perspectives made on the long term.

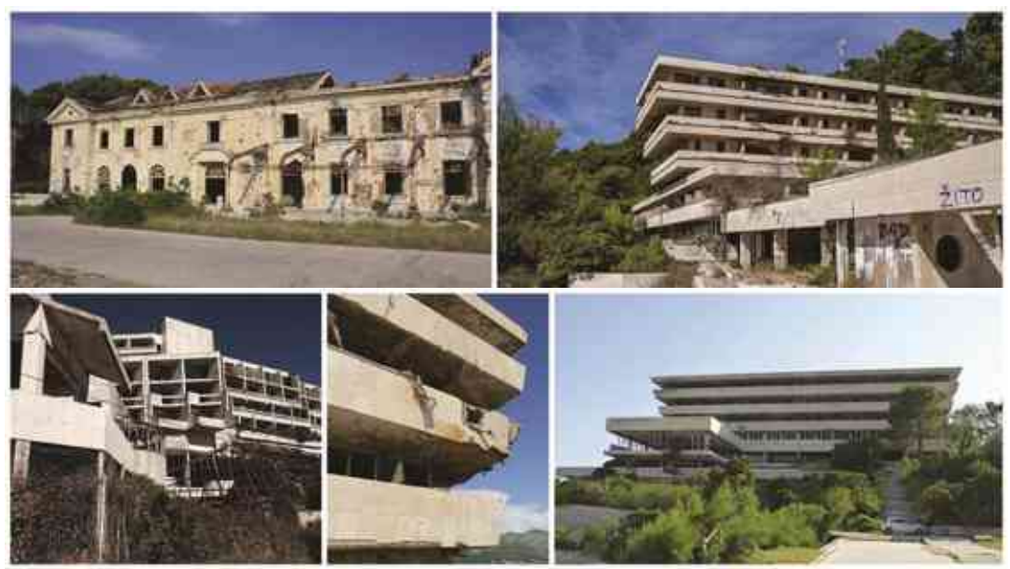
Fig. 7. Kupari resort in 2018 (Dubrovnik Times)

Fig. 8. Abandoned Club Med in Sveti Marko, Montenegro.

The streets are all designed for the automobile, with a width of 35 meters for the main avenue and immense sidewalks. Roland Brouard (1887-1934), the founder, thought, as a visionary, of his seaside resort as a "modern" city with a harmonious landscape: « I wanted to harmonize life and architecture [of the dunes] by making it, through a skillful flattening, the welcoming and definitive base of a city from which the slums would be banished forever. I also wanted to make there a center for meditation, rest and fortifying baths, in places where the wild nature and the picturesque character of the country would be respected, without forgetting the comfort of a civilization which can harmonize with this nature, far from the noise, the disorder of industrial cities and urban agglomerations, sabotaged by the negligence, the greed of the authorities or lawless speculators. [...] » [2].

The story begins in 1921 with the acquisition of the coastal dunes of a small bay near Cape Fréhel. Major works began the following year and, in 1923, the Treyve brothers, landscape designers from Vichy, drew up a general plan of the station. Soon the first six hotels were built. The "Hôtel des Grandes Arcades" in Art Deco style, originally intended to form a large hexagon, is inaugurated in July 1925, but only half of the building is completed (Fig. 9).

The resort continues to grow, and soon the "Californian Quarter" rises from the sand. Many villas are built, and the first seasons are promising: between 1925 and 1928, Sables-d'Or-les-Pins radiates. The festival is daily: receptions of all kinds, fireworks, elegance contests, car rallies, tennis or golf tournaments are organized. Beautiful walks are arranged in the pines, set back from the beach, such as that of the "Ronde des Bois d'Amour", or that of the "Vallée de Diane" and its green theatre. A second wave of construction is planned for the years 1928 and 1929, with about a hundred new villas created. It was precisely at that time, amid euphoria, that the seaside resort is going to suffer the full effects of the world financial crisis.

The Great Depression, which hit Europe hard in 1930-1931, is to bankrupt the seaside resort. The ruin was very rapid: the financial structure that had supported the resort since its beginnings collapsed. Loans are no longer guaranteed, and the main real estate company, owner of the resort's equipment, collapsed too. Roland Brouard dies at the same time as the resort he had created, in 1934. Marked by the abandonment of the investors, the resort will sink into the slump and the Second World War will further worsen the material situation of Sables-d'Or-les-Pins. At the end of the conflict, the seaside resort presents an unrecognizable face: it is partly abandoned. Hotels remain closed and only a few villas are occupied during the season. Today, the resort, which has known years of lethargy, is experiencing a second life after major works in the 2000s.

The recent global Covid-19 health crisis has already affected seaside practices, the image of coasts, and of course, seaside resorts tourism economy. Despite the dramatic irruption of Covid-19 in the USA, the beaches of Florida, bathed in sunshine and living in an incredible carefree way, first saw their popularity sustained. Radical prohibition measures had to be taken to confine the public and raise awareness of the virus [26]. The financial recession that is following will probably also hit the seaside resort economy hard throughout Europe and all over the world.

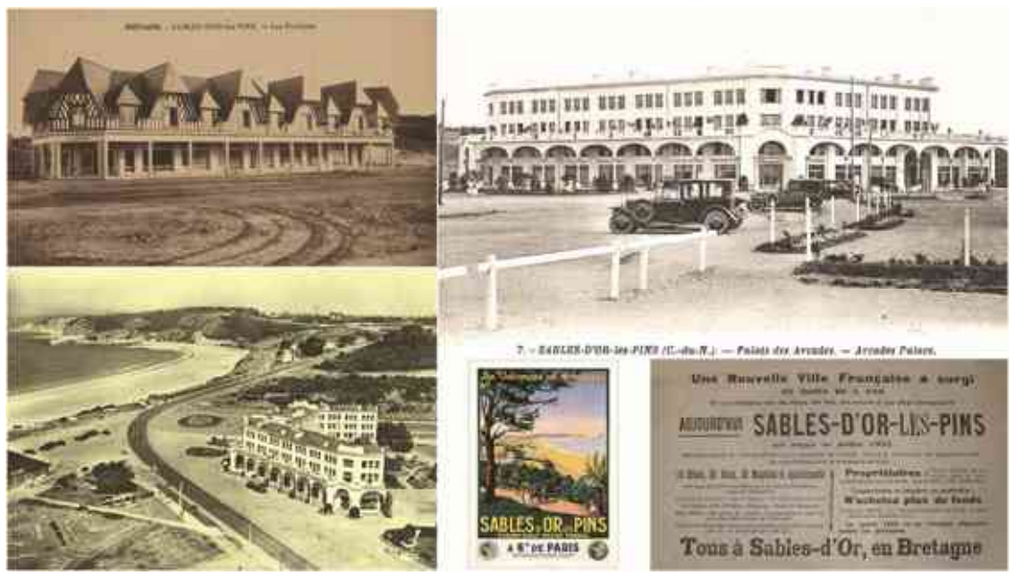

Fig. 9. Sables-d'Or-les-Pins in the 1930s (source: Archives Départementales des Côtes d'Armor, Philippe Clairay).

Results

The table below summarizes the different trajectories that the seaside resorts can follow when confronted with the risks identified in this respect. Of course, this presentation remains schematic and does not consider other local factors such as the resilience of the local population and authorities, economic dynamism before the risk is faced, pre-crisis tourism attendances. Nevertheless, we showed that the changes can be drastic: during crisis, resorts can be immediately devastated or abandoned (e.g. during a flood wave or an armed conflict), or suffer slow degradation, for example during an economic crisis. The destiny of seaside resorts is therefore multifactorial, but we can see that the environmental risks affect them to the highest degree. (Fig. 10).

Conclusions

The perception of the seaside landscape itself is likely to be upset in the coming years. Indeed, the coastline is undergoing profound changes, as we have seen from the case studies developed, and its landscape is going to change profoundly. Going to the beach, having fun and finding a source of well-being, both for tourists and seaside dwellers, are all positive images that are threatened by the various crises that seaside resorts are already facing. The landscape only exists if it is looked at, and from a touristic point of view, only if it is shaped by man. This is particularly the case on the coastal fringe, which is particularly anthropized. However, a negative image of the coastline, linked to the presence of major risk factors, is exceedingly difficult to change. The abandonment, for whatever reason, of seaside resorts, will by consequence reject the images of lively beaches into a happy but bygone past.

Conclusion

Changes in world tourism, which are already underway, will probably accelerate following the recent crises, particularly the Covid-19 crisis, which stopped all flows and brought the whole of tourism activity to a standstill. The coastal touristic economy is therefore threatened in several respects: by economic factors arising from crises (financial, health), and above all by the climate crisis.

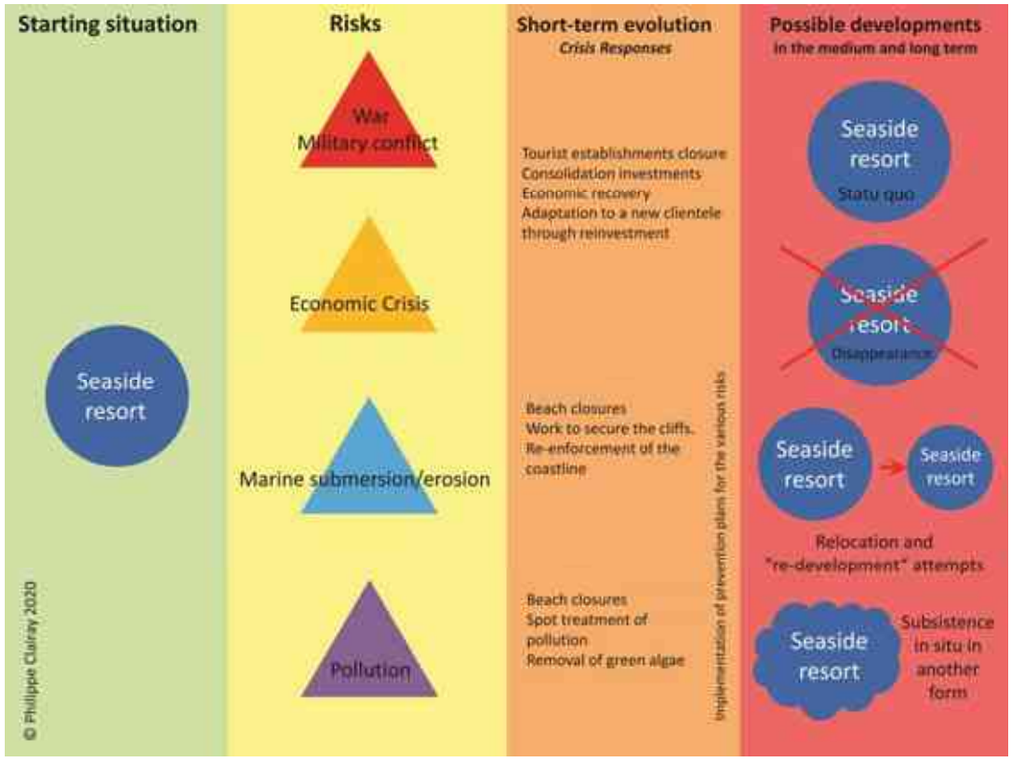

Fig. 10. Synoptic table of the evolution of seaside resorts: risks and responses (source: Philippe Clairay).

For the existence of beach leisure activities is linked to the fact that beaches themselves still exist! And this is how tourism is: it tends to consume what it wants to enhance. Natural paradises become urbanized hells. Moreover, this destruction of an anthropized natural landscape is accelerating with coastal erosion, risks of submersion, green tides. These signs of climate change raise the question of the survival of these seaside resorts. To overcome these decisive challenges, our societies will have to show great resilience. For it is not only an economy, but a way of life that is under threat.

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Viviana Pappalardo
Daniele La Rosa

PLANNING POLICIES AND INSTRUMENTS FOR SUSTAINABILITY AND RESILIENCE IN MEDITERRANEAN CONTEXTS

The case of Egypt

Abstract
Climate Change is one of the main factors challenging the sustainability and resilience of urban and rural contexts. It is responsible for many hazards threatening the variety of landscapes and the need to face these risks is of increased interest for researchers, local authorities and policy makers. Particularly spatial planning policies and instruments are able to mitigate such risks or change the physical assets of cities so to adapt to them, consequently generating modification in urban and rural landscapes.
This paper presents the first results of a review of urban policies and planning instruments designed and issued at different administrative levels in Egypt, a country chosen within the Mediterranean region for the vulnerability and exposure of its socio-ecological systems (high density cities, particular morphological assets). Findings are then discussed with reference to the actions undertaken by national governments to increase the resilience and sustainability of urban landscapes and the level of integration of adaptation concepts in single planning frameworks.

Keywords: spatial planning, urban policy, climate change, sustainability, resilience, Egypt

Spatial planning for sustainability and climate resilient urban landscapes
Urban landscapes change as a consequence of social, economic and environmental processes. Indeed, urbanization, climate change processes, natural and man-made hazardous events have determined severe transformations of landscapes, affecting natural processes [1].
The different components of urban landscapes can be considered as complex socio-ecological systems whose functioning plays a crucial role in addressing climate change mitigation and adaptation [2]. Resilience of urban landscapes is continuously challenged by the uncertain dynamic interactions between natural processes and human activity, especially for urban areas with high population density [3].
Commitments to make cities and human settlements inclusive, safe, resilient and sustainable, thus including mitigation and adaptation to climate change, should be put into effects through local actions yet delineated in cities' strategic planning processes and climate change programs [4].
Urban land uses almost exclusively change according to decisions driven by local authorities, causing transformations which may impact negatively for example on urban ecosystems [5] that are fundamental to provide benefits for people such as those deriving from climate and natural hazard regulation. Urban planning is the most relevant among decision-making processes for cities, as it regulates the spatial arrangement of land uses and the related quantity and typology of ecosystem services [6].
Responses to urbanization challenges require the development of specific policies at global as well as local level, together with their translation into spatial planning dimension at multiple scales. This holds true both for urban contexts in western world and rapidly developing cities of the Global South [7], where a careful management and planning of urban growth will be crucial in order to guarantee sustainable development.
In light of recent socio-economic developments and expected climate change impacts coupled with demographic processes, this paper presents the first results of a study aimed at collecting and evaluating examples of policies and planning instruments addressed to urban sustainability and climate resilience for the case of Egypt. Egypt has been chosen as a representative Mediterranean country, because it presents a high level of vulnerability and exposure of its socio-ecological systems (high density cities, particular morphological assets) to climate change risks. This paper questions how have climate change and sustainable/resilient principles in cities been incorporated into national policies and urban planning. Section 2 presents a brief overview on the Egyptian context and shows the method used to review the planning policies and instruments. Findings are described in Section 3 and discussed in Section 4 at the light of current literature on the topics. Concluding remarks are outlined in the last section.

Case study and methodology

Sustainability and climate resilience in Egypt
This paper reviews the case of Egypt, identified as one of the most critical tiles of the Mediterranean region mosaic, because of the difficult democratic transition, the challenges to economic growth and the vulnerability of the country towards climate change. In particular, the combination of population growth and climate-related risks would impact dramatically on urban areas [8].
In the context of the recent national developments as well as regional and international obligations, Egypt has issued the National Strategy for Disaster Risk Reduction (NSDRR-2030) following the international approaches including those inspiring the Sendai Framework (2015– 2030) and the UN Sustainable Development Agenda (2015 – 2030).
Although climate scenarios on climate vulnerability of the country present some uncertainties, Egypt shows a critical dependence on the narrow lifeline along the Nile and the coastal zone corridor around the delta, where major urban centers, commerce, and industrial activity are located [9]. Since Egypt is mainly a desert and relies primarily on irrigated agriculture, great concern is related to possible changes in precipitation regimes affecting the water sources of the Nile. Climate change is expected to change the hydrological cycle, prompting a greater likelihood of water-related disasters including floods and dry seasons [10]. Sea level rise challenges coastal areas as well as the fertile Nile delta with potential dramatic impacts on agriculture and infrastructure [11].

In particular, it affects the Mediterranean coast of Egypt differently according to the varying social and physical vulnerabilities that characterize each renowned Egyptian coastal features: [12] reported that the Nile Delta and Alexandria attain higher risk levels to the sea level rise compared to the northwestern coast and North Sinai areas, based on the consideration existing land subsidence, tectonic activities and shoreline morphodynamics and of physical exposure of population.
Moreover, social sensitivity to climate related hazard is particularly high, due to the low-income and low standard of health and education of poor people, which represent a high percentage of the Egyptian population [13]. The combination of environmental impacts of urban development and climate change amplifies the risk profile of urban areas, which largely experience informal urbanization processes [14].

Method
The collection of policies and planning instruments was carried out following progressive stages. First, a query in the Scopus database was done, testing the following combination of search terms: ("mitigation" AND "adaptation" AND "planning" OR "policy" AND

"Egypt"); ("sustainable cities" AND "Egypt"; "resilient cities" AND "Egypt"; "sustainable planning" AND "Egypt"; "Egyptian cities"; "planning" AND "climate change" AND "Egypt"). Since no documents were found, the same combination of keywords was also used in the ResearchGate database to increase the likelihood of retrieving relevant documents. Finally, keywords were used in Google to select relevant grey literature on the topics. Review was performed in March, 2020.

We checked the alignment of documents' contents with the research focus and topics, by screening the titles and –where available- abstracts. Only papers and documents explicitly referring to policies and planning instruments were actually reviewed. Other documents concerning theoretical studies, conference presentations and research articles with generic reference to sustainable and urban resilience were discarded.

The selected documents where then reviewed according to some relevant factors/topics, critical for the discourse on sustainability and climate-resilience goals for urban areas [15]: hazard and exposure mapping/monitoring and risk assessment; local disaster risk reduction and climate change mitigation/adaptation strategies; effective stewardship and management of ecosystems; safe and affordable housing with inclusive access to basic resources, diverse and affordable transport networks and its effective maintenance; decision-making including proactive multi-stakeholder collaboration, effective mechanisms for communities to engage with government and adequate education for all; codes, standards and enforcement combined with land use and zoning (managing land consumption rate to population growth rate, preservation, protection and conservation of all cultural and natural heritage, construction/regeneration/retrofitting strategies for built-up areas based on resource-efficient technologies and use of nature-based solutions).

Planning policies and instruments for sustainability and resilience in Egypt

Selected documents

No relevant documents/articles – from more than 100 identified by the keywords used – were selected after the SCOPUS review. From the second stage of the review to in ResearchGate, 30 papers were selected, mostly focused on climate change challenges facing Egyptian cities. Among these, however, 6 articles dealt with planning and policy framework in Egypt. Finally, 22 documents were selected as relevant to the topics in the third stage, with 13 documents about planning and policy experiences. Among the latter, 7 were in form of reports officially published by Ministry Departments and supporting agencies/organizations while the remaining 6 were scientific articles not yet retrieved. Figure 1 shows the correspondence between the retrieved documents and the analyzed policy and planning instruments, which are reported in the next sub-sections.

National Policies	Sustainable Development Strategy – Egypt`s vision 2030	Aboulnaga, M. (2016). Recommended National Sustainable Urban and Energy Savings Actions for Egypt, Cleaner Energy Saving Mediterranean Cities (CES-MED), ENPI 2012/309-311, EU Funded Project, EuropeAid/ 132630 /C/SER/Multi, Hulla & Co. Human Dynamics – KG, October 10, 2016 Algohary, S (2016). Appropriate policies and political will in making Egyptian cities resilient to natural hazards: a case study from Cairo. International Journal of Engineering Research and Science & Technology, 5 (4) Ayyad, K. M., Gabr, M. (2013). The role of environmentally conscious architecture and planning as components of future national development plans in Egypt. Buildings, 3(4), 713-727 Darwish, D., Bayad, M., & Mahdy, M. (2019). Quality of Life to Achieve New Egyptian Cities. The Academic Research Community publication, 3(3), 1-12 Egypt Ministry of Planning, Monitoring and Administrative Reform (2016). Egypt Vision 2030 Youssef, A. (2017). National Strategic Plan for Urban Development - Vision 2052, and Sustainable Development Goals – SDGs Investigating Features of Alignment. Technical Report submitted to "Planning, Communications, and Reporting Unit- UNDP Egypt Country office"
	National Strategy for Disaster Risk Reduction (NSDRR 2030)	The Cabinet of Egypt Information and Decision Support Center (2017). National Strategy for Disaster Risk Reduction 2030
	National Adaptation Strategy to Climate Change and Disaster Risk Reduction	Froehlich, P., & Al-Saidi, M. (2017). Community-based adaptation to climate change in Egypt—status quo and future policies. In: Climate Change Research at Universities, 235-250. Springer, Cham The Egyptian Cabinet Information & Decision Support Center, UNDP-United Nations Development Programme (2011). Egypt's National Strategy for Adaptation to Climate Change And Disaster Risk Reduction
	Green Pyramid Rating System (GPRS)+Green building Guidelines (GBG)	Aboulnaga, M. (2016) Antuña-Rozado, C., García-Navarro, J., Reda, F., & Tuominen, P. (2016). Methodologies developed for EcoCity related projects: New Borg El Arab, an Egyptian case study. Energies, 9(8), 631 Ayyad, K. M., Gabr, M. (2012). Greening Building Codes in Egypt. In: Sustainable Futures: Architecture and Urbanism in the Global South, Conference at Kampala, Uganda Elfiky, U. (2011). Towards a green building law in Egypt: Opportunities and challenges. Energy Procedia, 6, 277-283 Farouh, H. E. (2017). Fostering Sustainable Cities in Egypt. In 1st International Conference on Towards a Better Quality of Life
Strategic and regional Planning	Strategic National plan for urban development (SNPUD-2052)	Arab Republic of Egypt (2016), Arab Republic of Egypt National Report. In Third United Nation Conference on Housing and Sustainable Urban Development (HABITAT III), Quito 2016 The Arab Republic of Egypt Ministry of Housing, Utilities & Urban Communities General Organization for Physical Planning (2014) National Urban Development Framework Youssef, A. (2017)
	Strategic Plan for Greater Cairo Region 2052	Aboulnaga, M. (2016) Arab Republic of Egypt (2016) Shaalan, I. (2016). Evaluation of GOPP-UNDP Projects. Final Report The Arab Republic of Egypt Ministry of Housing, Utilities & Urban Communities General Organization for Physical Planning (2014) National Urban Development Framework
	Strategic Urban Plan Alexandria 2032	Aboulnaga, M. (2016) Arab Republic of Egypt (2016) Barthel, P.A., Davidson, L., Sudarskis, M. (2018). Alexandria: regenerating the city. A contribution based on AFD experiences, Paris: AFD (Agence fançaise de developpement) Shaalan, I. (2016) Sirry, A. (2018). Alexandria: development challenges of a coastal second city. In: Wise Cities in the Mediterranean?. Eckart Woertz (ed)

Fig. 1. Correspondence between documents' contents and policies and planning references in Egypt.

National policies

According to the documents reviewed, Egypt has put forth many efforts both on institutional challenges and procedures for achieving urban sustainability, mitigation and adaptation to climate change.

The "Sustainable Development Strategy – Egypt's vision 2030" aims at implementing an ambitious program of financial reform to improve the integration of adaptation into national budgeting and planning processes. The strategy identifies ten pillars of sustainability belonging to three different dimension. The "environment and urban development" pillar goes under the environmental dimension and is in the wake of the vision of Strategic National Plan for Urban Development (SNPUD-2052). In particular, a set of key performance indicators and suggested programs to deal with different challenges were defined, including: the use of green and sustainable building methods, new infrastructure, elimination of insecure settlements, adoption of policies to reduce air pollution and adapt/mitigate climate changes, raise awareness to protection of natural resources.

The National Adaptation Strategy (to Climate Change and Disaster Risk Reduction) dates back to 2011, providing the groundwork for supporting the process to formulate and implement National Adaptation Plans. In particular, the principle of adaptation is well related to housing and transport. The document clearly refers to the idea of directing city planning, architectural design towards the requirements of a green and sustainable

architecture. Recommendations cover the efficient utilization of energy, rationalization of water use, issuing a green architecture code, adoption of an energy code for residential and commercial buildings, environmental compatibility of buildings, promoting the teaching of climate change programs in the academic programs. Large scale campaign for education are also suggested to support delocalization strategies for population living in flood-prone areas.
More recently, Egypt issued the policy NSDRR 2030 to upgrade its current national system for disaster risk reduction coherently with international approaches. The interaction between priorities for sustainable development and mitigation of risks is made clear, with specific focus also on the environment, housing and infrastructure sectors. The achievement of a good level of mitigation, prevention, and preparedness to reduce disaster risks is suggested throughout the incorporation of disaster risk reduction in all sectoral plans and strategies, the development of an early warning system, the enactment of legislations and laws.
In January 2009, a major step was taken by establishing the Egyptian Green Building Council whose immediate action was to approve a national Green Building Rating System called the Green Pyramid Rating System (GPRS) [16]. This system, including awarding Green Permits, is considered the backbone of numerous proposed large scale public developments. To date, the system seems to be only limited to project proposals only (the Eco-Villages National Project and for National Affordable Non-Conventional Housing Project). Later on, the Green Building Guideline (GBG) was also published in 2013 on a voluntary-base, addressing areas of environmental sustainability, and including building site, energy, water, indoor quality and materials.

Strategic and regional planning

A number of specialized departments have been established with the purpose of building national capacity and start to implement proper spatial plans. Attempting effective leadership through inclusive governance and evidence-based decision-making supports the role of the General Organization for Physical Planning (GOPP) in executing an agenda addressed to institutional transformations, including partnerships with private sector companies.
The GOPP developed the Strategic National Plan for Urban Development (SNPUD-2052), approved in 2013, which constitutes the main reference document expressing the vision for current and future development of Egyptian human settlements. It acts as a guideline for policies and practices of the Egyptian urban development with a multidimensional, multidisciplinary and multi-step strategy [17]. Although clearly grounded into the development paradigm, the Plan also include principles of sustainability and climate-resilience.
The most advanced but only regional planning instrument is the Strategic Plan for Greater Cairo Region, which has been based on sustainable pillars such as: the health and well-being of everyone living and working in the city, enabling everyone to meet their basic needs of food, water, housing and primary resources; the enhancement of environmental quality, reducing air pollution and delocalizing heavy industries outside the main urban agglomeration, applying environmental legislations and regulations, developing potentials and capabilities of solid wastes management, boosting dependence on new and renewable energy sources; the increase of green area per capita, strengthening mass and public transportations networks; the reduction of the pressure on the central region of Greater Cairo through the development of unplanned areas; the support to urban rehabilitation and renewal projects.
The Strategic Urban Plan Alexandria 2032 (SUP) is managed and supervised by the national GOPP as well. It is the result of the partnership with UNDP (United Nations Development Programme) [18] and prepared by AS&P (a Germany-based consulting firm) that had worked from 2011-2014 on the analytic phase leading to grow up a vision implementation plan. The recent strategy has been designed to be at once a physical plan, a participatory process, and the result of consensus-building and a capacity-building tool to improve the capabilities of the local administration in urban development [19]. SUP 2032 faced several challenges since its beginning such as political instability, security and safety issues, post 2011 and the weak capacity of the local authority in the execution of the proposed development plans. An initial phase of Plan implemented databases for all the districts of Alexandria with all information on existing urban condition, based on sectoral studies (social, local economy, housing, transportation, infrastructure and environment), and elaborated detailed spatial plans for priority areas.
A new stage has now begun with the elaboration of SUP 2032 implementation plans but few information is available with this regard. Available documents, in fact, focus entirely on the role of participatory planning in developing the masterplan and on physical alternatives of development growth scenarios, strictly relying on quantitative population projections [20].

Discussion and conclusions

From principles and policies to local practices: main issues

In Egypt, development of cities over the last six decades mirrors the tension between environmental and urban agendas. Extensive environmental degradation due to human activities and mismanagement remains a major challenge facing development processes [21].
The review of collected documents allows to distill only preliminary indications about the efficacy of sustainable and climate-related policies and planning strategies existing in the country.
First, the transition of Egypt toward sustainability and climate-resilience is too recent to draw exhaustive conclusions. The very recent policy trends stress for a new urban agenda addressed to deal with many complex demographic and urban issues such as the management of rapid urbanization process and rural-urban linkages, integration of gender in urban development, urban mobility challenges, improvement of access to adequate housing and services, and disaster risk reduction [22]. However, the majority of collected documents returned a picture of a quite strong and general policy framework but yet with limited and uncertain validation on the level of the urban practice.
Rather, some authors claim for an ineffective regional planning framework, with plans that have been not put into practice, due to a combination of reasons [23]. Among these, the flaws in the current plan-making process which relies on the government's centrality and monopoly in decision-making; fragmentation between government agencies, which leads to multiple and often conflicting spatial plans; and an absence of negotiations between various stakeholders [24]. The mere existence of international commitments, national climate policies and planning frameworks more or less aligned with acknowledged principles of sustainability and climate-resilience is not guarantee for local plans and even more for real action. For example, some authors noted that a number of the criteria in the GPRS do not comply with the national Egyptian building code [25]-[26], while data on the total number of buildings evaluated on the GBG base are not available.
Other key factors affecting the achievement of intended outcomes of sustainable urban development policies in Egyptian cities concern the administrative, fiscal, and political centralization, the local government capacity and the weak coordination and synergy between national plans and policies, as well as the lack of clarity regarding the interpretation of the law and its relevance, land owners and private developer's unwillingness to comply and the overall wider political context [27].

Limits and perspectives

The small body of documents reviewed is the result of the use of English keywords only, with few instances focusing on urban areas and local planning practices. This also depends on the fact that planning documents, if present, are in Arabic and not included in scientific databases. Moreover, some topics, such as mitigation and adaptation to climate change in urban areas, are not always specifically stressed, even if dealing with climate-related risks is clearly a priority for the high vulnerable urban communities of Egyptian cities.
However, the use English keywords can allow to extend the research –for example using the same keywords- to other Mediterranean countries, thus providing a whole depiction of the current status of planning and policy against climate related risks in this region and making comparisons possible.

Concluding remarks

Socioeconomic structure, institutional framework and environmental capital of each

Mediterranean area affect the changes in urban landscapes, following the effects of development under climate change. Sustainability and climate resilience related commitments at the national and international levels should be put into effects through local actions depicted in cities' programs, policies and strategic planning processes. How and why urban landscapes engage these processes and the real effect of binding or non-binding policies remain largely to be explored across developing countries.

Results of this study confirm a principle of substantial commitment by Egypt to a path of urban sustainability and resilience to climate related risks. Not surprisingly, while the general policy framework and the strategic planning vision appear to be sufficiently thorough, the search of planning instruments specifically designed to equip urban landscapes against climate change impacts did not return enough information for describing the actual local urban enhancement of the analysed Mediterranean context.

The capacity to target policies and planning instruments to prioritize specific actions for adaption and mitigation, in particular, is being built progressively and increasingly but yet not practically proved.

Acknowledgement

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WATER: A SOFT INFRASTRUCTURE FOR THE CITY OF LATERZA

Abstract
This paper presents an urban project for Laterza, a small town in the province of Taranto, awarded with the first prize at the 15th edition of Europan, an international competition for young architects.
Laterza stands on the deepest of the canyons that characterizes the evocative landscape of the Parco delle Gravine, which, with its gorges and vast plateaus, shapes and draws the territory of the Tarantino Ionic arch.
The project aims to answer to the competition main topic (productive cities - changing metabolism and circular economy) by integrating the local heritage enhancement with climate resilience aspects, preserving a connection with the historical settlement system. The urban structure of cities in this territory was conceived and built as “hydraulic machine”, organized to manage, preserve and discard the most precious natural resource: water.

Keywords: Laterza, Europan15, hydraulic machine, soft infrastructure, productive city

Introduction
The project experience presented here was developed on the occasion of the international competition for young architects "Europan 15": the theme of the competition was "productive cities" and concerned the project for the reorganization of a system of three squares in Laterza, a small town with characteristics similar to those of nearby Matera, in the province of Taranto. It was, at first sight, a traditional redevelopment project of the "central" places of a small town. However, this project required a wider research because two elements intervened strongly to orient it: the first was the extraordinary power of the geographical dimension of the Gravina on which Laterza stands (the largest of the canyons that make up the "parco delle Gravine"), the second was the awareness that the territory surrounding Laterza has been the victim, in recent years, of extreme weather events due to climate change (such as the flooding of Matera in autumn 2019 [1] or the flood that affected Ginosa in 2013 [2]) and is considered a territory of high hydrogeological risk.
The project was therefore born from the hypothesis that these central places could represent the "missing fragment" of a territory that functions as a complex hydraulic machine and that was able to show and defend the "fragility" of an extraordinary landscape. The

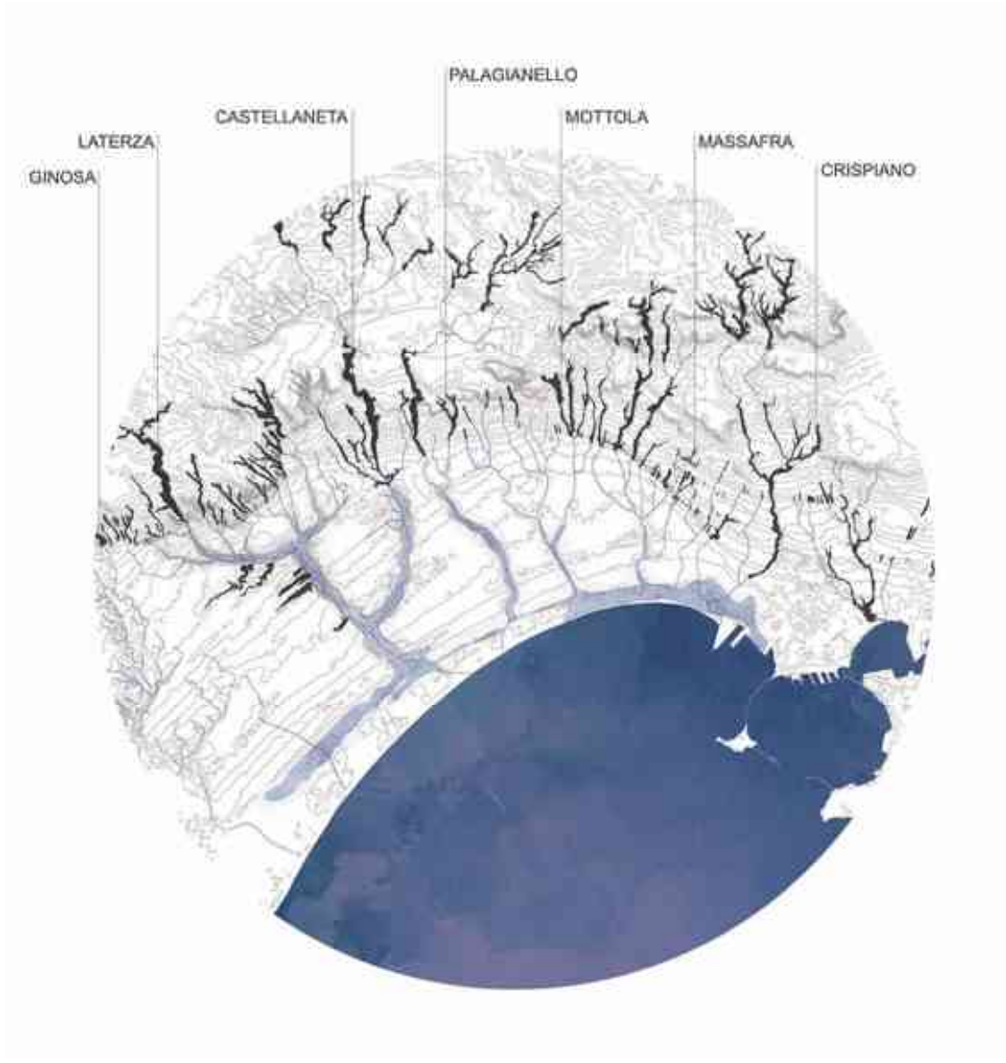

Fig. 1. The Ionian Arch.

analysis of this fragility together with the research on the particular geographical and naturalistic conditions and settlement traditions, linked to the "heavy" presence of complex hydrological systems, allowed the development of the project strategy aiming to redesign the project area as an integral part of the cultural landscape of Laterza and its surroundings.

The cognitive framework: the Tarantino Ionic Arch and the Murge plateau
Therefore, the design process began with a study that aimed to understand the geographical and territorial conditions and their relationship with the settlement principles that have always characterized these places; Laterza is a small town with a population of 15000 inhabitants located in the western part of the province of Taranto, almost on the border between Puglia and Basilicata. The municipality extends to the northern edges of the *ionico tarantino arch*[1] (Fig.1), on the final part of the Murge’s plateau which, a few kilometres further south, plunges to the coastal plain [3]. Despite its peripheral position, far from the large urban centres, this territory has a strong historical, morphological and naturalistic connotation. The ionico tarantino *arch* has an extension of 1,325.80 km^2 and is defined by the Bradano valley on the west side, the Murge’s foothills on the north side, and the

Fig. 2. Urban evolution [8].

northern Salento to the east, including 20 municipalities.
Its morphological structure is the result of atmospheric agents modelling in addition to sea level oscillations occurred during the middle-Superior Pleistocene. Therefore, this territory appears as a terraced amphitheater that reaches 400m amsl. The plateau where the small towns of the Ionic arch, including Laterza, are situated is a carbonate platform, therefore an ancient seabed, with three types of calcareous rocks: Cretaceous limestones, terraced marine deposits and Altamura limestones. The extensive rock has an abundant underground water circulation, as well as an hydrographic network which draws a radial pattern on the plateau's surface with narrow and deep fractures of the limestone, abovementioned *Gravine*, that reach the Gulf of Taranto. These orographic and geological peculiarities are translated in an extremely complex and heterogeneous natural landscape, in which we can recognize three prevailing scenarios that correspond to different altitudes: A coexistence of these three ecosystems in a restricted territory generates a great biological variety unique in its kind. The plateau looks like an endless and arid expanse on which the different land uses form a varied mosaic of agricultural areas, pastures, and small oak woods including the typical Fragno (*Quercus trojana*). The canyons, which are frequently overlooked by urban centres, look like complex ecosystems; they have a characteristic "V" shaped section where, due to thermal inversion phenomena[2] (Fig. 2), around 200-300m above sea level, among the countless plant species, grow the only European specimens of Aleppo Pines (*Pinus halepensis*). The coastal area has sandy and very deep soils that allow the development of intensive agricultural activities interrupted by watercourses that reach the Ionian Sea and by the canalizations of the agricultural reclamations.

The *Gravina di Laterza*, which extends for about 24 kilometres and reaches a depth of more than 200m, hosts the nesting of a remarkable variety of birds, such as the Egyptian vulture (*Neophron percnopterus*), a rare migratory vulture.
In this territory, the first settlements dating back to the Neolithic Age were mainly located on the limestone plateau near the *Gravine*. Simultaneously with the earliest settlements, were created the first territorial organization which aimed to regiment water, to be exploited and preserved without endangering the communities [4], and to infrastructure the territory of the *arch* through a dense network of paths. Most of these tracks developed mainly from the matrices of the *tratturi*[3] (Fig. 3) that connect the different villages and follow the ground levels, from the peaks of the plateau to the valley floor of the *Gravina*. The road network is developed from the long-distance tracks that run essentially alongside the Via Appia (*tratturo* Martinese) from which smaller routes ramify connecting villages and farmhouses. Throughout history this system has favored an intense exchange network based on territorial mobility, on which the protected and fortified towns are based. Many of these settlements have similar urban structures: almost all the building units are built starting from underground cavities, product of natural erosion or human excavations [5], [6], [7].
The old town of Laterza is an extremely distinctive example of this urban structure; its oldest nucleus, jutting over the deep canyon, is located between the two *Lame*[4] (Fig. 4) of water that flow into the Gravina. Throughout history the limestone has been progressively excavated and dwellings, productive activities, and places for rituals have developed not only on the surface, but also in the deep cavities of the ground.
The creation of these spaces that proliferate vertically, as well as horizontally, creates climatic conditions that during the different seasons protect against heat and cold, preserve food and store water.
This primitive shelter had a descending section in order to provide protection against the sun in the summer months as well as light and heat in the winter months. The sunlight was able to reach the bottom of the cavity, where water, that flowed there by gravity, was stored. The evolution of the urban settlements developed from the closure of the natural cave, the terracing for agricultural purposes of the terrain in front of it and the arrangement of paths along the direction of the water flow; over time, an external construction was added to this structure, the *lamione*[5] (Fig. 5), which extended the internal surface [8]. Finally, when new residential units grew around the original cave, the terrace was enclosed between the houses, creating a protected horseshoe-shaped environment called *vicinato*[6] (Fig. 6). In the

Fig. 3. Via delle Concerie [8].

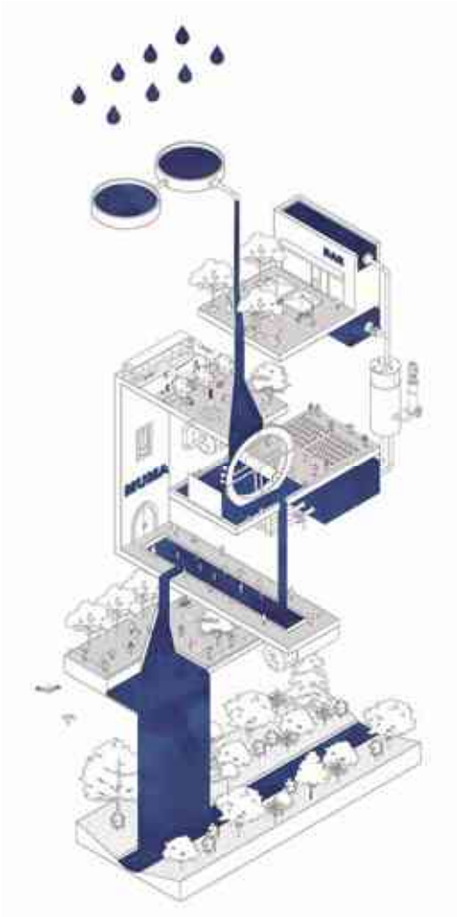

Fig. 4. The Hydraulic Machine.

middle of this space there was a common cistern that collected water from the roofs of all the surrounding dwellings. This settlement system was developed on several levels, often transforming the roofs of the houses into paths, creating the typical urban landscape visible in Matera and in many other centres of *the Ionian Arch*.
This type of space system is clearly recognizable at Laterza near via delle Concerie, an ancient road that follows the western blade and where even today we can still read the succession of cistern-cave-terracing on overlapping levels. Here also developed numerous productive activities related to the collection and management of water, from agriculture and breeding which are still visible today, to the craft production, among which the manufacture of majolica and the processing of leather (from which the road takes its name). The entire production system, as well as the urban structure, turns around water management [9]: an example of this relationship is the sixteenth-century fontana dei *Mascheroni* that collects water before flowing into the Gravina and where, now and in the past, take place the rituals of the collective life of Laterza's inhabitants together with the productive life.

The method: research as a project and the construction of an hypotheses [10]
The methodology developed during the ideation process was based on the study of the morphological characteristics of the territory and its settlement principles; this knowledge made it possible to identify the element of water as the engine that guided the strategies and design choices, assuming that this element was able on one hand to interact with the different levels that compose Laterza's landscape, and on the other hand to develop added value in terms of climate resilience and reuse processes of raw materials that can develop forms of circular economy. However, being guided in project choices by the desire to integrate an element such as water into the design of urban space in order to improve the conditions of habitability, is also (and perhaps above all) an attempt to respond to a request that seems increasingly urgent, to rethink our relationship with natural elements, which is no longer only interested in their exploitation, but in understanding and respecting their mechanisms and balances.
The themes of climate resilience and the activation of circular economies open to an investigation on the possible responses to the two main elements of fragility that *laertino* territory presents today: the hydrogeological risk and the depopulation.
The increased possibility of particularly intense meteorological phenomena occurring in the area [11], [12], shows the inadequacy of the rainwater management and disposal systems; in particular in Laterza rainwater is managed through a storm drainage stystem, which is absent in some parts of the city, that discharge into the two "lama" that cross the city center and then reach the "gravina". The western "lama", the one in which all the rainwater that affects the south-western part of the city centre and the entire historic centre, convey, has been

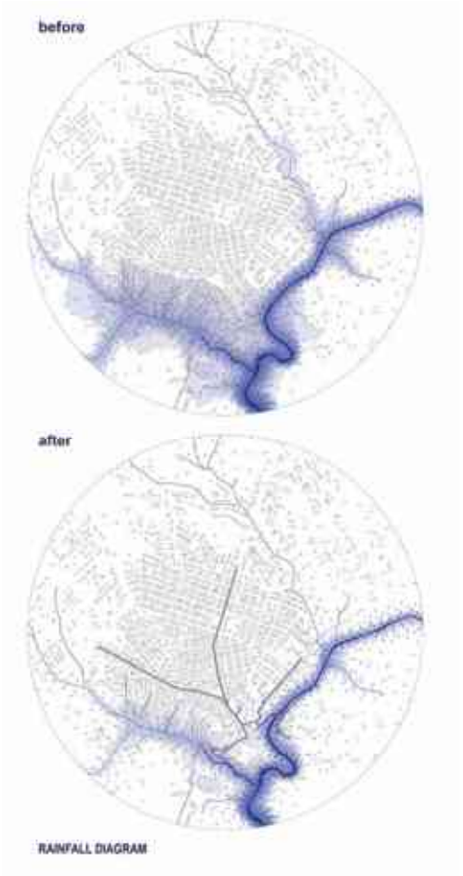

Fig. 5. Rainwater urban management - before and after.

Fig. 6. Project overview of Piazza Vittorio Emanuele.

over time mostly filled and coincides with Via delle Concerie. People of Laterza have nicknamed this road "'o sciuvilo" because, when heavy rainfall occurs, the drainage system is unable to withstand the load of water and floods the road, transforming it into a dangerous “slide" that flows towards the “Gravina”.
At the same time, those who visit Laterza today discover a beautiful old town perched on the edge of the wonderful canyon, with tiny winding alleys that open up into breathtaking views of the almost completely abandoned landscape. Two main factors have contributed to this: the urban morphology, for which the old town is paradoxically located on the edge of the inhabited area, and the history of the city, which has long seen the old town become a ghetto in which the Rom community (now completely integrated) was isolated; the extreme difficulty encountered in trying to identify and map precisely the different layers of cavities and caves, makes very complex to develop a systematic project for the reuse of the historic centre, despite the good will and stubbornness of some groups of citizens who recognize its potential and beauty and would be ready to invest energy and resources in the recovery of those places. The project therefore attempts to systematise these elements of fragility and transform them into opportunities through the water, its collection and its management in the urban space. A system of canals and tanks for the collection and disposal of rainwater "on sight", that crosses the project area and invades the historic centre, builds different urban scenarios according to the different conditions that may occur; the new canalisation system considerably lightens the water load on via delle Concerie, redirecting the flows through controlled paths that discharge directly into the *gravina*.
However, the system is also designed to reuse and exploit part of the accumulated rainwater, encouraging the development of a circular economy, meant as a process made up of best practices and political, urban and economic choices that do not waste potential resources.
The architectural theme of water is symbolically intertwined with all the most characteristic activities of the city of Laterza, from the production of ceramics to the processing of leather, to the food and wine tradition, and the design of the public space becomes here an opportunity to promote a tourism not aimed at consumption and commodification, but at exchange and participation.

The project as an “open” answer
Considering the complicated issues identified through the research path, the project has no intention of providing a definitive and univocal solution, but aims to give a "backbone" to the light infrastructure that imagines and foreshadows changing spaces, which are transformed according to the climate, the seasons, the hours of the day, the functions that are required from time to time; public space nowadays has to face new needs, it must be able to accommodate various and unpredictable uses; therefore architecture can no longer produce creations based on finished and completed works that crystallize defined spatial configurations; instead it is necessary “to infrastructure” the public spaces in a way that allows different things to happen, where places can be continually modified and reinterpreted according to changing desires and needs. We have seen how various factors have contributed, over time, to modify the value system through which the local community traditionally interacted with landscape, both natural and urban, and how this has led to deep transformations of landscape itself.
The main objective was to imagine some possible conditions in order to restore this relationship. Through the unitary design of the system of three squares that are the subject of the competition, the project proposes to look at this area as a "missing fragment" of a potential route that follows the direction of the small *tratturo 82* (Bernalda-Ginosa-Laterza); this connects the old town with its deserted alleys, the lush and forgotten canyon and the consolidated city with its streets teeming with traffic, people and shops.
The rainwater canalization system accompanies this new pedestrian axis, exploiting the natural slope of the land, crossing the city to reach the *gravina* and using the *neviere*[7] (Fig. 7) and underground caves as cisterns to collect water in order to reuse it in the driest months.
The water path crosses all the productive areas that the project identifies and enhances with its connection.
Starting from the lively commercial promenade of Via Roma, up to the first square, Piazza Fratelli Barberio, a new intermodal junction, and point of convergence of the two rainwater lines coming from different parts of the city.
Water enters Piazza Vittorio Emanuele, the second square and centre of Laterza's sociality, crossing it on one side and then flowing into two large pools: when particularly intense rains occur water accumulates here, on the other hand when the weather is dry these become places for daily sociality.
The main pool is a large open and free space that can assume different configurations depending on the seasons, moments of the day, or needs: it can be a space for games, markets, or turn into a space for events; inside the pool there is a floor fountain with water games that are activated in the driest and warmest periods and can fill the pool artificially.
At the back of the square a terrace overlooking the Gravina becomes the first outlet of the water system and a branch of the canal leads to an additional pool on the overhang. From here the water is brought to the bottom of the Gravina, crossing the levels of terraces that characterize the bank. Next to the basin, a space with seating and vegetation is created, as well as a pedestrian descent that partially follows the direction of an ancient *carbonari*[8] path.
Always following the water, we finally arrive in the third square, Piazza del Plebiscito, the access point to the historic centre; here the system opens into another small basin and then reaches Via delle Concerie, where another fountain is placed.
From Via delle Concerie the route deviates to provide the parts of the old town centre that are not equipped with drains and do not have rainwater management systems.
The idea of a mutable space is a key element of the project: these tanks, which are filled and emptied according to different circumstances, are designed to build different sets for urban life (Fig. 8).
Together with the elements of water management and canalization, a fundamental role is played by stone: this material has been used for all the paving and fixed furnishings of the project, thus creating a sort of "extension" of the historic center in the consolidated city, in a movement opposite to the one made by water, trying to rebuild the link between parts of the city that seem disconnected, which could be strongly valued through the reconstruction of their unity (Fig.9).
In this sense, another key role is played by the vegetation, which climbs up the ravine and enters the urban space, composed exclusively of local essences: the *holm oaks* follow the main

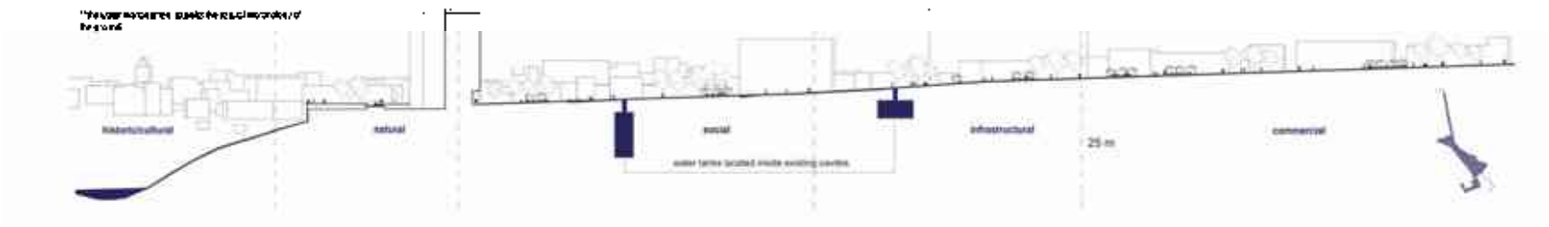

Fig. 7. Longitudinal section.

Fig. 8. Stormwater management system.

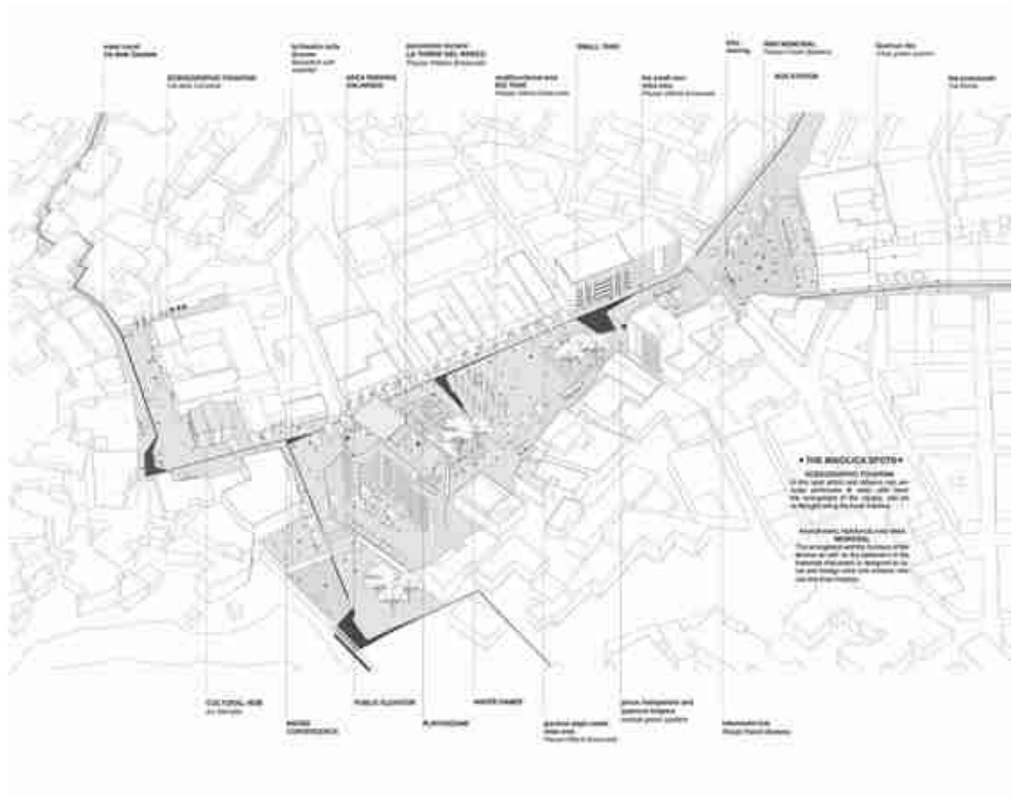

Fig. 9. Axonometric view.

path, the *Aleppo pines* and the *Fragni*, a particular type of deciduous oak that generates changing scenarios depending on the seasons, identify the places of rest.
When crossing the city, this new infrastructure revitalizes some problematic or undervalued buildings, including them in the public space system and transforming them from problems into opportunities. The large and unpleasant 10-storey building, that excludes the view of the landscape from the square, is transformed into the new "park tower": the large building terrace becomes an extension of the public space, a new belvedere overlooking the "Gravina" and the old city.
The former covered market of piazza Plebiscito represents instead an opportunity to start and give life to the project through a virtuous practice of sharing and participation. This becomes in fact a "theatre" for exchange and meeting: a "Permanent Urban Laboratory", a design hub where the inhabitants will play an active role within the transformation process of Laterza, exploiting the synergies and alliances that contexts like this one, a small village, have the possibility to create.

Conclusion

The Laertine landscape can represent a significant case in which the great issue of climate change influences the life and structure of a place that has a relatively small scale. Integrating the area of the three squares into a much wider territorial system and interpreting it as a part of a more complex and extensive machine, reveals the attitude to deal with an idea of landscape, which is made up of its geographical, morphological, naturalistic, historical and cultural features; at the same time it points out the will to work on these stratified landscapes, not looking for rigid answers that come from above, but trying to explore solutions that are not definitive but able to build possibilities for a fragile yet so powerful landscape.

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NOTES

1. The name is derived from the territory's shape which reminds an arch.
2. The phenomenon of thermal inversion consists in the inversion of the traditional relation between temperature and altitude. In Laterza's Gravina this allows to identify on the valley bottom species which are usually located in medium mountain environments, while climbing the slopes you can find species typical of the Mediterranean scrub.
3. Shepherd's tracks.
4. Small tributary of the *gravina.*
5. traditional expression for a brick contruction added to the cave.
6. Lit. neighbourhood.
7. Underground cavities used to store snow.
8. Patriots fighting for the unification of Italy in the XIX century.

Francesca Torrieri

Marco Rossitti

SPATIAL COST BENEFIT ANALYSIS IN FLOOD RISK MANAGEMENT: EVIDENCE FROM A CASE STUDY IN ITALY

Abstract
The number of natural catastrophes is increasing worldwide: among these, flood is one of the worst hazards causing thousands of losses of life and damages to property.
Flood risk mitigation was traditionally carried out by reducing the hazard through the construction of structural hydraulic defenses. Nowadays, the approach to flood risk mitigation is conceived as combination of structural and non-structural defenses, as recommended in UN/ISDR, (2005) and in the EU Flood Directive (60/2007): in the specific, the EU directive requires the ex-ante evaluation of costs and benefits from mitigation measures in risk management plans. In this light, the paper proposes the application of a Cost-Benefit Analysis (CBA) to a case study of the city of Olbia in Sardinia Region, example of Historic Urban Landscape (HUL) in Italy, in order to support the public administration in the choice of the most sustainable plan, reducing social and environmental risk and, at the same time, ensuring its feasibility from a financial and economic perspective.

Keywords: flood risk, cost-benefit analysis, risk management

Introduction
In recent years, the increased impact of floods has caused huge damage and thousands of deaths worldwide [1]. This impact is even higher in urban areas, especially if, as often occur in Italian contexts, their territorial dimension can be recognised as Historic Urban Landscape (HUL): it stems from the combination of material heritage, economic processes, social and cultural values and practices [2]. Consequently, the assessment and management of flood risk in urban areas have gained a central role in engineering researches and applications [3], [4].
Flood risk mitigation has been traditionally achieved by reducing the hazard trough the construction of structural hydraulic defences such as levees, retention basins, and diversion channels. Proper structural measures design requires the computation of the design flood event [5], often characterized by a return period between 100 and 200 years, according to Water Authorities regulation. This approach is no longer sustainable, especially in urbanized area, where the construction of flood defence works is often source of long-term conflicts and call for significant financial resources and larger spaces than the ones available. In order to face the increasing engineering, economic, and environmental constraints in building structural hydraulic defences, novel methods for flood risk mitigation have been defined by combining structural with non-structural measures, as recommended by the United Nation [6] and the European Commission [7], [8], [9], [10]. The need to ensure adequate financial provisions for flood risk mitigation investments requires to investigate different design approaches from the conventional ones [11]. In this context, the assessment of risk mitigation and management measures stands out as an important part of the risk management and hydrogeological planning process. In this regard, the Legislative Decree no. 49/10 (attachment 1), claims the need to estimate the costs and benefits of the interventions, in order to assess their financial and economic feasibility and the related funding lines. Moreover, the European Community, with regulation no. 1303/2013, makes compulsory to sustain the "major investment projects" for different strategic sectors, including the prevention of hydraulic risk, with a Cost-Benefit Analysis (CBA), in order to assess their co-funding (Cohesion Fund 2014-2020). As suggested by Italian and European regulations, CBA can be an effective tool for supporting public decisions in strategic sectors and, thus, its correct implementation becomes fundamental [12], [13], [14].
For these reasons, this study illustrates a Spatial CBA (SCBA) to support investment choices for flood risk mitigation, ensuring the evaluation of trade-offs between preventive maintenance actions and expected economic damage in a perspective of sustainable allocation of resources. The proposed model allows to define the optimal design return period based on the logic of financial sustainability, comparing investment costs of different measures and expected damages. The paper is organized as follow:

- In the first part the methodology of SCBA is presented with specific reference to the evaluation of different flood mitigation measures;
- In the second part the first results of the application of SCBA to the case of Olbia in Italy, an example of Historic Urban Landscape (HUL), that was heavily struck by a huge flood in 2013, are displayed.
- In the conclusion some reflections are proposed, and future research lines are drawn.

Methodology: a Spatial Cost-Benefit analysis
The CBA was created as a technique for evaluating investments in the private sector and then spread to the field of public decision-making, as a tool to support the economic and financial feasibility analysis of a single project, a program or even an economic policy instrument [15]. It is an investment evaluation technique, based on the assumption that all the benefits and costs related to a project can be evaluated in monetary terms. It is based on the principle of the "intertemporal discount of values". The first applications in the assessment of flood risk mitigation and management plans and projects date back to the early 1960s, but it was only in the 1990s, with the introduction of Geographic Information Systems (GIS), that CBA becomes widely used in different international contexts, thanks to the ability of these new technologies to process and correlate spatial data on the dangerousness of expected events with the different components of urban and territorial contexts at risk [16], [17], [18], [19]. Many studies have been conducted in the recent years in the field of flood risk mitigation, both in the national and international context [20], [21], [22], [23], [24]. Most of them concerned the application of CBA as an ex post evaluation in order to assess the damages after the flood events and the costs of remediation.
The aim of this study is to apply SCBA, to risk management, as an ex ante evaluation tool, in order to define the optimal design return period based on the logic of financial sustainability, comparing investment costs of different measures and expected damages.
In this context, this methodology moves from the definition of risk, calculated according to the provisions of EU legislation (Directive 2007/60 and from that Italian Legislative Decree 49/2010) as a function of i) the frequency of occurrence of the flood, H, ii) the type of elements at risk (buildings and productive activities) present in flooding area, E; iii) their level of vulnerability, V, expressed by the equation:

$$R = H \times E \times V \quad (1)$$

Furthermore, with the aim of estimating costs and benefits from mitigation and risk management interventions, it integrates simulation models of hydraulic phenomena and monetary damage assessment models, in order to compare different intervention solutions based on financial and economic performance indicators, as Net Present Value (NPV) and Internal Rate of Return (IRR).

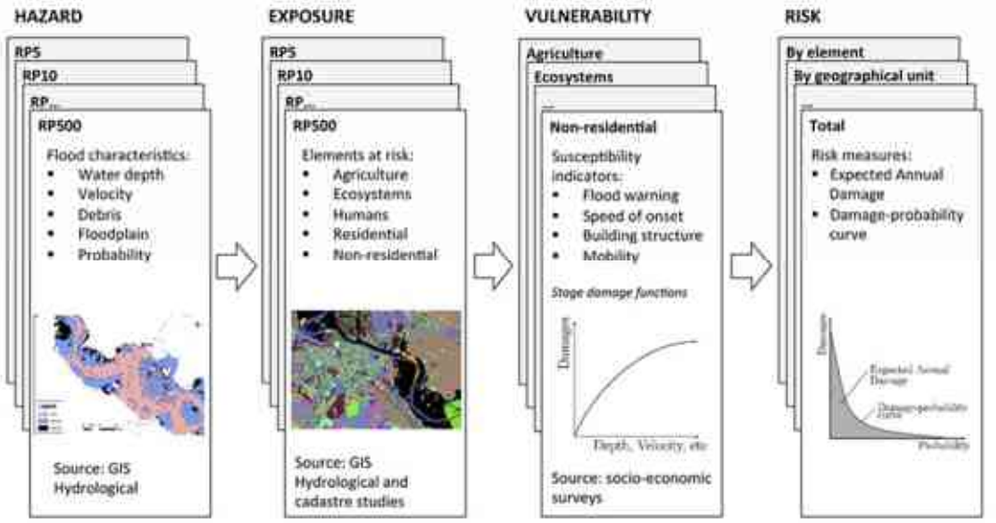

Fig. 1. Spatial Cost -Benefit analysis methodology.

In this sense, the proposed model represents an innovative tool to support the design decision process, integrating different aspects and considring all the stakeholders involved. This methodology is illustrated in Fig. 1.
As shown in Fig. 1, the SCBA is structured in different steps, related to the different components of the risk function. In particular:

- Step 1 (H) concerns the simulation of flood events for different return periods (1:25; 1:50; 1:100; 1:200; 1:500), in order to calculate for each event, the extent of the flooded area and the water height.
- Step 2 (E) concerns the classification of the elements at risk, by type and land use, and the estimation of the assets' value by the "depreciated reconstruction cost " method for each damaged item, by considering only direct physical damage caused by the event [25], [26]. Direct damage to the buildings is estimated considering water height function, the vulnerability of the building elements to the hydrostatic actions, and the average cost of reconstruction of each damaged building element [27].
- Step 3 (V) deals with a crucial aspect: the identification of the vulnerability function. The vulnerability function, or the assessment of percentage of loss, is defined through an engineering approach, based on the discretization of each component of the asset at risk. According to this approach, the damages are assessed with respect to a type of standardized elements, considered prototypes of types of collateral exposed elements. The equation to calculate the damage suffered by the generic building is:

$$ED_i(T) = PD_{str.} \times A \times C_{rec.} + PD_{cont.} \times A \times C_{rep.} \quad (2)$$

Where:

- EDi is the economic damage suffered by the generic building;
- T is the return period;
- $PD_{str.}$ is the damage suffered by the structure [%];
- $PD_{cont.}$ is the damage suffered by the content [%];
- A is the surface area of the building [m²];
- $C_{rec.}$ is the cost of restoring the structure of the building [€/m²];
- $C_{rep.}$ is the cost of replacing the contents of the building [€/m²].

The total economic damage (ED(T)) suffered by the buildings as a result of a flooding event in the return period T was, however, defined as follows:

$$ED(T) = \sum_{i=1}^{N} ED_i(T) \quad (3)$$

Where:

- ED is the total economic damage for an event of assigned return period;
- ED_i is the economic damage suffered by the generic building;
- N is the number of buildings affected.
- Step 4 concerns the interpolation of all available data from the potential damages, estimated in different scenarios of hazard and their probability of occurrence. Once the damage liability curve was defined, the annual expected damage (EAD) was calculated; it shows the average of the flood damage for each of the flood scenarios considered in the hazard assessment and for the additional scenarios obtained by interpolating the damage liability curve.

Then, a series of mitigation measure will be identified in order to mitigate the EAD.
The mitigated damage (PAD - Prevented Annual Damage) from the various interventions, identified for a given flood scenario was defined through the following equation (4).

$$\mathrm{PAD} = \int_{1/T}^{\infty} \mathrm{ED(x)} \quad (4)$$

While, the residual damage or damage not mitigated by the intervention (READ - REsidual Annual Damage) was calculated using the following formula (5).

$$\mathrm{READ} = \mathrm{EAD} - \mathrm{PAD} = \\ = \int_0^{\infty} \mathrm{ED(x)} - \int_{\frac{1}{T}}^{\infty} \mathrm{ED(x)} = \int_0^{\frac{1}{T}} \mathrm{ED(x)} \quad (5)$$

The total cost avoided by the mitigation intervention, therefore, will be precisely represented by the area underlying the EAD curve; thus, the intervention maximizing the difference between the investment and operating costs and the benefit for the community or the lack of damage can be chosen. In this sense, the economic performance indicators calculated throught a DCA analysis provide a measure of the current value of the project (NPV), and of the Internal Rate of Return (IRR), as the value of the social opportunity cost, that is the threshold value of risk acceptability. It is clear that the project with the highest NPV is preferable, and all projects whose IRR falls within a politically defined threshold rate are eligible for funding.

Results

The case study of Olbia in Sardinia, Italy

Olbia is located in the north-eastern part of Sardinia: to the east, it faces the homonymous gulf belonging to the Tyrrhenian Sea; to the west, it lies on a flat area of 376,1 km², delimited by a mountain range. This city of ancient foundation, dating back to the Roman age, in the last 30-40 years has developed in a chaotic way over an alluvial plain without considering the presence of creeks that, as usually occur in semiarid areas, are dry except than during heavy rainfall.
In particular, in recent decades, there has been an important economic development followed by a strong demographic increase. This has generated industrial and commercial growth, the creation of new infrastructures and the emergence of multiple tourist settlements.
Olbia is in fact, for number of inhabitants (59.000 inhabitants, Istat 2020), the third largest municipality in Sardinia after Cagliari and Sassari and, consequently, one of the most important municipalities in the region and the main economic engine of the province.
In 2013 the area was affected by a meteorological event, named Cleopatra, characterized by extreme rainfall intensity (rain rate exceeded 120 mm/h in some localities), and amount (more than 450 mm of cumulated rainfall in 15 hours) that sets the maximum return period of precipitation well above 200 years.
The water level reached in the municipality of Olbia was 2 meters height, causing extensive damage to buildings (Fig. 2). After the flood event, an accurate census was conducted with the aim estimate ex post the total damage to the housing stock. The census reported an estimate damage for the buildings of approximately € 100 million.
The case of Olbia seemed, therefore, an interesting case study in order to test the methodology for the ex ante estimation of the damage in a real case study, allwing to compare data estimated ex post with those predicted by the model.

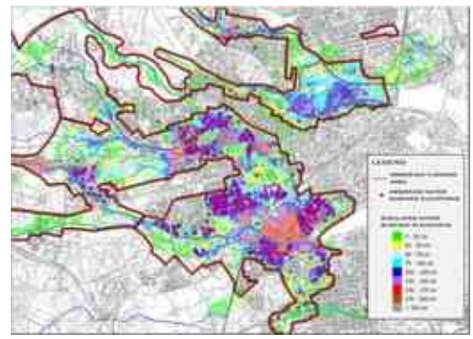

Fig. 2. Extent of flooded area in the Olbia city centre hit by the 2013 event as surveyed by technical office of the Municipality, water depth simulated with the mathematical model, and locations of buildings where maximum water surface elevation was measured.

The application of a Spatial Cost-Benefit analysis

The methodology described in session 2 was applied to the case study of Olbia, with the aim to evaluate the economic performance indicators of a mix of structural and non-structural mitigation measures for the flood-damaged area.

A GIS system was developed to assess the flood risk in different scenarios and the damages in the two scenarios before and after the implementation of the mitigation measure. The analysis carried out are for each step of the methodology are represented as an example in Figs. 3, 4.

Once the parameters determining flood risk were defined, the damage corresponding to each of the flood scenarios examined above was estimated. In order to obtain the damage estimation, it was first necessary to import and superimpose in the QGIS software the hazard layer with the exposure layer.

In this way, each building was assigned the water height values corresponding to each of the different scenarios. These values were calculated by mediating the water heights contained in the discretization cells of the hazard maps that intersect the area of building itself.

Knowing the different intended uses of the buildings and the relative water heights, it was possible to calculate the damage suffered by the individual building by applying the (2). The total economic damage suffered by the buildings as a result of a flooding event in the return period T was, however, defined applying (3).

Tab. 1 shows the total economic damage calculated according to the procedure.

As shown by Tab. 1, the damages have been calculated in reference to the building (structures, installation, fixuters) and to the content of the building [28].

The first was estimated using a parametric reconstruction cost approach, while the damages to the content where estimated through the cost of replacing content: it has been calculated by multiplying the average restoration cost of residential building structures by the Content to Structure Value Ratio (CSVR), that defines the value of the content according to the value of the structure [29]. The value chosen for CSVR is the same as the one proposed by other authors who state that the value of the content of a residential building is half the value of its structure.

With regard to the costs of replacing the contents of other types of buildings, the study referred to the one used for residential buildings, multiplied by the values of a parameter P, obtained either by expert judgment [30].

The damage, thus calculated, was interpolated into the frequency domain through a logarithmic function and the corresponding damage-probability curve was obtained (Fig. 5).

Through interpolation, damage estimatations were also obtained for other flood scenarios (T=25, 20, 5, 2, 1 years).

After defined the damages corresponding to each of the scenarios, the different types of structural interventions for flood risk mitigation and related costs have been identified (Tab. 2) according to the Sardinia Basin Authority.

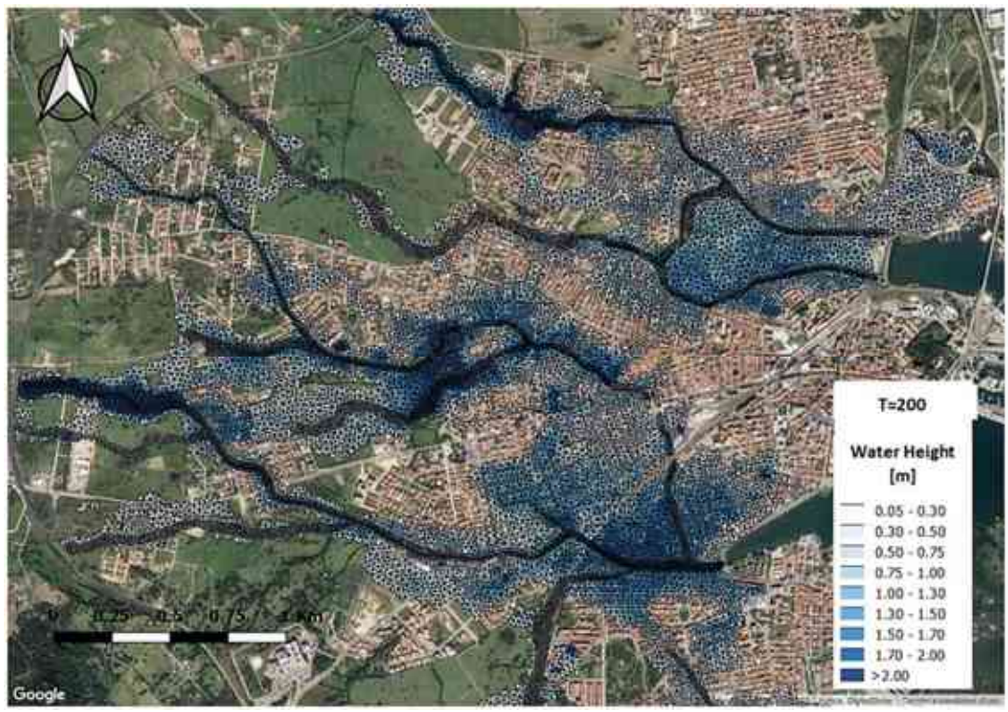

Fig. 3. Hazard layer: flood map related to a 200-year return period flooding scenario. The same maps have been developed for different year return period (50-100-500).

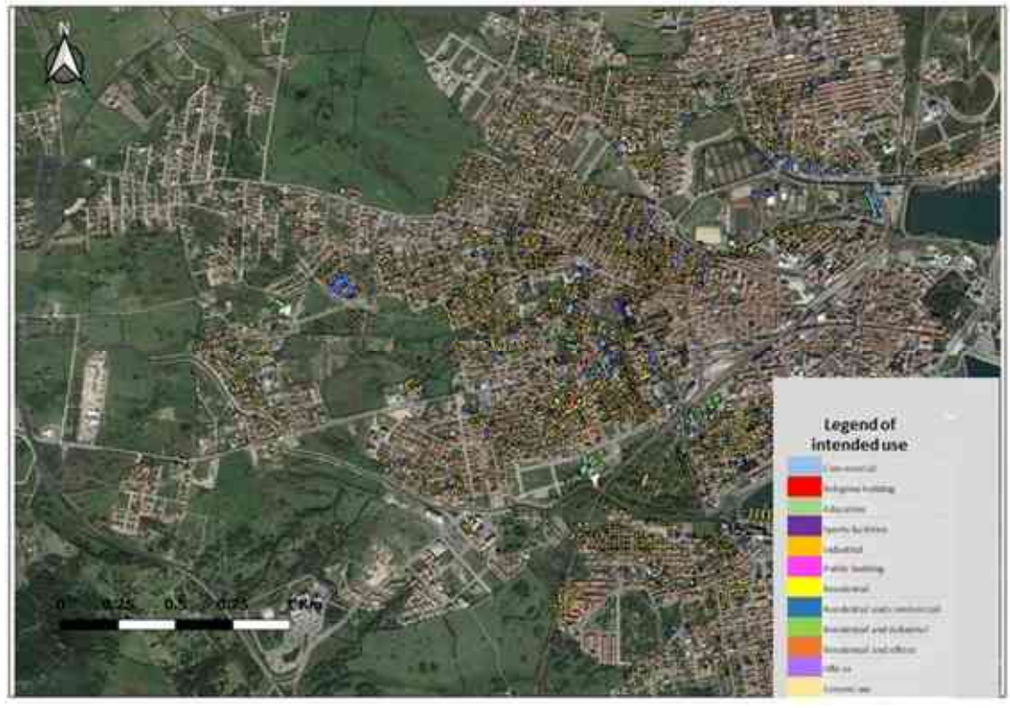

Fig. 4. Exposure layer: typology of building exposed.

	Damage				
T	Building (residential)	Content (residential)	Building (nonresidential)	Content (nonresidential)	Tot.
50	85.086.168	46.844.675	9.717.545	14.467.449	155 065.837
100	93.907.027	50.718.411	10.947.240	16.992.124	172.564.803
200	102.334.845	55.734.271	12.129.529	19.346.748	189.545.388
500	108.762.914	59.636.448	12.705.018	20.242.084	201.346.465

Tab. 1. The economic damage calculated for different flood scenarios.

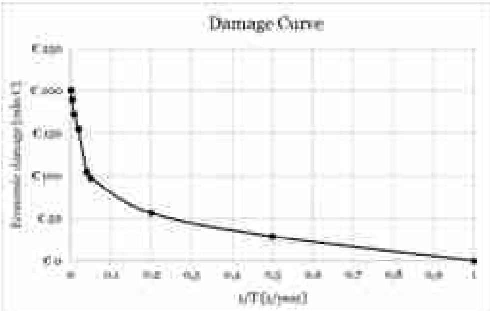

Fig. 5. The damage-probability curve.

T	1/T	Typology of intervention	Intervention costs [€]
1	1	No structural measure	0,0
2	0,5	No structural measure	0,0
5	0,2	Ordinary maintenance of watercourses	100.000
20	0,05	Enlargement of canals and reconstruction of bridges	5.040.000
25	0,04	Construction of retention basins	22.540.000

Tab. 2. Typology of intervention and related costs.

The measures indicated in Tab. 2 are intended to be incremental. Therefore, for example, in order to mitigate the damage resulting from a 500-year flood event, all the measures identified for the previous flood scenarios must be implemented.
Damage caused by events with a return period of 5 years can be mitigated through ordinary maintenance of the watercourses crossing the city. Events with a return period of 20 years can instead be managed through the reconstruction of those bridges that are an obstacle to the correct flow of water and through the widening of the canals. Retention basins are required to cope with events with a 25-year return period while, for events with T=50 years, spillway channels are also required.
In order to mitigate events with return periods of 100, 200 and 500 years, all structural measures previously identified, but re-designed on the basis of flow rate values specific to each of them, are required. A warning system was also envisaged as a non-structural measure.
Having identified the different types of interventions for the various flood scenarios considered, the corresponding damage reductions have been calculated. The mitigated damage (PAD - Prevented Annual Damage) from the various interventions identified for a given flood scenario was defined through (4) and (5).
In Tab03 the PAD and READ calculated are reported. The economic performance indicators NPV and IRR has been calculated throught a DCF analysis. The discount rate used for the application of the CBA has been diversified as follows:

- Discount rate of 2.6%, equal to the value of the 30-year government bond interest rate within the time horizon considered;
- Discount rate of 1.5% applied in the 30th year to take account of the continuity of both costs and benefits, that each intervention will generate in the years following the time horizon under consideration (perpetuity).

T	1/T	PAD Structural measure [€/year]	PAD FEWS [€/year]	READ [€/year]	PAD Total [€/year]
1	1	0,0	16.929.229	[illegible]	16.929.229
2	0,5	750.000	16.478.253	10.320.120	17.228.253
5	0,2	12.300.000	9.533.239	6.321.141	21.833.239
20	0,05	21.675.000	3.896.061	2.563.329	25.571.061
25	0,04	21.960.000	3.384.161	2.510.116	25.344.161
50	0,02	24.560.000	[illegible]	[illegible]	[illegible]
100	0,01	25.840.000	1.119.591	795.219	[illegible]
200	0,005	[illegible]	[illegible]	[illegible]	[illegible]
500	0,002	27.705.500	269.912	176.658	27.975.412

Tab. 3. PAD and READ estimated in each scenario.

The results considering only structural measure are reported in Figs. 6, 7. While the results introducing the warning system[1] are reported in Figs 8, 9.
The analysis of the results returns these considerations:

- The interventions designed to mitigate flood scenarios with return periods of 1,2 and 5 years have disadvantageous performance ratios both in terms of NPV and IRR;
- interventions identified for the mitigation of flood scenarios with return periods of more than 5 years are advantageous compared to all performance indices;
- the preferred advantageous intervention is the one allowing to mitigate the damage corresponding to a flood scenario characterized by T=20 years;
- the integration of alert systems with structural measures allows to improve, for each structural intervention considered, the SCBA performance indicesm regardless of the degree of preparedness of the population and the alert time.

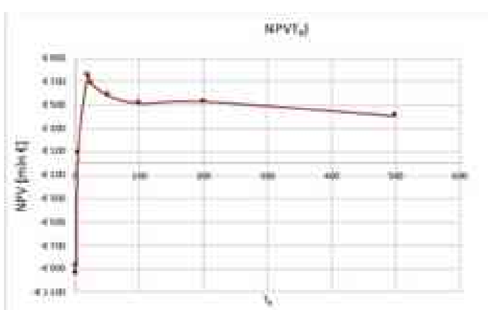

Fig. 6. The Net Present Value (NPV) calculated considering only structural measure.

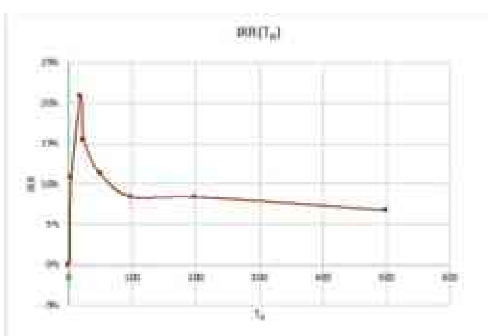

Fig. 7. The Internal Rate of Return (IRR) calculated considering only structural measure

Conclusion
The article shows a procedure for the application of the SCBA to the assessment of flood risk mitigation and management projects, as required by sector specific legislation. The proposed methodology is based on the logic of scenarios and is developed in a GIS environment, in order to spatialize economic magnitudes, i.e. the expected damage with respect to different hydraulic hazard scenarios. The first results obtained show that the only chance to limit cost to an affordable amount, is to lower the return period of the design discharge of the defense structure, increasing the residual risk or the hazard of the flood. The ongoing transformation in land use and the recent climate trends lead to adopt a change of paradigm in the approach to natural hazards, moving from the only defensive passive actions to integrated sustainable management of the risk, which means coping with floods in a preparedness territory with a high level of resilience.
Furthermore, the first applications of the methodology have pointed out some operational issues, related to the difficulty of collecting geo-referenced territorial data, i.e. the height of the buildings: this kind of issue could be solved through the cooperation with public entities, as the Territory Agency. Another relevant issue to be faced concerns the estimation of indirect and intangible damages, given the uncertainty deriving from a large-scale ex-ante evaluation of the Total Economic Value; this is extremely important when dealing with such a complex territorial system, as HUL is: further research developments should therefore be oriented in these directions, in order to implement a tool to support choices, easily applicable to the various cases on the territory.

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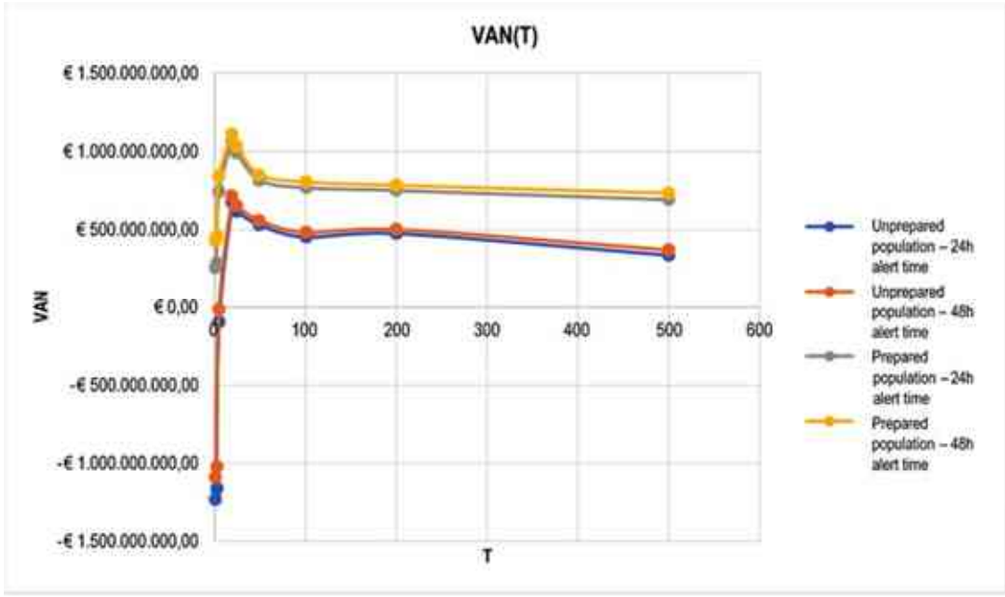

Fig. 8. The Net Present Value (NPV) calculated considering structural measure and worning system.

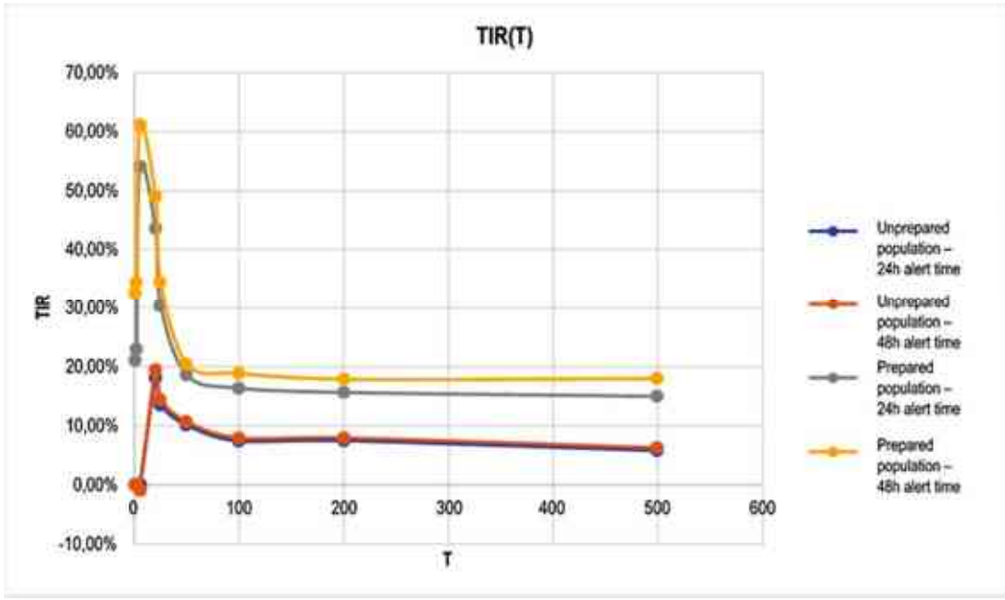

Fig. 9. The Internal Rate of Return (IRR) calculated considering structural measure and worning system.

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NOTES

1. In the case of Olbia, it was decided to assess the extent to which rapid alert systems (FEWS) are able to reduce residual damage not mitigated by the structural measures previously introduced. For these estimates, it was decided to refer to the reports proposed by Handmer and Smith (1990) which assess the effectiveness of early warning systems in relation to both the time of alert and the degree of preparedness of the community living in the territory. Since the alert systems are considered effective when they allow to issue alerts to the population in a period of time not less than 24 hours after the occurrence of a flooding event, it was decided to evaluate their performance in the following situations:
   - Unprepared population, 24h alert time;
   - Unprepared population, 48h alert time;
   - Prepared population, 24h alert time;
   - Prepared population, 48h alert time.

Elvira Petroncelli

RURAL LANDSCAPES AND LANDSCAPES AT RISK OF DEPOPULATION

Abstract
To speak of rural landscapes today means to have in mind a whole gamut of highly different contexts on a cline between urban and rural, nearly always endowed with a rich legacy of material and immaterial contexts. Many are the cultural landscapes at risk of depopulating, since the younger generations tend to leave the interior regions with weak economies. The loss is mostly in terms of human resources -- small communities which have perpetuated cultural identities throughout history. This legacy is gradually vanishing due to the lack of adequate policies for the survival of material and immaterial resources as well as the lack of natural processes conveying knowledge and competences. The elderly population, and its virtual support of new ways of developing and valorising the territory, could help safeguarding the agrarian landscape, which can be so relevant in preserving the values of territories, landscapes and local economies.

Keywords: rural landscape, depopulation, communities

Foreword
Over the last few years, also on account of the efficiency of the *European Landscape Convention* [1], a new way of looking at landscapes has been gaining ground, which takes more and more into consideration physical, chemical, biological and socio-cultural elements as components in an open and dynamic system, produced by a continuous interaction between natural and anthropic factors. It is in this light that a reflection is growing more and more necessary, and also a new collocation, of "rural landscapes" and whatever is revolving around the concept of "rurality".
Speaking of rural landscapes today means bearing in mind a whole gamut of highly different contexts on a cline between urban and rural, nearly always endowed with a rich legacy of material and immaterial contexts. Most of the time these are intermediate realities, of a semi-urban or semi-rural nature, originating from different phenomena, consequent to spreading urbanization, or, for instance, of the processes gradually leading to small urban nuclei being abandoned, or of the scattered proliferation of small businesses and new ways of living the territory.
Cultural landscapes at risk of depopulation exist all over Europe, often featuring demographic as well as economic decline. In Italy, there are numerous and extensive such cultural landscapes, both urban and agrarian, at risk of depopulating. Mostly located in marginal and scarcely accessible areas, somehow removed from the main dynamics of development which have characterized the territory from the post-war period onwards, their cultural, physical and historic character has rarely caught any attention. As a result, an inexorable process of self-extinction seems to have set in, indeed putting at risk their variegated resources. Their rural areas and their historic centres are almost never taken into consideration when development plans are devised; they are increasingly marginalized and at risk of being actually abandoned, particularly by the younger generations. There is no doubt that these contexts on the one hand need to be adequately considered in the new general development plans and, on the other hand, particularly need new forms of attention combining development and protection, to avoid further loss of the competences and forms of knowledge they are endowed with. Briefly, they must not be considered "dead weights"; rather, they constitute peculiar cultural and economic resources, precisely because of the role they could play in giving new strength to the general economy and more specifically the economy of these territories.

Rural areas
The fast pace of processes inducing change, owing to the new technologies and more generally to the ensuing modifications in lifestyles and social relations, makes the neglected state of rural areas located in the *central regions* different from that of depopulating territories where the influence of the past is still quite strong. For years now economic recession has been hitting the internal areas of many nations featuring a weak economy, often leading to a severe reduction of employment *in loco*. Thus the younger generations (and their crucial energies) have moved, while the better health conditions of the ageing population -- the true depositories of traditional cultures and technique - have been exasperating the effects of abandonment in many such territories. The loss in terms of human resources has been mostly felt in the small communities, which have perpetuated cultural identities throughout history. This legacy is gradually vanishing due to the lack of adequate policies for the safeguarding of material and immaterial resources as well as the lack of natural processes conveying knowledge and competences.
Indeed, the increasingly difficult life conditions in many large metropolitan areas, owing to the hardships in public health and welfare services etc. – also in the light of many recent events – could make us more easily perceive new and interesting inputs, and also lead us to reconsider many nearly forgotten areas of the territory, so as to focus their potential and their capacity to trigger new development processes, including economic processes.
"Distancing" and a slower pace are on nowadays, long with a new appreciation of memory, traditional values and cultural identities, of which these gradually abandoned landscapes are particularly rich. In these contexts, it is maybe even easier to conceive of innovative approaches in the tourism industry, sustained by the new configurations and uses of leisure time. Old time visions and their logic can, in other words, be revisited and reconsidered.
The vocation of tourism for the historic and cultural heritage, up to now mostly focussed on great cities and cities of art and culture, can resume an interest in forms of experience relying more and more on local cultures. However, policies targeting the development of these areas cannot rely on plain "do-it-yourself" approaches, involving a heavy risk of putting at risk the actual socio-cultural peculiarities of local resources [2].
In many respects it is, then, important not to underestimate this risk in rural and agricultural areas when trying to save and protect the depopulating historic centres with new forms of "rurality" on the one hand, and with new prospects of local development on the other. The re-vitalization of these landscapes could involve actions on cultural and architectural legacies, which would otherwise be dispersed and destroyed, and also slow up the processes which alter and destroy peri-urban landscapes, thus triggering a dynamic positively affecting even the ecosystem in the vicinity of over-populated areas.
The elderly population, and its virtual support of new ways of developing and valorising the territory, could help safeguarding the agrarian landscape, which can be so relevant in preserving the values of territories, landscapes and local economies.

The rural landscape
Landscape suffers alterations over time, due to environmental changes (also caused by human actions) and changes in the substratum. Thus, a sort of rural geography, or rather a specific rural landscape develops. In the light of our

new conceptual framework, we can say that a possible definition of *rural landscape* must necessarily take into account an agro-systemic dimension of the territory, inclusive that is of the forms of the natural landscape as much as of the anthropic action carried out by man throughout history on agricultural lands. The American geographer Carl Sauer wrote «The cultural landscape is fashioned from a natural landscape by a cultural group. Culture is the agent, the natural area is the medium, the cultural landscape is the result» [3]. Fifty years later, Emilio Sereni formulated a definition of agrarian landscape in which the role of agriculture became finally clear: "… the form that man, in the course and for the purposes of his own activities of production, imposes on natural landscape" [4].
The landscape of agrarian territory can be interpreted using several approaches, including those of geographers, geologists, agronomists, urban architects, botanists, zoologists and economists. Rural landscapes are also functional to growing specific crops. From the latter have sprung a number of manufactured goods, which may appear to be typifying elements of landscapes. Over the course of time, traditional choices in a number of landscapes have often been replaced by modern forms depriving artefacts of their function, notably when lack of proper maintenance and slow decay have more or less radically modified architectural structures and functions.
Just like in other landscape contexts, events even alien to agricultural activity have over time supported multiple changes, for instance in relation to economic and cultural as well as social behaviour. In the areas characterized by a less dynamic economy, the landscape on the whole has not been significantly altered and its persistence may take on the value of a testimony worthy of protection in the interest of the community [5].
Far from an inactive static "hibernation" perspective, the prior logic today should be eco-sustainable and look at *resources* trying to identify their peculiarities and aiming for valorisation, whilst favouring the acquisition of forms of awareness of the potentialities and values that are available, so as to contribute to improving the life conditions of future generations. Within this new perspective, the agrarian landscape constitutes a seminal foundation. The idea of eco-sustainability leads us to think not only in terms of protecting the environment and the as well as the agricultural and artisan artefacts therein produced, but also in terms of promoting business enterprises exploiting widespread forms of knowledge as much as highly local traditional produce. The agrarian landscape could be revisited as a poly-functional milieu featuring its own local products amongst the socio-cultural attractions for new approaches to leisure.

New roles for the elderly

Over the years, and notably since the inception and serious treatment of the concept of *cultural heritage* [7], [8] "a deep-seated interdependence" has been developing "between the intangible cultural heritage and the tangible cultural and natural heritage» [9]. Unfortunately, globalization processes make people forget that "communities, in particular indigenous communities, groups and, in some cases, individuals, play an important role in the production, safeguarding, maintenance and recreation of the intangible cultural heritage, thus helping to enrich cultural diversity and human creativity" [7], viz. there is no adequate consideration for the diverse roles played by communities and the values they have been accumulating over time.
The immaterial heritage is the end product of a long and composite chain of processes, strictly connected with the trajectory of their respective communities. This heritage affects the morphology of architectures and of landscapes and it also identifies with a number of identity traits which contribute to configure the harmonious development of the community. It is deeply connected with the wellbeing of the community, since by expressing its values it supports sharing, good relationships and therefore cohesion. Conveyed from each generation to the next, it is constantly reshaped and reinforced by the communities and social groups, in a total synergy with the life milieu.
Social groups, in fact opt for collective behaviours in terms of logics, knowledge attitudes and traditions which they have matured over time and produce cultural specificities with an impact on spaces and artefacts, viz. lifestyles, so that the landscape actually comes to reflect their lifeway and its expressions. The immaterial heritage, that is, triggers processes, which involve the material one. In other words, we can claim that the former originates the latter, configuring its functions over time and favouring its adequate protection. Safeguarding and valorising the intangible legacies, therefore, will quite likely affect the tangible ones and the actions aiming to recuperate, restore and revamp their specificities. When the values involved in the intangible heritage are neglected, the legacy itself is annihilated and lost, causing at the same time the inception of a process leading to a decay of the entire heritage: neglect of the intangible leads to destruction of the tangible property.
The intangible cultural patrimony is therefore invaluable for its specificity, which cannot be replicated. It can be safeguarded and valorised only by keeping it alive by stimulating the natural process of conveyance, which though subject to constant adjustment and change, can nourish the cohesion of a community and configure new value systems. These, in turn, together with the cognitive and cultural heritage, can feed also new forms of economic development into the community.
If the younger component of a community is tempted to migrate, there will inevitably follow a rupture between the community, its places and products, so that a strong risk will ensue of a loss of the entire heritage, both because abandonment erodes the natural transmission of community values/competences and because alien models will be imported, which will not be likely to meet the actual needs and aspirations.

Concluding remarks

In different areas, the rural landscape in Italy still reflects the brief but highly intense relations between land and housing in the past. There was a time when farmers owned small portions of land maybe two or three hectares at the most. Agricultural produce was mostly for household consumption, thus the dimensions of property was coherent with the owners' workforce. These smallish properties provided a variety of typical produce (cereal, fruit, oil, grapes, vegetables) which would guarantee autonomy and direct exchange between families, autonomy in terms of nutrition being compulsory because of the isolation due the scarcity of roads for transport. This close connection between place of residence and the workplace originated landscape settings nearly always characterized by small villages, usually close to one another, and by a few houses scattered over the countryside. The rural context and traditional, ecologically highly compatible techniques originated peculiar products, now considered of high quality.
The limited potential of agriculture as rewarding economic activity is usually attributed to the small dimension of farms and of the workforce available, the ageing of the population devoted to farming on a business scale and the modest generational handover. These factors are indeed responsible for the poor circulation of products in external markets and, overall, for the limited capacity of agricultural business. This is why it is important, for instance, to stimulate forms of cooperation and association amongst small and very small farming businesses, as well as improving the circulation of agricultural goods over long-range destinations, using new technologies and marketing strategies.
These assumptions also justify and require policies in support of rural agriculture to necessarily stress the role of landscape as a vital resource endowed with peculiar forms of knowledge, closely shaped by the local ecosystems, which have not been significantly modified. Such courses of action are also congruent with fast developing forms of tourism. The limited accessibility of a high percentage of the abandoned structures and buildings, usually thought of as a "weakness", in a renovated context could acquire new "strengths".
Difficult access cut these territories off from the principal productive and economic dynamic over the last 100 years, yet this contributed to safeguarding the landscape and the territory itself against the most devastating effects of development, so that they are now open to forms of tourism targeting ecologically compatible tourism for nature lovers.
Such areas are ideal for experimenting new models of development for low density, low impact forms of tourism. The high percentage of dismissed architectural structures, on the one hand can start a move in support of "zero ground consumption" architecture restoring what is already there, while promoting on the other hand new professions, aiming to recuperate and give new life to old building techniques for which the middle-aged and the older generation still has the necessary knowledge and competences. The development of the tourist industry to be sought is not the one targeting the masses or large numbers of people in any case, but the kind that relies on "diffuse presence" that is the tourist-friendly small villages, which can revitalize the existing structural heritage and involve the local communities and their knowledge for the benefit of newcomers. Such intrinsic systems of resources can favour adequate synergies supporting historic centres by turning them into new modes of living the territory. These re-purposed villages can attract new stable

dwellers or vacation – home dwellers, for instance [9].
Quality products, in a context of "diffuse" historic urban resources, can originate models of tourist development hybridizing urban and rural lifestyles, between cultural tourism and natural and rural tourism. Historic centres can become the pillars of multiple fruition of the territory, based on its articulate agricultural and natural resources.
Crucial will be the new hybrid vocations originating from those already predominant in a territory. They can produce and reinforce the peculiarities, almost in a perennial re-generation. It is, however, important to set up plans, which are followed by actions in the communities aiming to promote awareness of their peculiar features and potentialities.
The various forms of knowledge handed over from one generation to another will have different forms of positive impact besides reinforcing bonds across generations. It makes it possible to convey previously known procedures and techniques favouring the protection of the historic and cultural heritage while contrasting its loss. Further, it will help involving the elderly in the contexts undergoing transformation, supporting their integratione as productive actors. They would thus be considered productive citizens, still capable of helping the community, instead of persons in need of help. Hence, it is crucial to sustain and promote synergies amongst different actors, so as to reinforce cohesion and pursue the social well-being.
To conclude, the current crisis requires to recuperate productive landscapes as soon as possible through an optimal use of their resources and a re-evaluation of their lifestyle in milieus combining low anthropic modification with high environmental and landscaping virtues. It is necessary to apply a synergic perspective to the rural-agricultural and the urban milieu, both forming one entire structure in terms of settlements and production and aiming for interconnecting cultural, environmental, tourist and functional circuits. Attention should focus on policies and strategies binding the processes of construction, maintenance and care of the productive landscape, based on safeguarding the values of agricultural land and thinking in terms of integrated economies capable of providing a supply for the growing social demand of ecologically compatible spaces and products. It is necessary to bring to a halt the dissipation of the potentialities of some territories, contrasting abandonment for instance, and promoting both knowledge transfer and the regeneration of resources involving productive competences, before it is too late. Actions aiming to favour well-balanced development of territories must therefore give priority to the acquisition of awareness concerning the values involved in immaterial cultural heritage, so that local communities will pay increasing attention to the highly significant role of the landscape.

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Stefanos Antoniadis

BEYOND THE UNACKNOWLEDGED COASTLINE

Assessing the potential of out-of-map Mediterranean settlements

Abstract
The stretches of coastline around the Mediterranean basin – besides being graced with distinctive geographical features – bristle with *objets trouvés*, ordinary forms and materials, *unacknowledged architectures*, eyesores impacting on the environment, as well as divisive urban developments that pose challenges to contemporary landscape planners, above all with a view to reducing the recorded pervasive anthropogenic pressure on coastal belts.
This article offers updated observations on unacknowledged buildings along the coasts: it stems from the PhD international joint research thesis[1] at the DRACo_*Dottorato di Ricerca in Architettura e Costruzione* of Sapienza University of Rome and at the *Doutoramento em Urbanismo* of the Univeristy of Lisbon; such studies have traced a line of research regarding the upgrading of dimissed and fallen-in-disrepair buildings, and have led to further research projects[2] as post-doc fellow.
The objective of the research is to focus on and to trigger off the potential leading to transform and overhaul sites that appear to offer spurned and unappealing formal features. Beyond the not-so-enticing coastlines, lurk opportunities and residential models requiring updated territorial governance.

Keywords: Mediterranean basin, coastline, informal cities, unacknowledged buildings.

Fig. 1. The coastal segment of the Gulf of Kyparissia between Katakolo and Kaiafas, GR (orthophoto, 2013).

Introduction
«By 2050 over half of the world's population will live within 50 km of major masses of water. If the present trend continued, over the following 50 years, such percentage would climax to more than 75%» [1].
The evolution traced by the well-known landscape architect is certainly meaningful: on the one hand it helps acknowledge the assumption that connects the landscapes on the brink of being forsaken with the smaller inland settlements, on the other, it makes us increasingly aware of the need to manage coastal areas bearing sustainable development in mind.
Through dealing with a specific and emblematic case – the Mediterranean basin presents in fact common patterns [2]-[4] of coastal settlements – the present work aims to focus on those specimens of coastal buildings – such as unplanned settlements, out-of-law buildings and haphazard shanties – on the brink of being forsaken (even if they may be overcrowded during a few summer weeks); such buildings are often enmeshed in complex issues of environmental risks and of devious and wavering territorial policies.
The stretch of Greek coast (Fig. 1) between the Katakolo promontory – now an important mass cruise stopover – and Kaiafas thermal lagoon – an amazing, though now in utter disrepair, place – in Peloponnese offers an interesting case study, thanks to its peculiar geographic-morphological features, which are marked by a limited series of simple elements: the 50.000-inhabitants capital of Prefecture Pyrgos Ilias, about 5 km inland; two polarities that seal in the crescent of low and sandy beach (that is to say, the Katakolo promontory in the North, and the network of thermal-water lakes in the South-East); Spiantza, an unplanned 50 metre-thick city stretching for about 18 km along a straight line; the river Alfeo that cuts the coastal belt at the southern end of Spiantza before flowing into the sea.
Driving farther inland in an area beset by neglect, one can hardly grasp the awareness that Olympia is just a few kilometers inland, that the temple of Apollo Epikourios in Bassae is one-hour drive far, that the outline looming behind the Katakolo promontory is the isle of Zakynthos, and that the puny stream flowing nearby, which lent its name to the only Spiantza's road, is the river diverted by Hercules together with the smaller Peneo stream in his fifth labour, when he cleaned up king Augia's immense stables.
The port of Katakolo, which in the last 20 years has evolved from a small village of fishermen and of raisin merchants to one of the most important Mediterannean cruise hubs, is connected to Olympia through a highway hardly passing the city of Pyrgos. The occasional travellers through the area (namely the tourists heading for Elide region), live a kind of mediaeval (i.e. merely linear) spatiality, as if they were pilgrims; two are its features: on the one hand, the small port, which belongs to the sphere of the vernacular and the picturesque, on the other, the artistic heritage, that is to say Olympia archaeological site. Everything else, either situated along the coast or flanking the highway is somehow wiped out of existence, both in the physical and in the mental map of the area.

Methodology: the morphological process
Spiantza is a typical informal city: it rose in spite of a total lack of planning and ownership claims; however, it has taken on precise features: self-built houses (holiday homes) by the thousand built directly on the beach, characterising an inhabited belt in a system of thin, regularly-marked parallel strips stretching along the shoreline: countryside, Mediterranean scrub, buildings, beach, sea.

Fig. 2. Spiantza, Pyrgos Ilias, GR; Kavouri coastal segment, 1930 (source: Γ. Αλεξοπουλος, Ο Πυργος ο Λαος η Ηλεία. Αθήνα: Μ.& Γ. Ζώρζος Ο.Ε, 2000, p. 80).

New names have been given to various slices of the inhabited strip. The name Spiantza has been kept for the first core of the settlements, in the middle of the coastal crescent: the name has been probably acquired through centuries of mercantile exchanges with the Venetian merchants plying their trade in the bays opposite Zakynthos, at the times of the Republic of Venice, until 1797. Northwards, the names are Letrina and Kavouri, southwards Mouteli, Alfeo, Epitalio and Anemochori.
According to the estimates of the Hellenic Republic Asset Development Fund S.A. (ΤΑΙΠΕΔ[3]), at Spiantza 67.504 sq. m. of government-owned land[4] have illegally been used to build houses by 28.000 self-styled owners[5].
The settlement grew thanks to the well-known, ceaseless process of sedimentation of temporary buildings that little by little acquire permanent features. In the years 1900-1940, the inhabitants of Pyrgos used to set up small reed-and-canvas sheds as shelters during summer months, which at that latitude stretch far beyond their due time.
One can easily imagine how within a few years a thin inhabited coastal strip was coming into being: it was made up of huts and shanties; the materials used were wood, bricks, metal sheeting, canvas (Fig. 2); no sewage or septic tanks; no pipeline-water supply, though each dwelling was provided with a well that reached the about 5 meter-deep water-table; no connection with the electric grid.
After the 70s, public bodies and water-fuel-electricity supplying companies – which had failed in their role of control – take an even more dubious stance: in 1973 the Peneo (a small municipality near Pyrgos) city council grants the permission to build small holiday homes along the coast and the Tourism Ministry allows a small dock for tourist boats to be built.
In 1993, following the earthquake of magnitude 5.5 degrees on the Richter scale, with epicentre in Pyrgos, the Greek government officially granted temporary practicability to all those houses (by then amounting to thousands) that had been illegally built along the coast; they were farther away from the inhabited centre that had been struck and had been by no means damaged by the earthquake, thanks to their being light and mostly one-storey high (Figs. 3, 4).
The measure was taken in order to tackle the housing emergency and allow the homeless to have a dwelling. The granting of practicability obviously entailed the supply of electricity; since 1980, on the grounds of yet unexplained odd motivations, the National Electrical Company (ΔΕΗ[6]) had been regularly supplying electricity to the first settlement of Spiantza; anyway – though emergency conditions are over – such supply has never been re-examined and stopped.
Nay, in those years, the council first of all built the connecting road and paved the only road from which the roads serving the settlement from the Northern promontory to the Southern estuary branch off; then it set up a line of public transport and provided garbage collection services – though the latter were seriously jeopardized by the harsh economic crisis and austerity measures enacted in the country.

Fig. 3. Spiantza, Pyrgos Ilias, GR (photo credits: S. Antoniadis, 2016).

Fig. 4. Spiantza, Pyrgos Ilias, GR (orthophoto, 2015).

While locally the development of a real illegal linear city was fostered, at the same time – paradoxically – in 1994 Europe was deciding to issue the first draft of a decree meant to make the whole coastal belt part of Nature 2000[7], namely of the widest coordinated network, extended to all EU countries, of protected areas in the world; such areas amount to 18% of the EU territory and to almost 6% of EU coasts. Though the main purpose of the aforesaid decree is to protect Europe`s rarest species and habitats, it does not ban any form of building explicitly; however, it is obvious that the utterly out-of-control and illegal building involving almost the entire area highlights the disastrous handling of the matter, as far as policies, and law-enforcement are concerned.
In brief, «the absence of government policies regarding holiday homes, the risks consciously taken, and the dubiously-motivated provisions (such as supplying electricity and telephone network under the excuse of emergency conditions like earthquakes, fires, or the owners' poor health) have really given rise to expectations among the inhabitants who – organized in seven communities – claim their legal rights to dwell there» [5].
In 1996, 1999 and 2003 the Elide Land Registry Agency repeatedly raised the question with both the Finance Ministry and the Departments of the Prefecture, unsuccessfully requiring the provision of services to be stopped. Even foreign senior cadres, - I`m referring to Paul Thomsen, in charge of the International Monetary Fund (FMI) for the European Macro-Area – starting from February 2012, have presented queries regarding the unorthodox dynamics that have legalized the conurbation we are dealing with [6]. In effect, due to the all-sweeping economic crisis that officially has beset Greece starting from autumn 2009, some buildings have no longer been holiday homes [7], – therefore inhabited only during the long-summer months – having become the all-time homes of those inhabitants no longer able to meet either the costs of town rents, or the new real property taxes.
The ways out the local and central-government policy makers are sifting through can be summarized just in one unrefined expression "raise money". Dating back to 2014, there are in fact some bills devising that squatters able to prove they have been dwelling there for at least 20 years should make the situation legal from a financial point of view, thanks to either real-property-tax payment by instalments: 50% of the value of the plot of land (with a 20% increase if a building has been raised on the plot), or to transferring the ownership of half the plot to the government. There is even a third possibility: seizing a quicker and more economically-rewarding strategy, the ΤΑΙΠΕΔ may entirely recover the plots of land by paying all the squatters a very low compensation and then sell (or sell out, as many fear) the plots to big international economic players, together with the many thousands of hectares the ΤΑΙΠΕΔ already owns.
In this case, the risk is witnessing a new overall approach to the coast, in order to re-design new features and land-uses, for instance big luxury hotels, or aqua parks. Which is more or less what is happening in Crete and in Athens, whose present – and future – is increasingly characterized by a scarcely-effective, community-oriented action by the authorities in charge; this is leading to large degraded and disused areas being turned into a sort of glittering "gated communities"[8], which even succeed in being hailed by glossy magazines as best practices.

Methodology: towards new paradigm

The case of the Peloponnese unplanned city is only a paradigmatic example – belonging to the informal settlements – of some characteristic modalities of inhabiting the coastline in the Mediterranean basin, which also concern, instead, authorized urbanizations, but often characterized by a desultory, perplexing, and monothematic use (the thought goes to the rows of family homes, to the beaches lined with

Fig. 5. Spiantza, Pyrgos Ilias, GR; ruined houses along Mouteli coastal segment (photo credits: S. Antoniadis, 2012).

Fig. 6. Spiantza, Pyrgos Ilias, GR; abandoned houses along Anemochori coastal segment (photo credits: S. Antoniadis, 2019).

endless hotel waterfront, to alternatively deserted and repopulated areas according to up to now easily-predictable seasons patterns). However, what Spiantza proves is that, in a reasonably short time frame, the settlement has been inhabited beyond holiday-time.
Nowadays, unforeseeable events and solutions dictated by emergency occurrences seem to be not so improbable or infrequent. As a result, a settlement that should not have been there, first houses a large number of people that inhabited the inland city while it was being rebuilt after the earthquake, then witnesses its holiday homes being transformed into cheaper family homes for those struck by the Greek harsh economic crisis, followed by enforced austerity; now, in 2020, it will be interesting to trace a third transformation, triggered off by the recent sanitary emergency caused by Covid-19 pandemic, which is bringing about alternative living conditions as well as lower population density.
In the above-listed array of events, some foreseeable – nay, they have already been noticed – alterations in the coastline, caused by climatic change, are to be taken into account; so it is easy to imagine a far more complex scenario than the one regarded as unchangeable summer-time / winter-time.
In the last few years, in fact, the sea has caused coastal population density to change: whirling currents produced by the Alfeo river, flowing more copiously during winter, have eroded chunks of the first kilometers of coastline next to the estuary (Fig. 5), jeopardising a number of buildings: more than 10% of houses is either unfit for use or abandoned (Fig. 6): they have become fascinating reminders of contemporary living. This might apply to more unplanned settlements along Mediterranean coasts, to portions of consolidated coastal cities, to hotels mindlessly built near the coastlines: unappealing buildings whose frequent state of neglect is due not only to dubious dealings, but also to climatic change.
In the light of the above considerations, asking questions and laying patterns beforehand, so as to identify standards and benchmarks with a view to regulating and upgrading those "unplugged" coastal segments, may end up unheeded, in our times increasingly subjected to crises and changes.
Though remaining in a realm of healthy realism and within our specific field of work, the subject should be tackled being aware we are coming to terms with the conditions of present-day living: ordinary patterns seem to be dwindling, faced – as they are – by unforeseeable events. In these changing times – or new times – in which the formulation of the question itself presents a non-negligible level of uncertainty (before a plausible answer might be viable), it is better to focus on more immune to sudden changes scenarios.
Gradually, approaches related to forms, spatial quality, and meaning might substitute benchmarks and project-related town-planning standards.

Results

The most seriously struck slice of the unplanned city of Spiantza (i.e. Anemochori), for example, provides suggestions leading to

Fig. 7. Spiantza, Pyrgos Ilias, GR; Anemochori coastal segment (orthophoto, 2020).

Fig. 8. Spiantza, Pyrgos Ilias, GR; Anemochori coastal segment: new touristic scenarios (''Beach Matrix House'' by Ken Isaacs, 1964 - photomontage by S. Antoniadis, 2020).

devise scenarios that sparkle visions, attempt to brake depopulation, defy new living-in-emergency conditions, set up new models of tourist use. Two parallel rows of buildings scar the shoreline: in front, the roofless wrecks of houses (they are equally distanced and belong to the same typology) abandoned out of fear of sea erosion; behind, a series of concrete platforms on top of which no buildings have been raised, checked both by the fear of erosion and by recent more stringent territorial control measures (Fig. 7).

A spectacualr, distressing site, whose complete re-naturalization would even impoverish the landscape (not to mention the increase in the production of waste that can scarcely be recycled in an area almost deprived of waste-recycling plants).

On the other hand, a masterplan leading to re-interpret and recycle those items through adding different, small, light, self-supporting architectures that can either be placed within some ruins (Fig. 8) or set on top of the barren platforms (Fig. 9), could prove to be a pilot project for new tourist accommodation, taking into account both the recent record of the place and its territorial identity, and the recent provisions meant to regulate mass-tourism during the post-pandemic follow-up.

Looking at these areas as buffer-zones, more intimately and usefully connected to our out-of-map contemporary existence – indeed just like 40% of buildings along the coast[9] – than we may admit, would at last dwindle that element of fascination towards Mediterranean unplanned villages as far as the perception of the picturesque and of the vernacular is concerned; it would moreover curb the interest in eyesore buildings as regards "environmental devastation reporting", freeing all that vast amount of man-produced material from prejudices, so as to invite people to read more, and to further new analyses, projects and solutions.

Fig. 9. Spiantza, Pyrgos Ilias, GR; Anemochori coastal segment: new touristic scenarios (''Soggiorno per tre allievi architetti nel Lago di Misurina'' by Vittorio Gandolfi, 1943 - photomontage by S. Antoniadis, 2016).

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3. The latter: Regional Operational Programme 'Veneto' 2014-2020, iWRECKS_*Industrial Wrecks: Reusing Enhancing aCKnowledging Sheds*, DGR n. 11 05/01/2018, project code 2105-59-11-2018, funded by ESF, University of Padova. Steering Board: C. Dias Coelho, G. D'Acunto, M.C. Lavagnolo, M. Savino, L. Stendardo (Principal Investigator). Research Fellows: S. Antoniadis, R. Bernardello, R. Malesani, E. De Stefani, E. Redetti; Junior Research Fellows: P. Borin, J. Gonzalez-Libreros, G. Pristeri, L. Siviero, R. Spera; Visiting Fellows: S. Padrão Fernandes, J. Silva Leite, P. dos Reis Costa; Partner Companies: Archetipo, Arcoplan, Cimolai, Contec, Duff&Phelps Reag, Dal Zotto, Eco Avant-Garde, Expin, LTS-Land Technology & Services; Network Partners: Universidade de Lisboa, Università Iuav di Venezia, Assindustria Venetocentro, ZIP - Consorzio Zona Industriale e Porto Fluviale di Padova, AIAPP - Associazione Italiana di Architettura del Paesaggio, Centro Studi Usine, Fórema.
4. ΤΑΙΠΕΔ - *Ταμείου Αξιοποίησης Ιδιωτικής Περιουσίας του Δημοσίου* is the asset development Greek government-owned fund, founded in 2011. Its aim is to attract direct investments in infrastructures, energy production, real estate ownership and other fields.
5. Source: ΤΑΙΠΕΔ, Dec. 2013.
6. Source: ΤΑΙΠΕΔ, "Guidelines concerning legalization and buying and selling illegally-occupied areas", Apr. 2014.
7. ΔΕΗ - *Δημόσια Επιχείρηση Ηλεκτρισμού Α.Ε.* is the company producing and supplying energy;

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8. Name of the area: *Thinés kai Paraliakó Dásos Zacháros, Límni Kaiáfa, Strofyliá, Kakóvatos*, Type B, Code: GR2330005. *http://natura2000.eea.europa.eu/Natura2000/SDF.aspx?site=GR2330005* [accessed 27th Apr. 2020]
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GENESIS AND DEVELOPMENT OF (UN) POPULATED LANDSCAPES

Analysis and comparison between the Cilento National Park and the Province of Soria

Abstract
Starting from the analysis and comparison between two areas at risk of abandonment which are the Cilento National Park in Italy and the Province of Soria in Spain, this paper aims to analyse what these two almost abandoned areas have in common, and what distinguishes them from one another, with so different morphology and environmental characteristics. The research investigates and confronts the historical and environmental reasons that have determined the urban layout of these two regions, and then concentrates on the different approaches that two Mediterranean countries such as Italy and Spain have to the common problem of depopulation of inland areas. Additionally, it explores the effects that, also in light of the most recent changes we are witnessing and the necessary lowering of urban density, can be generated and expected for these territories.

Keywords: unpopulated landscapes; man-nature harmony; inner areas

Introduction
Nowadays, in Europe, many areas are being emptied. The strong disequilibrium between towns and the countryside is getting more and more clear, with the subsequent risk of abandonment of large areas whose cultural and environmental significance is based precisely on the human presence and the landscapes generated.
The link between economy and landscape carries the danger of a loss of valuable and qualitative territory once the primary sector is replaced by the industrial one. That is shown by rural areas and the harmony established between man and nature. As a consequence, all of this reflects on the progressive downturn of all those areas far from modern production centres, and the inexorable exodus by the local population, which is in every respect a sort of new "migration". Sometimes, however, the " emptied" areas of Europe that suffer from this crisis are historically characterised by a low population density and a distinctive remoteness from all the larger city centres. These are areas that are somehow used to live isolated, whose urban and productive development has never reached a significant momentum, remaining unchanged over time. In Italy, the Cilento and Vallo di Diano National Park is a particularly interesting and perhaps unique reality. Its large size and the distance from the most important metropolitan areas, turn this region into a rural identity that only in recent decades has tried to capitalise on the tourism sector. As regards the centre of Spain, looking at the province of Soria in Castilla y León, it is possible to state that this area is one of the less populated ones in the whole of Europe, with so many villages under 1,000 inhabitants each, far away from each other. Yet, both in Spain and in Cilento we can find archaeological areas which testify the ancient origins of these territories. These areas have been settled and repeatedly abandoned over the centuries.

Fig. 1. In the village of Amalafede, municipality of Stella Cilento, currently live 14 people. A family has tried to attract visitors by starting a home restaurant business, bringing life back to the village on weekends.

Internal areas of Cilento National Park
The equation “Cilento = small towns” is particularly interesting because this territory has always been characterised by the surprising lack, in such a vast area, of a town of reference. Throughout history and up to the present day, despite the constant change in population and social, economic and security conditions that have evolved, in the Cilento area, there has been a dispersive structure whereby many tiny towns have formed a landscape in which it is still impossible to determine a strong centrality.
Such a peculiar situation has been a matter of debate for many historians, which have found a partial justification in the very low population density that has always characterised the Cilento territory over the centuries. As early as the 16th and 17th centuries, when the Kingdom of Naples conducted a census of the population through the counting of "focolari", rather than individuals, the paucity of the population in the territory became evident. The historian Francesco Volpe [1] by defining variable multiplier indices according to the epoch to determine a rough population, provides us with these data referring to the current extension of Cilento, except for the Vallo di Diano:

Year	*Fuochi*	Population
1532	10.313	51.000
1545	12.130	60.000
1561	13.263	66.000
1595	14.089	70.000
1648	12.775	57.000
1669	7.022	47.000

These data highlight two interesting elements. On the one hand, the fact that the demographic growth that characterises the 16th century suffered a halt and a strong collapse in the following century; on the other hand, it is noted that, even at the peak of 1595, the total population of about 70,000 inhabitants, dispersed over such a vast territory, corresponds to a density that does not even reach 30 inhabitants per square kilometre. We can, therefore, easily realise how, even during that epoch in which analysable demographics start to appear, the small presence of population has historically relegated Cilento to a marginal role in the events of the Kingdom

and has in a certain sense hindered its growth. We must always try to overlap demographic data with the territorial layout so that we can make a cross-reference and give back an overall view of the situation of isolation and fragility characterising this region. However, it is not only a question of attributing the causes of this condition to one or the other aspect, but also of being able to understand the mutual conditioning. As a consequence, the low population density has exacerbated a territorial structure in which the small towns have been scattered in a rarefied and widespread way in the region.
If the years at the turning point of the twentieth century showed a peak in demographic growth, after the Second World War these small mountain villages, which had grown and consolidated until then, will likely begin to depopulate again due to migration to northern Italy in search of work in the industrial sector. To date, there are 25 Cilento municipalities below 1000 inhabitants. Specifically, 14 of those are included in the Internal Cilento area by the National Internal Areas Strategy (Bellosguardo, Campora, Controne, Corleto Monforte, Magliano Vetere, Monteforte Cilento, Ottati, Perito, Roscigno, Sacco, Sant'Angelo a Fasanella, Stio and Valle dell 'Angelo), with high depopulation peaks, equal to -5.9% between 2001 and 2011 and -4.1% between 2011 and 2017. Therefore, 16 other municipalities below 1000 inhabitants remain excluded from SNAI, although often affected by similar problems and critical issues (Ispani, San Mauro Cilento, Rutino, Laurito, Stella Cilento, Pertosa, Morigerati, San Mauro La Bruca, Cuccaro Vetere, Salvitelle, Tortorella, Romagnano al Monte, Serramezzana) [2].
The area of the internal Cilento can be taken as a landmark example to understand the state of progressive depopulation and abandonment of the territory in the contemporary era. In fact, with an area of 949 sq. km, the population residing in 2017 was of 48,440 inhabitants, for an average density of 51, the lowest of all the areas of the Campania Region. And besides, the reduction in the percentage of the agricultural area used (-9.3 from 2000 to 2010) and the percentage of farmers under the age of 39 (-48, 4 between 2000 and 2010). These numbers are significant as they allow us to read the incidence of the abandonment of the rural economy, on which Cilento has historically been based, which must be identified as the main limit to the settlement development of a territory of this type, in recent times. This feature is common to many of the so-called "internal areas" in Italy

The Empty Spain

The so-called “empty Spain” brings together the Communities of Castilla y León, Asturias, Aragón, Galicia, Castilla-La Mancha, and La Rioja, which represents more than half of the national territory with the lowest density of population. In the territories around the Iberian System, we can find the most affected area in Spain by the phenomenon of depopulation. Specifically, three provinces located in this area, Cuenca, Soria, and Teruel, have the lowest population densities in Spain, standing in the last two cases below 10 inhabitants per square kilometre and the first only slightly above. Subsequently, we are in the presence of one of the largest demographic deserts of the European continent. It is, therefore, a problem that affects a large part of its territory, in which 90% of the population is concentrated in 30% of it [3]. These regions have always had a low population density but have suffered predominantly the abandonment of the rural environment due to the change in the production systems, leaving a population mainly old and with numerous municipalities almost uninhabited [4].
In Spain, the great transformation of a traditional agrarian economy into an industrial society occurs in a very short amount of time compared to other countries in Europe such as France, Germany, England or Italy, where the transition was more gradual and with rural societies more socially articulated. This process has allowed the preservation of inhabited territory [5].
Additionally, due to the incorporation of Spain to the European Economic Community in 1986, the Common Agrarian Policy was implemented, reducing agricultural production and concentrating agricultural activity in fewer hands, decreasing the rural economic development and population. Over the years, all this has resulted in an asymmetric development that shows solid territorial differences within the same Community [6]. We certainly need to add to these causes the lack of generational replacement in rural areas.
All these issues are especially decisive in Soria, the most unpopulated province in the European Union where, in the Highlands area, the density is as low as two people per square kilometre. It is a particularly delicate case due to its extreme weather and its total dependence on agriculture throughout history, not having such a variety of natural resources that can encourage the introduction of new functions for its rehabilitation. However, it has some archaeological areas of great interest such as Tiermes and it is rich in ethnological heritage, which promoted the foundation of the first school-villages on the peninsula.
Nevertheless, the emptying of our towns is a problem with great socio-economic implications. Our public policies should focus on properly addressing these needs to correct the imbalances between the different territories. For this reason, it is important to provide the capacity to generate economic activity in all the territories of Castilla y León, through industry and infrastructure (being essential telecommunications and broadband), aiming at favouring the establishment of transformative activities that generate employment.
There have been several particular and punctual actions, rehabilitation of old family properties as second residences that allow urbanites to escape from the big cities during the weekends and enjoy the always more difficult contact with nature in the city’s environment. The problem is that a new interest in rural buildings is merely focused on residential and leisure, it ignores the territory, it does not generate continuity or produce a regeneration at different layers; the intervention is disconnected from the territorial reality, and, at the end of the weekend, the town becomes uninhabited again. In cases dealing with the recovery of entire villages, such disconnection causes dependence on the urban environment, to attract customers and workers, and to obtain provisions and all kinds of services. From the public sphere, efforts should primarily focus to promote actions that create a close relationship with the territory, adequate productive activity and continuity over time, with the support of strengthening and homogenising public services at the same level as large capitals. This is the only way to counteract migration looking for those benefits missing in the rural environment.

Policies for internal areas: comparison between the Italian National Strategy for Internal Areas and the Spanish plan for small centres

The two case studies that we have reported are examples of a phenomenon that is quite widespread in Europe, which the problem of the progressive abandonment of small centres is matched by the equally important criticality

Fig. 2. The isolation of Quintanarubias de Arriba (Soria) from Google Earth.

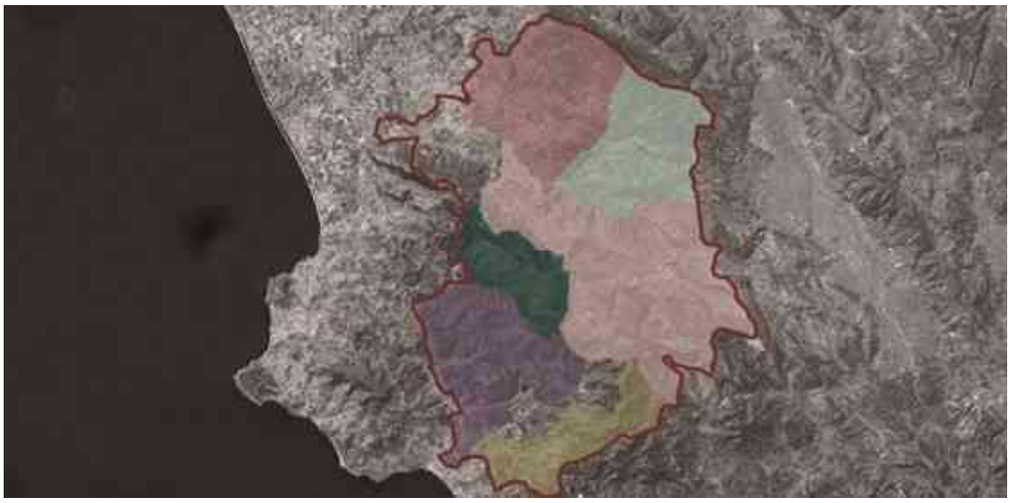

Fig. 3. The internal Cilento area, identified by the dark red line. The different colours identify the different associations between municipalities that were formed through the SNAI.

of the uncontrolled expansion of metropolitan areas. City and the countryside represent two realities linked by a two-way relationship of necessity and interdependence, which only when it is recognised as mutual and equal, it will be able to produce positive effects for both sides of the coin.
The importance of the phenomenon and the weight that exerts not only on the morphological and landscape structure of the territory but also on the social fabric and both the economic and administrative system of the countries has therefore pushed the different states to elaborate specific strategies and policies aimed at protecting and strengthening the so-called "fragile territories".
In Italy, the National Strategy for Internal Areas is undoubtedly the main tool through which is intended to "promote development projects that enhance the natural and cultural heritage of the internal areas of the country, focusing on the recovery of local production chains and the promotion of new ones" [7] using of all available Community funds (ERDF, ESF, EAFRD, EMFF) for local development interventions.
SNAI was born to operate in those contexts that have undergone, since the second post-war period, a marginalisation process marked by a drop in the population, sometimes below the critical threshold; reduction in employment and land use; declining the local offer of public and private services; social costs for the whole nation such as hydro-geological instability, and the degradation of cultural and landscape heritage [8].
What the SNAI has been most concerned with was how to make possible communication between town and country as two entities at the same level, thus rejecting a welfare perspective, and working on the institutional strengthening of small centres. To this end, the SNAI has focused on the promotion of associationism among municipalities.
The internal Cilento is one of the 4 areas identified by SNAI in the Campania region. The 29 municipalities have been detected in the most mountainous area stretching from the shoulders of Monte Gelbison towards the Alburni, excluding, however, substantial parts of the Cilento territory which, although geographically less "inland", as they are closer to the coast, are often affected by the same problems that afflict the more mountainous areas. While seasonal coastal tourism can certainly represent a boost to the economy and liveliness of these areas, it should not, however, be considered as the solution to the problems that afflict the settled inhabitants, made up of infrastructural deficiencies, low school supply, inefficient distribution of health facilities in the territory, and so on.
Furthermore, it is important to underline how, according to the report on the implementation status of the SNAI in the Campania Region of the 31st of December 2019, "the greatest criticality is linked to the timing for the approval of the strategy; from the draft to the definition of the strategy, the average duration is over 24 months " [7] .
Since the beginning of the '70s in Spain, when the depopulation processes of rural areas were accentuated, different public initiatives for their recovery have taken place, as well as requests for support from individual or collective entrepreneurs who seek to give new life to these uninhabited rural nuclei.
However, in Spain, the decentralisation of power in favour of the autonomous communities turns into not having a clear and unifying policy against depopulation. Only Aragón and Castilla y León have developed special programs to deal with it.
Aragón drew up a plan and its parliament unanimously approved a Comprehensive Demographic and Population Policy Plan in 2000, but they only manage to developed isolated measures; in Castilla y León instead, the two main parties in the regional parliament agreed, in 2005, on a program called “Fight against depopulation. Regional strategy”, made up of 73 measures [9], but its subsequent development consisted of mere reports analysing the demographic evolution of the region, linking the trajectory to current measures [10].
It would be necessary to promote a common European strategy as it is something that is repeated in different countries, even being a local issue. Numerous associations have emerged requesting different taxation for the recovery of these areas (III Framework Agreement for Competitiveness and Industrial Innovation of Castilla y León for business sustainability, report of the Research Group Sparsely populated areas in the south of Europe…) [3].
It is also necessary to highlight specific public aids such the scholarships that annually encourage students to spend some time in the county to study their ethnology, even if it is a measure to palely alleviate the problem. On the other hand, the first legislative commission on Depopulation and Demographic Challenge was recently created and will focus on job creation and cohesion of the welfare state, abandoning purely local visions.

Future prospects: post Covid-19 scenario, redemption opportunities for inland areas?
Due to what has been explained above, the questions that this field of study raises concern the possible outcomes and impacts that such policies may have in areas that, as we have previously seen, have never really reached a high level of urbanisation, rather than being subject to depopulation. Areas that have historically developed and then preserved in their state of isolation from large urban centres, somehow managing to find, in this peculiar condition, a balance that has preserved their characteristic cultural and environmental features.
The events of the last few months, caused by the worldwide explosion of the COVID-19 sanitary emergency, have also added supplementary opportunities for further reflection, never seen before in contemporary times, on the precious opportunity that internal areas would represent as a response to the need for a reduction in population density in large cities, today a scenario of relentless contagion, and, therefore, the victim of stringent measures of social distancing. Hence, in the last few months, a debate is taking place between the need for an immediate rethinking of the urban structure of our cities and the possibility of re-housing small towns, no longer seen as an endangered object to defend, but as a saving resource in which to find refuge; no longer, consequently, landscapes at risk of abandonment, but simply landscapes without involving any health risk.

Fig. 4. Navabellida (Soria). 0 inhabitants, 6 over the summer (source: image from the magazine XLSemanal, El Pais).

This observation, to whom it would be as easy as it would be comforting to yield, risks, nevertheless, generating distortion of the meaning of the policies for internal areas,

starting from a basic misconception. If it is very obvious that, as a result of the pandemic, there has been a massive movement back from the cities to what in many cases are the small towns to whom people come, if it is also true that many citizens have attempted to move to the so-called "second residences", repopulating many places of seasonal tourism, it is equally clear that all this happens in terms of "escape" and not "choice". Starting from the assumption that the COVID-19 emergency can be the driving force behind a shift from cities to small towns, that means relying on the naive illusion that such towns can continue to exert a strong enough attraction to counteract the magnetism of the city even when the emergency will be over. On the contrary, it is quite different to start from the opposite assumption, that is not that of the escape from the city, but that of the real attractiveness of the internal areas. The benefit that we can draw from this debate, therefore, is to consider as a priority all the efforts, policies, and investments that can concretely put small towns in a position to represent an alternative to the city. On the contrary, as highlighted by Carlo Petrini, founder of the Slow Food association, we must take the opportunity to reflect on how the villages can represent "help" for cities since these are the places where the "relationship economy" that generates benefits both in terms of sustainability and sociality is still preserved, although with difficulty.

Conclusions

Rural architecture is only the visible part of a much more complex system of construction, transformation and management of the territory, and both are inseparable. The layout of the architecture, its location, its relationship with other constructions are fundamental aspects, but even more than that, it is important its intimate relationship with the management of the environment and natural resources. The abandonment of the built heritage entails deterioration of the territorial, natural (loss of biodiversity associated with traditional uses), and human capital, much more difficult to reestablish. Last but not least, we must mention the ruin of social capital, the disappearance of the collective memory on the management of local resources, achieved over centuries.

The only territorial capital that has not suffered an appreciable decline is the image one. The extraordinary concentration of population, activity and economic value in cities, revalues the uniqueness and evocative capacity of the rural world. For this reason, sporadic contact with the countryside generates a great amount of interest and appeal in the urban population.

We can deduct from what said above that it is preferable to intervene on social capital, promoting the viability of new models of recovery the relationship of the rural community with its territory, adding the economic activity and re-designing the relations of the community with its territory out of the conventionality. A public initiative for the recovery of an uninhabited town cannot be understood without the complete and complex reflection on the models that guarantee the conservation, and even revaluation of the territorial capital with all their components, promoting linkage between integration and interexchange with the territory.

Recovering its value should imply recovering its complete content and context as a whole, the global strategy, avoiding standard and mechanised solutions that could dissolve the local imprint.

We should look at each town as a new scenario in which it is possible to live in balance with the territory, and within an equitable social model. And, in conclusion, it should be an investment in social and territorial cohesion and the strength and sustainability of the economic and social model.

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A WAY FOR THE ITALIAN INNER AREA MONTAGNA MATERANA

Rethink the abandonment from Craco

Abstract
The tiny village of Craco towers on a ravine in the middle of Basilicata. Craco is a ghost village among the towns in the Inner Area Montagna Materana. It is totally deserted, while not so far away, a new town has been built. Indeed, following on from the abandonment, some local organizations have started several ventures to boost studies about this place, as well as temporary uses of spaces.
This paper presents the results of a research that starts from the National Strategy for Inner Areas (SNAI) and investigates on the potential of design for inner districts. The hypothesis of a strategy for the Montagna Materana made up of widespread projects arises from the coexistence of different landscapes and communities.
For this reason, the architectural proposal in Craco is a part of a broader incremental strategy proposed considering the uncertain future of this area, and admitting the possible abandonment: somehow, learning from Craco.

Keywords: cultural landscape, heritage, ghost town, landscape design, incremental strategy.

Introduction
The Italian landscape, one of the most beautiful, visited and praised in the Mediterranean, is now the subject of new attention. It is relevant not only for what concerns long-standing issues such as the protection of the coasts, natural beauty, historical and monumental heritage, and ecosystem services, but also for a national question concerning a large portion of territory: the inner areas are at risk of depopulation and abandonment, defined as margin-territory or other Italy.
The National Strategy for Inner Areas (SNAI) refers to the Europe2020 programming of EU funds 2014-2020 [1]. It constitutes the programmatic document which recognizes the need for interventions in favour of the "other Italy". This definition includes 60% of the Italian territory, 52% of the municipalities, 22% of the population.
The definition of "inner areas" is elaborated starting from the lack of essential education, health and mobility services and the distance from cities defined as "service offer centers". Nonetheless, the inner areas are rich in critical environmental resources (water resources, agricultural systems, forests, natural and anthropic landscapes) and cultural heritage (archaeology, historical settlements, small museums, trade centres, traditions) [2], [3]. To

Fig. 1. The 72 internal areas of the SNAI. The pilot areas in black and the Montagna Materana in yellow.

counter the abandonment processes and to enhance local, territorial resources, SNAI proposes a territorial model that aims at a sort of shared self-sufficiency, generated starting from a territorial synergy between municipalities that are called to give up their local autonomy in the name of "common good". Of the 72 inner areas in Italy, of which 1 or 2 per region identified as pilot areas, this contribution relates to studies and research concerning the Montagna Materana, pilot area of the four regions of Basilicata (Fig. 1). Matera, the offer centre of the reference services is defined as a "forcedly included pole" because it does not meet all the criteria for determining the poles envisaged by the SNAI.
The inner area of the Montagna Materana extends for about 645000 square kilometres, includes eight municipalities and has a resident population of 11.000 inhabitants. The Lucania is defined as a land of migration and abandon. A condition that Carlo Levi describes in his "Cristo si è fermato a Eboli" where the centre of the story, however, remains the beauty of the Lucanian landscape far from the world and suspended in time.
In fact, in the area of the Montagna Materana we find: a low part, mainly agricultural, characterized by widespread clay formations called badlands; a large part, mostly wooded, where the Gallipoli Cognato and Piccole Dolomiti Lucane Park is located; a central part, where forests and badlands mix, defining an intermediate landscape (Fig. 2).

These morphological specificities extend the area towards its outside, beyond the administrative border, inducing possible relationships between landscapes. In this part of Basilicata, the landscape seems to hold together the two extremes of the times Braudel speaks of, that of the *longue durée* and that of the *évenémentielle* [4].
Compared to this vast dimension of landscape systems, dotted with small villages, farms spread along the course of sheep tracks, marked by the perpetuation of rites and traditions, Craco emerges as a "landmark" recognizable and observable by most of the other small villages and paths that cross these landscapes.
In this landscape of abandonment, the small village of Craco, the ancient center of one of the eight municipalities in the Montagna Materana area, stands out not only for its elevated position on a bad relief but for a series of events that led it, today, to define oneself as one of the most important ghost towns in Italy. Craco is a double village: not far from the uninhabited village, in the plain towards Pisticci, the new built-up area was built after the landslide, which forced the inhabitants to abandon the historic village in the middle of the last century. Today, in the face of abandonment, local institutions have launched a series of initiatives to promote knowledge of the village and a

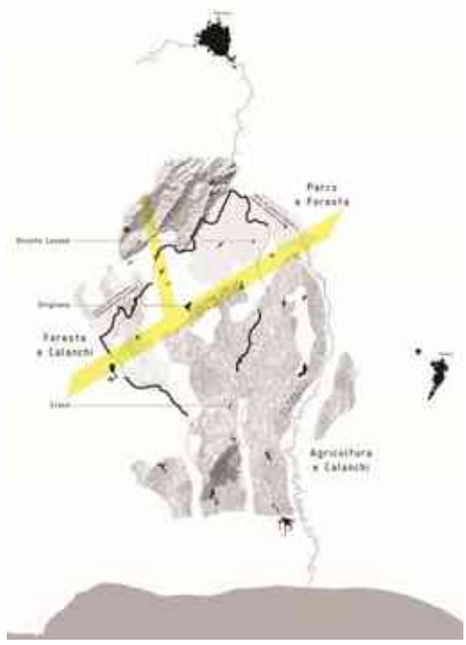

Fig. 2. The types of landscapes of the Montagna Materana in relation to the perimeter of the inner area.

temporary use of its spaces: Craco is a film set and for some years the Craco Ricerche Foundation has organized guided tours, workshops, seminars that keep the abandoned village in a network with Italy and Europe. On the other hand, the village of Craco is still external although strategic compared to those systems of weak relationships that are woven into the landscape to which it belongs: the landscape of central Basilicata, a natural and cultural heritage made of multiple relationships. The fundamental regulatory and cultural contents of the European Landscape Convention are thus denied.
In the research, we worked on the definition of a network strategy that allows to distinguish or integrate issues, elements, subjects, which assume different positions and roles becoming strategic elements of the enhancement of landscapes through the highlighting, and in some cases the construction, of new relationship systems [5]. With this look, therefore, we looked at the landscape of the inner area of the Materana Mountain starting from Craco considering its physical and immaterial characters and relationships. Work was carried out on the road from Craco to Oliveto Lucano crossing and opening to the various landscape systems. The road is seen as a path marked by stops and marked by intertwining according to an idea that, rather than highlighting layers (geographical, of the construction of villages, of material history, etc.), builds networks that hold identity and values together.
The road becomes the thread of union of relationships [6] and outlooks in the perspective of a strategy of widespread and incremental forecasts, culture-led, which interpret changes, and which do not exclude the scenario of abandonment (Fig. 3). If it is difficult, in fact, to imagine a trend reversal on a national scale such as to bring people back to inner areas, it is even more so if you think of the area of the Montagna Materana which, under the conditions described, could be defined as more "inner" of the others. In this sense, Craco's situation becomes exemplary concerning the need, which is accentuated in such contexts, to include the abandonment hypothesis in the project, to be considered not as a failure but as an eventuality [7].

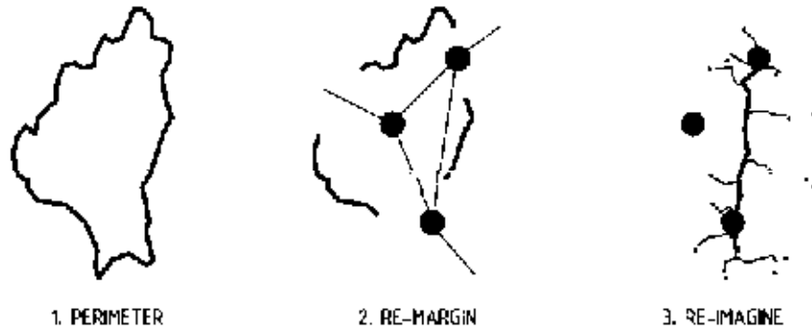

Fig 4. The three phases of the methodological path.

Methodology
The structuring of a multi-methodological process, which makes use of heterogeneous tools and the intersection of different points of view, constitutes the approach to address the case study of the Montagna Materana.
The methodological path was structured in three main phases, identified respectively to three objectives: 1. "Perimeter", in which the research question was defined concerning the theme chosen as the interpretative key for these places; 2. "Re-margin", in which, after the exploration phase, new territorial opportunities were identified; 3. "Re-imagine", which outlined the strategy that guided the hypothesis of an open project (Fig. 4).
In phase one "perimeter" we started from direct observation of the territory studied through inspections in the municipalities around and within the area of the Montagna Materana and through a series of interviews. The interviews carried out on the whole territory of the province of Matera had the primary purpose of capturing the perceptual aspects linked to the marginal condition of the territory, to the tools perceived available to overcome those conditions that seem inescapable, to future desires and hopes. The interviewees were a selected sample identified among different social groups (local administrations, representatives of associations, citizens particularly active in small communities, local businesses from different sectors) and chosen for their awareness of the criticality and possibility of the territory [8].
At this fase it was produced textual and multimedia material necessary for a thorough and widespread knowledge of local peculiarities. By linking the results of this first exploratory investigation with the institutional perimeter of the inner area, continuity and discontinuity of the types of landscapes became evident, in their dual material meaning, linked to the morphological components and the territorial, and immaterial characteristics, linked to the lifestyles and traditions of settled communities.
Parallel to the experiential path of research in the field, a series of critical maps have been produced at different scales to interpret the elements and relationships that structure and design the various types of landscapes. These maps visualize the distribution in the territory of some particular social and economic indicators through Gis software. The starting point were the "indicators for open diagnosis" provided by the Agency for Territorial Cohesion. These indicators have been updated when possible, and integrated with others, based on the interviews and the peculiarities of specific landscapes [9].
From the comparison and the synthesis of the results, profound differences emerged which accentuate the difficulty of defining objectives shared by the municipalities that are part of the same internal area and make it necessary to remargin starting from the types of landscapes. The objective of phase two "re-margin" was, therefore, to "re-centralize the margin beyond the administrative border" [10], identifying new territorial hierarchies capable of interpreting the different types of landscapes. These hierarchies highlighted the need for a network strategy consisting of points capable of

Fig 3. The ghost village of Craco. Guided tour in safety in august 2019 (photo credits: P. Zizzania).

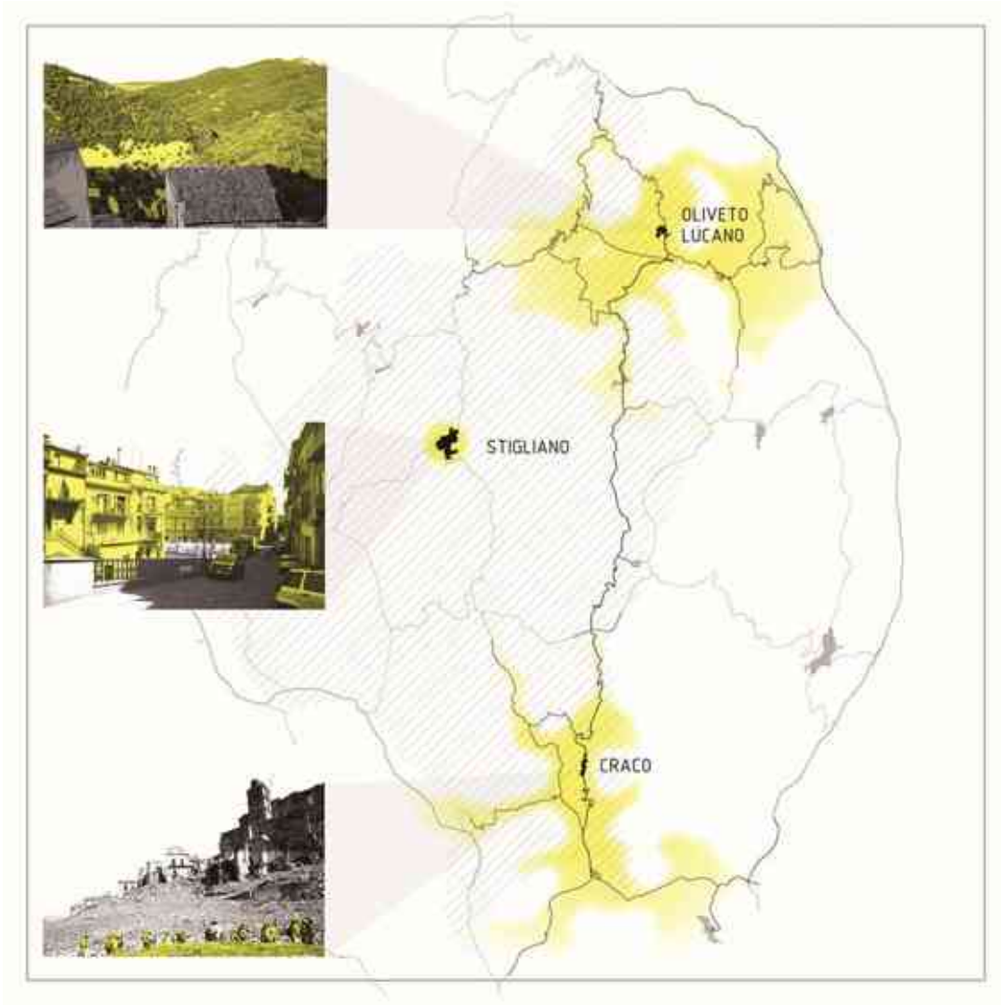

Fig 5. Three poles and related types of landscapes for an incremental network strategy.

activating a process of "inclusive prosperity" [11], where the individual contribution is considered to benefit general well-being. Inclusive prosperity is possible only by first identifying those places imbued with the special evocative force for the territory and subsequently triggering among them a network of reciprocal and complementary exchanges capable of spreading practices, services, values, meanings, identity throughout the territory. The identification of these strategic points was carried out based on the knowledge and description conducted during the first phase and subsequently verified through the TOPSIS method [12], a combination of spatial analysis tools of the collected data and multi-criteria analysis to support decisions. The identification of the territory descriptive categories (natural landscape, urban landscape, the landscape of abandonment) and the definition of a series of ideal future visions defined the framework for the TOPSIS application. The result of the municipalities evaluation suggests a selection of them potentially closer to the respective scenarios [13]. This methodological step was fundamental to confirm the initial interpretation according to which some areas are particularly polarized to certain types of values connected to the descriptive categories of the territory. Thus, three reference villages have been identified for each of the redefined territorial systems: Oliveto Lucano for the natural landscape, Stigliano for the urban landscape and Craco for the landscape of abandonment.

However, considering the concept of inclusive prosperity, to activate a network of exchanges between these poles, it was necessary to investigate (through CATWOE approach, SODA method and Decision Explorer software) [14] an immaterial, yet an extremely concrete, component of this marginal landscape: a synergy of inertia and localisms where the prolonged condition of marginality has produced deep internal fractures, weakened the sense of community and the feeling of belonging to the places.

Therefore, in the specific case of the Montagna Materana, the functional assumptions proposed by the SNAI seem to need to be accompanied by a transversal cultural prerequisite that can support a large-scale synergistic collaboration between the parties involved. A cultural infrastructure capable of interconnecting the various consolidated poles with any and exceptional micro-realities [15] scattered throughout the territory is necessary, thus structuring an incremental network strategy (Fig. 5).

Thus, in the last "re-imagine" phase, the proposal of a strategy of widespread projects for the Montana Materana is outlined, configured as a meeting multiple possibility in a synergistic vision that allows multiplication of opportunities and results. The cultural infrastructure starts from Craco, a prominent element, not only geographically, of the landscape of the inner area. Along the road that connects the ghost village with Oliveto Lucano, points strategically to build a system of architectures and places that trigger new ways of interacting between people and between different types of landscapes.

Results

The municipalities of Stigliano, Oliveto Lucano and Craco are identified as potential poles of the landscape of the inner area. They are configured as thematic territorial hubs from which multiple networks branch out that reinterpret the different types of landscapes. Along the road between Craco and Oliveto Lucano, a series of widespread projects trigger a strategic process of incremental networking (Fig. 6).

The hypothesis is part of the logic of wanting to intercept, consolidate or increase those realities of the area defined as "constellations of new urbanities" [16]. The condition of territorial and social marginality has guaranteed in the Montagna Materana the permanence of cultures and values linked to the land and the development of unprecedented possibilities of interaction with the landscape. Among these, Craco Ricerche certainly stands out, but they can also be counted: ENI, Festival della Paesologia of Aliano, Teatro dei Calanchi in Pisticci, Museum of the Arboreal Cultures in Accettura, the Corner of the Memory of Stigliano.

These practices tell of a value that cannot be reproduced in other places. This value is closely connected to the landscapes of the Montagna

Fig 6. A road of widespread projects and thematic hubs for the Montagna Materana.

Materana, but the different practices are actions that have little dialogue with each other. The proposal aims to “connecting distant elements together” recalling the intentions of the works of Maria Lai (Fig. 7).
Work has been done on an incremental network strategy that starts from Craco. The road that leads from the ghost village to Oliveto Lucano becomes the physical and immaterial device through which to re-imagine the Montagna Materana. The road, infrastructure of geography, crosses diversity, connects distant and profoundly different landscapes and people and transforms the territory into a cultural product.
The road can, therefore, be conceived as a line that connects a series of places that define a system of points of reference, orientation and opening to other places.
In inner areas, the road is the element of the structure as well as landscape infrastructure.
The proposal provides, along the road that starts from Craco, a series of hubs, observers, stops shelters, which intersect other systems, other networks, other landscapes. This is part of the strategy for the Montagna Materana, “Piccoli borghi grande vita”, which identifies the roads as the main elements on which to invest.
Along the road, significant places are identified to the grafting of landscapes and other roads, stopping places that open at the intersection with a sheep track, to the graft of a path between badlands, at the entrance to the

Fig 8. The beginning of the road in Craco.

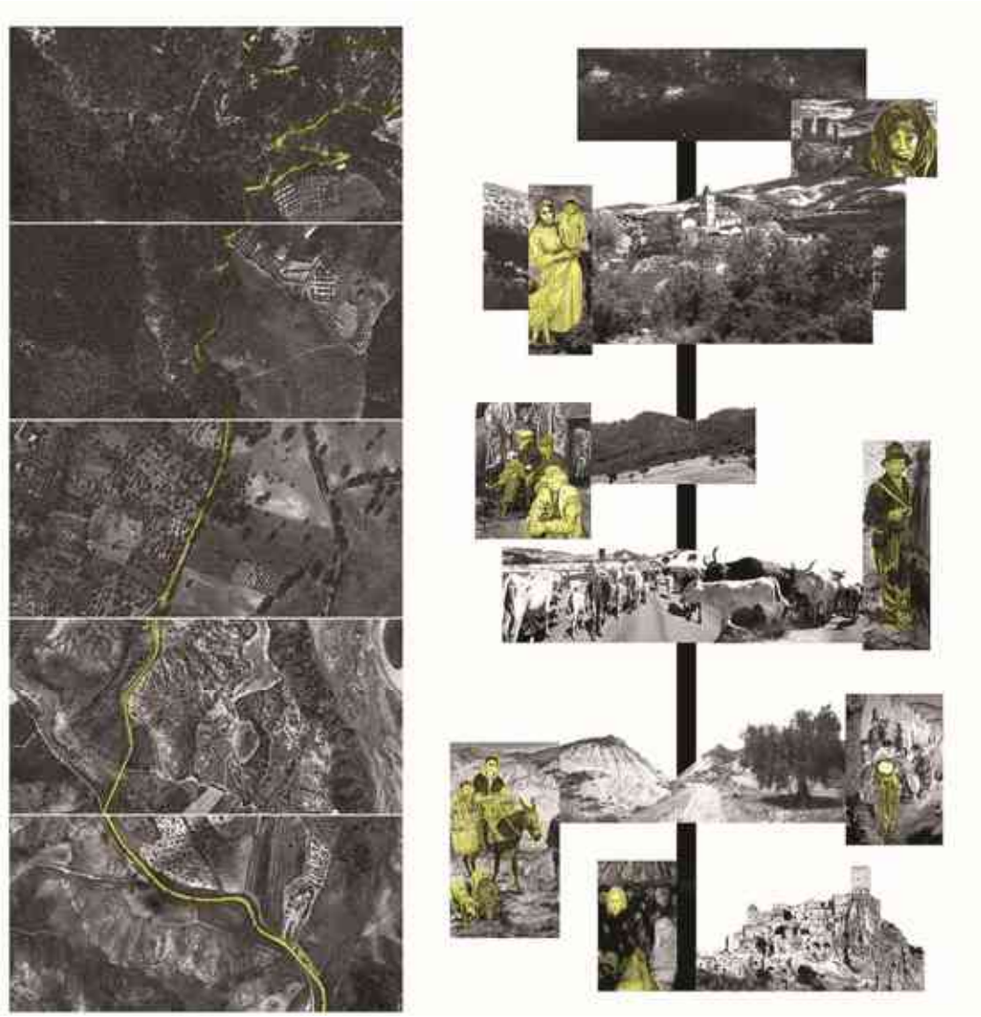

Fig 7. The road: physical and cultural infrastructure intersects and reconnects landscapes and people. Different values of the landscapes are represented through a collage of photos with fragments of the "Lucania '61" painting by C. Levi.

Gallipoli Cognato Park. At the ends, an “Earth Observatory” (Fig. 8) introduces the ghost village of Craco and, along the hairpin bends at the end of the path, embedded in the geography of the soil, the "Museum of the dark" is an observatory of the sky, a place to live in the woods at night, a refuge for passers-by with small support equipment for free camping.
Craco, therefore, for positional conditions - of geographical emergency and proximity to the access roads to the inner area - and for the presence in the territory of actors committed to relaunching the ancient village, is proposed as the hub from which to start to rethink the landscape of the Montagna Materana. The earth observatory (Fig. 9) is a soil redefinition that interprets the characteristics of the landscape. The large retaining walls on which the stairs that go up to the village climb and the small spaces included always perform a double function: to contain to live and to contain to support.
A pair of large walls define the proposed architecture: the first supports the access road to the village with three buttresses, the second supports the staircase that leads to a series of terraces on different levels.
Therefore, regardless of the use or fate of the earth observatory, as well as the village of Craco, architecture remains at the scale of the landscape as a substructure and path. In this sense, indeed not recalling a romantic and contemplative vision of the concept of ruin, it can be said that even in the event of abandonment, the project configures an architecture that retains its sense in the dimension of the landscape [17].
The project, therefore, interprets the conditions of today while remaining open to the uncertainty of tomorrow. The proposal, therefore, identifies a strategic solution that defines different objectives for different types of landscapes and that allows you to open to the outside of the area and include the municipalities that do not fall within it. The road dotted with widespread hubs. A first cultural awareness, without which it is not possible to speak of development in these contexts. It is a strategic project that accepts addition, overlap, growth as much as its abandonment.
Thus, in the Montagna Materana “precisely because they remained marginal to the development processes, and thanks to the extraordinary peculiarities they contain, these stones could be transformed from discarded stones into cornerstones from which to start” [16].

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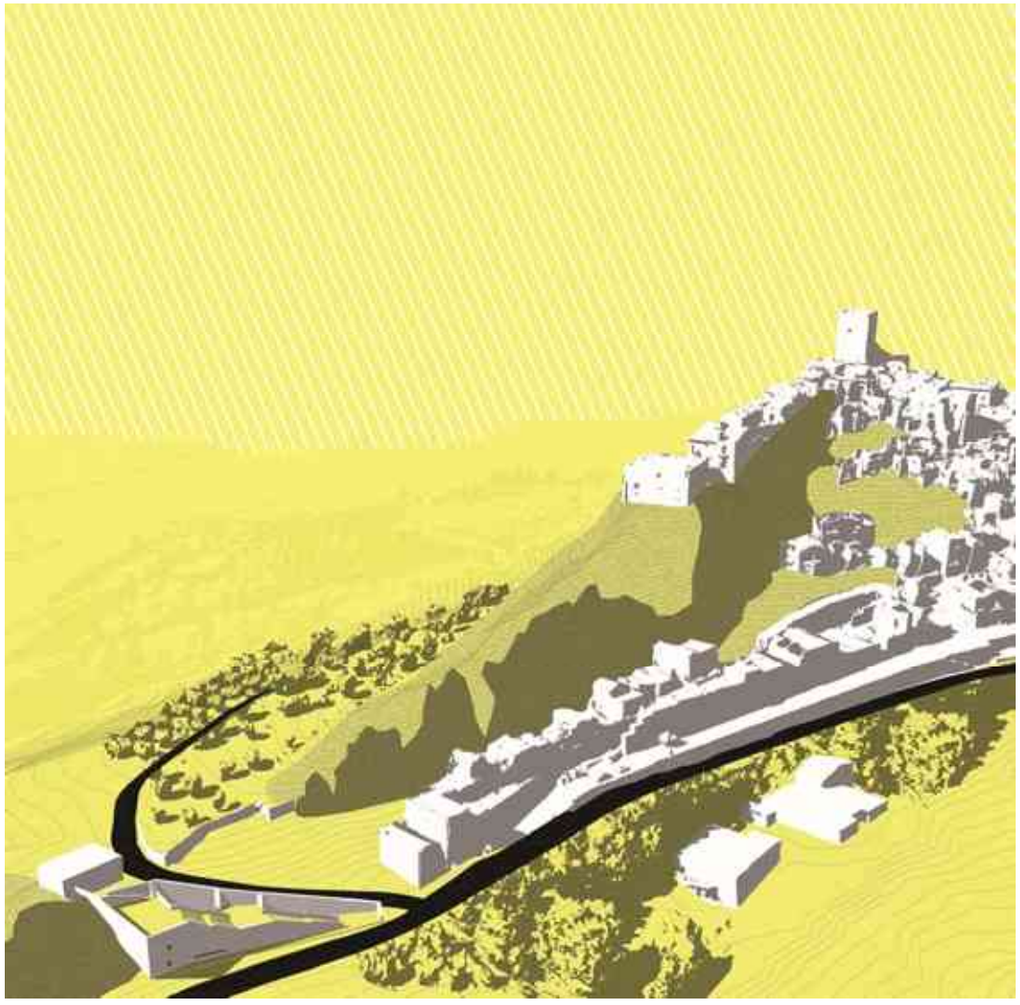

Fig 9. The road and the Earth Observatory (bottom left), at the foot and in continuity with the abandoned village of Craco.

Paola de Salvo

Marco Pizzi

WHICH MODEL OF LANDSCAPE RELAUNCH?

The Umbrian case of Postignano

Abstract
All of the Italian villages which have historically based their own economy on traditional production systems have been disadvantaged on the socio-economic field, during the last century, by changes connected to modernisation. These areas' economic weakness produced abandonment, depopulation and negligence through the local environment – with risks linked to hydrogeological instability. The Italian Government attention towards this situation recently materialized the attempt to localize these areas and to realize a strategy for their relaunch. This concentration result is the *National Strategy for Inner Areas* which gives a certain relevance to social empowerment in addition to economic relaunch. The case of Postignano, and its possible developments, could be relevant because, although its distinctive feature is the totally private leading of its economical relaunch instead of public, it confirms that the social side of rural development can't be disconnected by the economical one.

Keywords: inner areas, territorial redevelopment, local community rural innovator, village

Introduction
This work, beginning with an analysis of a case study, offers a reflection on the actions aimed at transforming the internal imbalances upon the national territory and accomplished to reinterpret both the territorial heritage and territorial capital [1], [2] of European outlying rural areas. This research, particularly, points out the relevance of local culture and identity during a regional relaunch project, even in the particular situation in which an enterprise starts it with no population living in the considered place: such is the scenario in Postignano (cf. next subparagraph). Attention, therefore, goes to a useful case to observe some typical processes of the relationship between society and marginal territories. Among these, the phenomenon of "a return to the land" is particularly important, where understood as a «general return to sustainable and long-lasting living condition of human societies on earth, pursued through a re-territorialization project capable of generating a new synergistic co-evolution between human settlement, environment and history, giving innovative forms to the territorial heritage» [3]. The central strategy of many recent redevelopment projects, indeed, is providing a response to the growing sense of social disorientation through the construction of new livable and common spaces in which to try to satisfy the "desire for community" [4], [5].
As a consequence, the marginal areas experience globalization in trying to transform the traditional agricultural economic order towards one based on the commercialization of rural space [6], [7]. For outlying areas, it has become indispensable to create narratives, integrated with new technologies and with attention to design, presentation, image and organizational innovation [8]. In this way, an attempt is made to attract new consumers, mainly tourists from national or international urban populations (*Ivi)*. The recent proliferation of regeneration initiatives focused on creation and communication of attractive rural images is not accidental [9] and confirms the idea that rurality itself is now a social representation rather than an economic order [10]. *Place branding* strategies, however, risk reducing places to tourist landscapes rather than spaces to live. The communication strategies of the territory risk attracting new snobbish, exclusive communities, creating spaces which distance the previous territorial community and which weaken the possibility of building a significant capital of space.

Community, local identity and innovation in valorizing interior areas
The strategic enhancement of marginal areas' potential reflects a renewed cultural interest in rurality which stimulates new social practices and demand [11] which, in turn, can lead to competition between rural territories [12]. Local identity becomes a fundamental component of territorial capital to be invested in this competition; their landscape becomes one of production and consumption of identity; and thanks also to the affirmation of an economy of services, the places therein become increasingly residential and recreational. In this complexity, internal areas seek a new role by obtaining visibility through techniques that become fundamental for their socio-economic development [13]. Not all marginal rural territories compete however. Some do not have the human and material resources necessary to undertake their relaunch. The economic rehabilitation of these areas is governed and participated by actors of different natures; some private, others public. The latter, generally, intervene precisely where endogenous forces are to be stimulated or exogenous forces are to be attracted to restart the development of the territory. The Italian case is particularly interesting, because the territorial imbalances are clear and profound and because clear and systematic choices have been made to address them, implemented in the National Strategy for Internal Areas (SNAI). The criteria chosen for the identification of the "internal areas" allow them to coincide with what we have so far called "outlying areas". It concerns a mode of action that intends to enhance the potential of the territorial capital spoken of so far, but which does not necessarily aim at the total inclusion of the local communities for its commencement. This package of government interventions aims to initiate co-design development paths that are not based on the idea that the community knows what it needs, despite being the custodian of local knowledge and of the relationships forming part of the territorial capital. Rather, SNAI is based on an analysis aimed at identifying the internal, institutional, citizen and entrepreneurial living forces[1]; and relevant actors – including external ones – through focus groups and scouting [14] – [15] – [16]. In the scope of SNAI, therefore, the identification of innovative subjects and the stimulation of a *"supportive social context"* is fundamental [17]. The local innovator" will be understood, in this article, as described by the literature dedicated precisely to this type of figure in marginal rural contexts both in Italy and in Europe. The "local innovator" [17], [18], [19]:

- is often not local;
- generally, garners little attention from local elites;
- has the ability to exploit the external environment;
- has the ability to establish internal and external connections and to generate knowledge in doing so;
- is often an immigrant equipped with greater training and greater entrepreneurial skills;
- demonstrates ability and propensity to use ICT (Information and Communication Technology).

The "local innovator", however, often faces a context that cannot be said to be welcoming, from an entrepreneurial and innovative point of view. The bottom-up approach was passed over by SNAI precisely because in the internal areas the enemies of development are often locals

Fig. 1. The hamlet of Postignano (source: www.flickr.com/photos/viaggioroutard/19675923443/sizes/l/).

[19], specially their élite. For the environment around the innovator to be called *"supportive"* there must be critical mass, specialized services, electronic infrastructures and people able to use them [8].

Case study, research questions, hypotheses

The case study selected is that of the redevelopment of the medieval village of Postignano (Fig. 1). It is a fraction of the Umbrian municipality of Sellano, classified, within the SNAI, as "peripheral": an internal area village.

This village, founded in the thirteenth century reached its maximum expansion in the sixteenth century, with a population of 400 inhabitants. Its demographic trend remained stable, encountering alternating phases, until the twentieth century, when it experienced the dynamics of progressive depopulation that affected many hill villages of the Apennines, until it reached total desertification in the late sixties. The village remained deserted until 1992.

In that year, the acquisition of the entire village began by a real estate company which purchased one property at a time from the heirs of prior owners. The business idea is to give new life to the village through its complete renovation and reselling it when the work is finished. Today the company still owns a large part of the village, half of which is a scattered hotel and half intended for sale.

The reasons that make this specific experience particularly interesting are related to the problematic events that have accompanied the almost thirty years of life of this project. An entrepreneur devoid of any identity link with Umbria, as well as the main partners and collaborators, faces significant costs and complications in order to complete the project. Between 1992 and 2020, some events have impacted the area: in 1997 an earthquake demolished a large part of the village; the use of the internet has spread; in 2008 the global economic crisis hit the real estate sector hard; in 2016 another strong earthquake occurred in this area of Umbria. Within this complexity our research is trying to understand what is the role of the local community in the redevelopment of an internal area, if in our case study the figure of the innovator corresponds to the profile traced and finally what importance do the values of civil inclusion have in territorial redevelopment actions.

Methodology

The method used to investigate the regeneration dynamics of the village of Postignano is the semi-structured qualitative interview. The subjects to be interviewed were chosen by combining two different sampling techniques. The first was chosen according to the criterion of reasoned choice: the current director of the hotel facility present in Postignano. The following were chosen using the snowball sampling technique, asking the first interviewee to indicate the key subjects to be interviewed in order to continue the investigation. A total of 5 key-subjects were selected: all of them are strictly involved in the project design for Postignano. This approach achieves the narration of the entrepreneurs and of figures close to them, which allows reasoning upon fundamental and interesting issues regarding the theme of the territorial regeneration of a village in the internal area.

Results

The research mainly led to the emergence of an important first question: the "new" village of Postignano is perceived as "different" with respect to the territory, as if coming out of its abandonment it has disconnected from the context in which it is located. This is expressed in various ways in the narrative of the interviewees: the envy of the locals because they did not think of taking the same initiative and the feeling that the village has become the seat of an elite community due to the expensive properties purchased by high profile foreigners and the sophisticated cultural proposals. The origin of the owners who come from another region also contribute to the sense of estrangement of the project.

All the interviews, albeit with varying nuances and presenting small contradictions, inclined towards revealing a dichotomy between the new village community and the pre-existing one, which lives close by. According to the interviewees, the first is a present, welcoming, lively community: it is there. It is made up of the owners, employees and house buyers, who have established an authentic bond and which prompted everyone to use the term *community* at some point in their interview. The surrounding community, on the other hand, is depicted as a group of people initially skeptical of the project, but today more involved; now fond of his or her own landscape, now completely out of love with the territory. The rhetoric of falling in love emerges when the interviewees refer to the owners with terms such as «passionate», «fond of [the village]», «in love», while on several occasions it became natural to change the signal of this semantics, when talking about the local community, "out of love". One of the interviewees goes so far as to argue that the lack of liaison services and the dissolution of local historical memory suggests that the local community «is just not there».

«Postignano is a 100% common good». In interviews this topic frequently rests on the description of the cultural events that take place in the village, but that some of the interviewees themselves recognise increase the perceptual gap with the surrounding area: «They feel out of place. They ask me: "How should I dress to come to your jazz concert?"».

The theme of the new local identity, on the other hand, is strictly connected to the discourse on the modernization of the village and on the paradoxical one of a non-existent territorial branding project. The idea is expressed. on one hand, that the village cannot live on the idealization of the past (Fig. 2). According to the interviewees, the welcoming and loyal staff, the culinary proposals of typical products, the craftsmanship and the respect for the housing tradition of the place are elements to be enhanced, but which must never lead to the creation of a «fake scenario». The success of the village, however, is determined by the search by externals for a typical scenario tied to the imaginary that, according to all the interviewees involved in the project, needs to be developed. The paradox, therefore, emerges when they affirm that the intention is to avoid any museum display or romantic narration, but also that they have never completed a full communication plan that would provide the public with the answer to the question: *what is Postignano?* To make them more competitive. Particular attention was then paid to the figure of the social innovator investigating whether in the case studied this figure contained elements that matched any outlined in the most recent literature.

The account of the internal area entrepreneurs we interviewed largely confirms their adherence to the profile of the marginal rural area innovator described above:

- they are two highly educated individuals; they are not local and have had difficult relationships, on some occasions, with some local administrators, although the collaborative element has prevailed;

Fig. 2. The Hamlet's reading room between present and past (photo credits: Paola De Salvo and Marco Pizzi).

- the external environment is increasingly becoming the resource of this village and the investment that company directors are making to strengthen connections with the surrounding places and people, also in terms of communication (cf. new section of the website: "surroundings") is not casual;
- they had been interested since the nineties in cabling the village and all had come to the conclusion that today «there is no living village without internet connection and without technology», demonstrating an inclination towards the creation of a favorable environment for the use of ICT.

Finally, the research activity focused its attention on the importance of the values of civil inclusion in the actions of territorial regeneration. The communications officer in particular has shown himself to be sensitive to the issue of including the citizenry with a long-term view and civic inclusion. His work is trying to involve above all the younger generations in the life of the village, with the aim of bringing this place into the future memory of the surrounding community.

The words of all the interviewees make it clear that the project did not begin with the aim of redeveloping the socio-economic fabric of a marginal area, as much as that of winning an interesting «architectural challenge», from which to obtain a pleasant place to sell, making a profit. The same interviewees, however, insist very much on the rhetoric of passion and affection towards the territory, demonstrating how, over time, the nature of the business has changed. Two earthquakes, the advent of the internet and a global real estate crisis have forced the entrepreneurs to rethink their approach. The company is now half hotel and half real estate. Both sectors, however, have put the managers in front of the inevitable problems tied to the internal area enterprise: one cannot think of requalifying a marginal rural area without redesigning its identity, without involving the existing community and without thinking about the features that it will have that are intended to be installed. This statement is based on the reflections conducted on communication dynamics and territorial branding aimed at increasing local competitiveness [13]. The intangible characteristics that make a territory attractive are tied to the liveliness of the local community. This itself however, cannot make any contribution to the development of projects it perceives as extraneous. The inclusion of the local community - i.e. its active participation in the life of a place - determines the presence of what Dinis [8] defines as *supportive social context* that can only be achieved if interesting opportunities are created, such as those that Postignano can offer, to those who live the territory. To base the attractiveness of the territories on the identity of the places implies requalifying them with a view to sustainability of intervention and improvement in the quality of life of the whole community. It means acting in an integrated perspective where financial (public and private), territorial and social capital come together. Finally, the reputation and credibility of the valorization actions of the territories is given by the sum of the social relationships. The quality of a place, in fact, is not only the result of its tangible features, but derives essentially from all those very aspects of human experience which are primarily relational and of which the local community is the first expression.

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NOTES

1. *Cf. Guidelines for building a project area strategy*, http://www.agenziacoesione.gov.it/opencms/export/sites/dps/it/documntazione/Aree_interne/Documenti_di_lavoro/Linee_guida_AI_18_11.pdf (last accessed: January 10 2019).

Marianna Sergio

THE TOXIC SUBLIME OF THE INDUSTRIAL LANDSCAPE

The aesthetics of the city of Seraing

Abstract
The ability of cities to preserve and show their history does not determine simple morphological transformations but reflects a different sensitivity and interpretation of places. This essay explores part of a research about the industrial landscape of the Belgian city of Seraing, which has the aim of investigating the signs of the abandonment and the dismantling of the steelworks. The poetic of the sublime paints this scenario of both beauty and abandonment, in which the bucolic setting of the Meuse has given up to the fire of blast furnaces and the pyramids of slags. Nevertheless, the nature of this landscape transforms these uncertain places into possible places, capable of inspiring new project visions and consolidating their memory. It defines the mythologisation of the toxic sublime, which triggers social processes and cultural initiative: the paradox of the Croisière toxique is translated, in this research, in the re-meaning of the elements and the identity of the landscape.

Keywords: industrial landscape, sublime, abandonment, dismantling, memory

The landscape beneath the *limen*
The idea of industrial landscape, as a material construct and a cultural deposit, detaches itself from the traditional notion of nature landscape and embraces a polysemic vision, which investigates different meanings, images, and fragments in a dimension both physical and metaphysical.
In a system of interrelationships, the industrial landscape of the Belgian city of Seraing embodies a new sensitivity, which tends to interpret the metamorphosis of nature and its results. It is not just a visible manifestation of human action on earth or a means of introspection of the world, but the result of a cultural and reflective intentionality [1], which brings together heterogeneous elements without eradicating itself from the surrounding territory [2].
Thus, the perception of the landscape breaks down into different perceptual levels. These describe the glorious history of Seraing and, "in turn, refer to restless and tormented states of consciousness (a loro volta rinviano a stati di coscienza inquieti e tormentati)" [3], caused by the current condition of abandonment.
The city represented in the past a bucolic summer residence for the prince-bishops and stood as one of the main productive cores of the steel industry in the province of Liège.

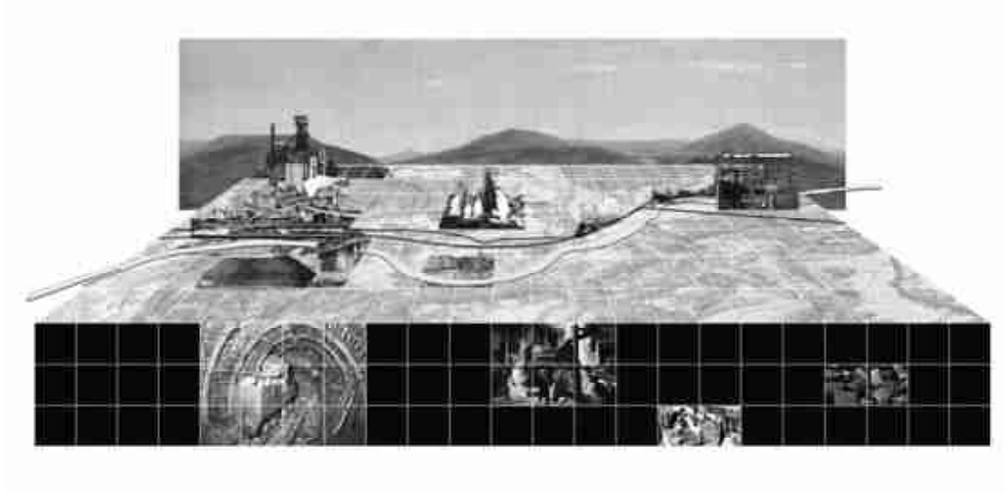

Fig. 1. Polysemic sublime in Seraing (source: graphic elaboration by the author).

Nowadays, it shows itself as a fragile and complex territory, impregnated with an industrial memory and marked by the fences of the industrial system: the châteaux of the entrepreneurs and the cathedrals of the plants.
This reading system allows to discover what it is found deep within the landscape and what it is hidden beneath the limen: the toxic sublime of an industrial landscape now abandoned.
Outcome of a real spiritual process, this sublime lives through the gaze of the spectator. It expresses the conflict between objective and subjective experience [4], in which the contemplation of these steel giants induces the mind to recognize infinite possibilities and complex socio-economic problems in the destructive force of the supersensible.
The manifestation of this type of sublime reveals its physical features in the state of abandonment of the waterfront of Meuse River in Seraing where the steel activity is concentrated, becoming the only place capable of expressing the paradox of reality through its falsification and its inversion of meaning.
Therefore, the sight of a similar scenario made of industrial residues and fragments of memory provokes an unceasing movement of the spirit but, at the same time, it manages to return "a recognizable image of all the objects and spaces of the city (un'immagine riconoscibile dell'insieme degli oggetti e degli spazi della città)" [5], through the signs that have been accumulated over the course of history and the heritage of monuments-machines that mark the identity of the city and its society.

Fig. 2. The haut-fourneau 6 of Seraing in 2016 just before the demolition (photo credits: Johanna de Tessières, 2016).

Dismantling and abandonment
Moving from the upheaval which hit the image of the city center and from the chronicle of the mining industry which is inconceivable without waste, the city of Seraing shows its history, preserving the signs of which legibility has been lost and activating a process of re-reading and decoding of the landscape.
The decline in industrial activity, due to the merger of the Cockerill group with other large foreign industrial giants, produces the activation of political imperatives that fragment the space in a sequence of industrial fences as well as create the discontent of a society that identifies itself with the characteristics of the authentic Walloon steel industry.
The actual epilogue – ArcelorMittal's last scene in Seraing – was written in early 2010 when the hopes for a revival of the steel industry run out due to an economic and financial crisis [6]. This leads to the collapse of the company's shares and the consequent disposal of the

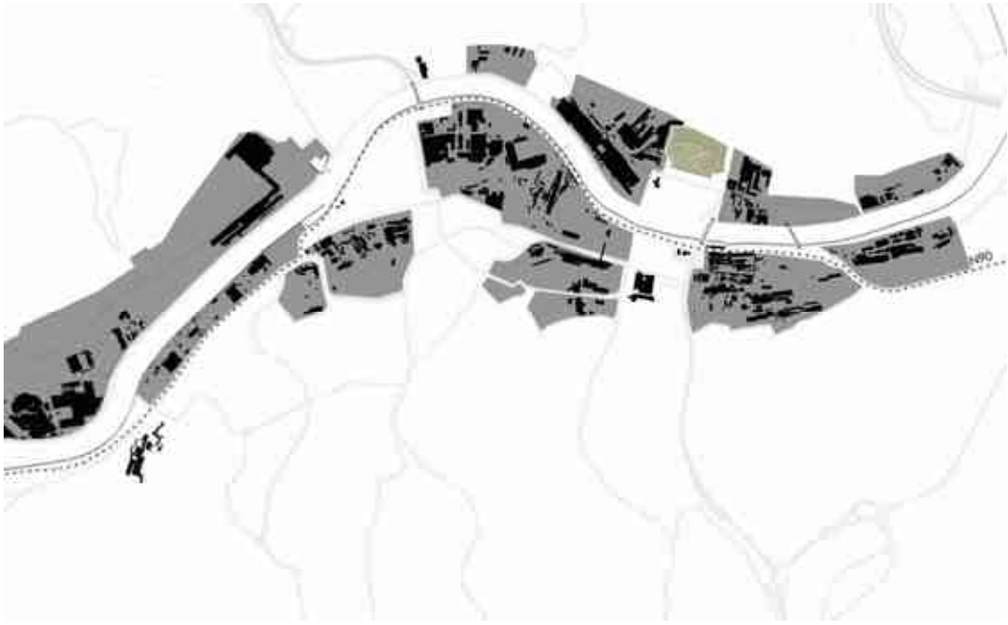

Fig. 3. Industrial fences (source: graphic elaboration by the author).

plants: haut-fourneau 6 of Seraing (HF6) is completely demolished in 2016 while the haut-fourneau B of Ougrée (HFB) is dismantled in 2009 and assumes the role of symbol of abandonment, standing out as one of the landmarks of the Meuse River waterfront and the neighborhood.
Therefore, it is clear that the elements of the industrial heritage of iron, coal and glass contain interpretative forms to understand the interaction between nature and built and to activate "relationships between different dynamics [...] as ways of looking at the landscape (relazioni tra diverse dinamiche [...] come modi di guardare al paesaggio)" [7].

Fig. 4. Intersections (photo credits: Johanna de Tessières, 2016).

In this perspective, the sublime of the industrial landscape of Seraing is configured as a new totality that goes beyond the individuality of single machine-monuments and ties their meanings together in a vision of things that manages to recognize the intrinsic nature of abandonment. Sold and protected, destroyed and mythologized, the city is not a finished product of a transformation process limited in time and space, but a dynamic and open-ended system, capable of including the most marginal fragments and the least predictable outcomes.
The residues that compose its industrial landscape, although different in shape, exploitation and size, have the common characteristic of giving shape to terrains vagues and uncertain places [8] where the sense of suspension and wait reawakens memories and links the past to the future.
Indeed, the same industrial objects release “the power of a prodigious transmutation of vile, despicable, and humble matter into a noble, beautiful and precious object. [Embodiment of ambivalence, they are like waste] both divine and satanic. I am the midwife of all creation, and the most formidable obstacle to it.
The waste is sublime: an unparalleled mixture of attraction and repulsion, which arouses an equally unparalleled mixture of admiration and fear (il potere di una prodigiosa trasmutazione di materia vile, spregevole e umile in un oggetto nobile, bello e prezioso. [Incarnazione di ambivalenza, essi sono come rifiuti] al tempo stesso divini e satanici. Sono la levatrice di ogni creazione, e il più temibile ostacolo ad essa. I rifiuti sono sublimi: una miscela impareggiabile di attrazione e repulsione, che suscita un misto altrettanto ineguagliabile di ammirazione e timore)" [9].

A sublime landscape

“The whole valley seems to be pierced by erupting craters.
Behind the little hedges, some are spewing out great clouds of bright red steam, sprinkled with sparks; others project, against a red background, the oppressive black silhouettes of the villages; elsewhere, the flames creep among the gaps between groups of buildings.
You would think an enemy army had just crossed the country and that twenty villages, razed to the ground, are at once offering you, during this gloomy night, all the aspects and all the phases of fire, these burning, those smoking, others flaming.
This show of war is put on by peace; this frightening image of devastation is made by industry. You have quite simply before your eyes the blast furnaces of Mr. Cockerill.
(Toute la vallée semble trouée de cratères en éruption. Quelques-uns dégorgent derrière les taillis des tourbillons de vapeur écarlate étoilée d’étincelles; d’autres dessinent lugubrement sur un fond rouge la noire silhouette des villages; ailleurs les flammes apparaissent à travers les crevasses d’un groupe d’édifices. On croirait qu’une armée ennemie vient de traverser le pays, et que vingt bourgs mis à sac vous offrent à la fois dans cette nuit ténébreuse tous les aspects et toutes les phases de l’incendie, ceux-là embrasés, ceux-ci fumants, les autres flamboyants.
Ce spectacle de guerre est donné par la paix; cette copie effroyable de la dévastation est faite par l’industrie. Vous avez tout simplement là sous les yeux les hauts fourneaux de M Cockerill)” [10].

Fig. 5. Cockerill steelworks in Seraing, 1850ca. (source: Centre d'Histoire des Sciences et Techniques, University of Liège).

Tension, astonishment, and suspension are some of the emotions recalled in Victor Hugo's travel cahiers, dating back to 1842.
A sublime and picturesque condition envelops the city of Seraing, where the blast furnaces become fetishes of the iron and steel industry and bell towers of the industry, establishing the cardinal points of the landscape through the fire and outlining in the dark a frightening profile, capable of outlining in the eyes of the writer the Virgil’s Tartar and Dante's Inferno.
The same sensations remain in the images of contamination and accumulation of a city no longer ardent, but foggy. The echoes of the dismantling and the signs of the deconstruction of the steelworks of the city interpret the power of this landscape, while the poetics of the sublime still paint scenarios of beauty and abandonment, charm and terror, attraction and repulsion.
Linked to the centrality of the Meuse River, the bucolic setting has given up to the fire of blast furnaces and the pyramids of slags, transforming the landscape into an object of consumption and fragmentation. A system in danger which, however, offers the possibility of new configurations and highlights the ability of this organism to reverse today's situation.
Therefore, the reading of the elements and spaces shows an interconnected system of signs aimed at describing, regulating and reflecting on the dynamics in progress, as well as on the critical issues of the place: the remains of the industrial heritage - the Cockerill factories in Seraing, the Cockerill-Sambre, the Terril Perron Ouest and the blast furnaces – create inaccessible fences around which the blocks of the maisons ouvrières are distributed, characterized by a poor and recognizable architecture in exposed red brick. They are held together by the passage, at an elevated layer, of a network of pipes and belts for the transport of materials, which cut, frame and still dominate the perspectives in the streets of the neighborhoods.
The residual spaces between the fences are characterized by a mosaic of buildings and

industrial ruins connected to the production and the colossus of Arcelor Mittal: the Ateliers Centraux, the Salle des fêtes d'Ougrée-Marihaye, the old hospital, the Maison des Ingénieurs and the Château de Transester with its park.
This system shows a stratigraphy of a slow, inexorable and infinite urban πάντα ῥεῖ, in which " the notion of sublime as something that opens up to the unheard of, outside of oneself, to the deep, to the joyful or fearful, to the unexpected, to the surprising because mysterious, is in no way confused with that romantic cult [...] but coincides with the meaning referring to the fact that the work of art always reserves the unexpected, produces a distance, a question, something beyond its own interpretation (la nozione di sublime come di sé, al profondo, al gioioso o al temibile, all'inatteso, al sorprendente perché misterioso, non va in alcun modo confusa con quella romantica di culto [...] ma coincide con il significato riferito al fatto che l'opera dell'arte riserva sempre l'inatteso, produce una distanza, un interrogativo, qualcosa al di là della sua stessa interpretazione)" [11].

Croisières toxiques: collective heritage and memory
The masses of industrial buildings and the sequences of unused spaces represent the pieces and the permanences of the disused industry in Seraing, transforming the spaces of the mono-functional specialization into waste, residues, possibilities. These abandoned areas are part of an open system in continuous transformation and develop a project idea built starting from the discourse about the context [12] and the various cultural and social actions that are active in the area.
At the beginning there was the river is the incipit of the Croisières toxiques. A system of dissemination and enhancement of the history and industrial heritage, aimed at rediscovering the Belgian territorial identity and collective memory through memories, stories, experiences.

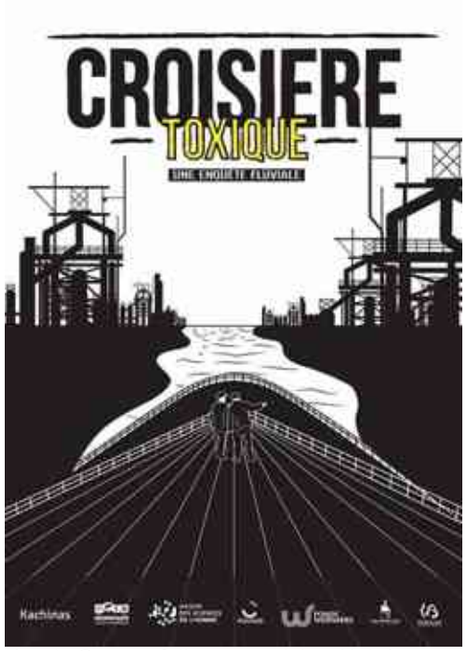

Fig. 6. Cover of the newest booklet (source: Editions D'une Certaine Gaieté)


Fig. 7. Ruins (photo credits: Marianna Sergio, 2018).

The toxic cruise is not limited to this: it is configured as a river investigation, an archeology of the past, built on water and structured on the stories of three scientific personalities. It has the intent to bring out from the imposing landscape a sublime with a toxic aspect and a critical history of industrialization, which characterized the entire Meuse valley.
The cornerstone of this experience is the discovery of an exceptional point of view and a new perception of the landscape: the Meuse valley is observed straight from the river. The experiential path moves across the river up to the haut-fourneau B in Ougrée and questions the conventional vision of industrial infrastructures with an approach that lead to the construction of the industries, aimed not only at the historical, economic and social issues but also at the enhancement of identity and collective memory.
The perception of oblivion and suspension of time that is highlighted by the toxic cruise does not describe a totally negative condition: it triggers social activities and events, processes and strategies that aim to regenerate the area. Thinking about the possibility of revitalizing the city's waterfront and revaluing the machine-monuments means interpreting these voids as active areas in the design phase. Inserted in an ever-changing open system, the Meuse represents the main infrastructure of the territory.
The theme of the riverwalk considers the Meuse river as the fulcrum of the formulation of shelter strategies and as the narration of abandoned industrial areas. It proposes the story of the history of the former industrial site, highlighting its cultural, social, and ecological schedule and structuring a riverside promenade down river as a single landscape. This approach is adopted in some international and similar cases: the Snøhetta project alongside Oregon's Willamette Falls develops itself through a network of paths that immerse visitors in a tactile experience that celebrates the change of the water level. The idea of regenerating the riverfront of an industrial area through the themes of the riverfront and the park also dominates Domino Park, designed by James Corner Field Operations for the transformation of the former sugar refinery in Brooklyn. In this case, the park becomes a symbol of the history of the site, dedicating itself to the diversity and resilience of the neighborhood, inhabitants, and workers. The creation of a new green and recreational space outlines the formation of new poles of attraction for the whole community.

The Meuse as infrastructure and strategy of recovery
Solidly embedded in the aquatic landscape, the image of the city is still linked to the Meuse, matrix and driving element, which represents the activating force of the production process and holds together all the pieces of the mosaic-landscape. It represents le ground zero [13], which outlines the key to reinterpreting the city and to understand its natural and artificial changes in the area. The loss of value of the Meuse and the deep change in the society "touches the structures of a syntax that ruled a landscape and communities whose cultures were closely linked to the nature of the substrate mining. [In this way] the balance of the underground system fails; the surface landscape takes the form of abandonment" [14]: the Meuse is the forgotten soul of the city, reduced to a barrier that isolates and isolates


Fig. 8. A different point of view (photo credits: Sabina Sebastiani, 2018)

Fig. 9. The Meuse waterfront (photo credits: Marianna Sergio).

itself from the life of the city, where the connection between the two ends is guaranteed by bridges that can only be traveled by road or rail. The riverside is nothing more than a tube [15], a fast flow, placed at a lower altitude from the rest of the city, which does not create ties and does not create experiences.
Reconsidering, regenerating and mending are three actions through which the project strategy for regeneration unfolds: the riverwalk and the linear park, that follow the course of the river, can formulate a catalog of unfinished intervention actions, capable of rediscovering heterogeneity and potential of an area marked by the disused of the heavy industry.
In this way, the Meuse regains its historical value. On the one hand it represents an urban axis along which sequences of spaces develop, on the other it allows the reception and connection of the elements of a mosaic, consisting of infrastructures, machine-monuments, artificial hills of terrils and park facilities. Based on the fixed elements, the possibilities and the yield points, the physiognomy of the park is structured through acupuncture interventions and small architectures, taking advantage of the different levels of the riverside in the regeneration of the two basins.
Therefore, cultural events as the Croisières toxiques propose something more than a simple story of the landscapes of abandonment. The nature of this landscape, characterized both by the loss of functions and by the persistence of opportunities, transforms these territories of nothingness into territories of the possible, capable of inspiring new design visions and consolidating their memory through a different dialectic of memory and oblivion.
Memory is not a passive container of facts, but an active process of creating meanings through which the industrial ruin contributes not simply to making a journey through history, but to experience pure time [16].
The toxic sublime of the industrial landscape manifests itself in the aesthetics of the city of Seraing and in its most hidden aspects, in its workers' neighborhood and in its industrial ruins: an interweaving of privileged places and industrial identity in which the collective memory expresses the intrinsic ability of the material and immaterial heritage to suspend, reflect and remember.

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Fabio Corbisiero

Paola De Joanna

TOURISM AND LANDSCAPE: CONFLICTS, COOPERATION AND RESILIENCE

Keywords: tourism, sustainable communities, overexploitation

Introduction

The word “landscape” is susceptible of non-univocal interpretations in relation to the different linguistic genesis, *landscape* in English, *paysage* in French, *landschaft* in German, which refer to different cultural matrices of meaning [1]. Over the centuries the concept expressed by the word "landscape", in the various European languages, has however evolved according to a common trend, from the meaning of relationship between the human community and the territory towards a progressive growing interest in the perceptual component.

The interest in landscape themes, affirmed in the Florence 2000 Convention, has fuelled and built a cultural background and a wide international debate that have brought to light the issues inherent in the authenticity of landscapes and reaffirmed the already known notion of cultural landscape as an expression of the anthropocene, as it refers to the sphere of interaction between man and the environment, resources, constraints and techniques of land use. The cultural landscape, although not explicitly mentioned in the text of the Florence Convention, has been recognized since 1992 as a protected category by UNESCO; in Riccardo Priore's examination of the text of the European Landscape Convention [2] it is interpreted that the attribute “cultural” is intentionally omitted by the legislator in order not to privilege or exclude any type of landscape system.

In analysing the consistency and evolution of the cultural landscape, the intimate connection between the image of the places and the dynamics of growth and transformation of the territory is read in close correlation with the biophysical and socio-economic characteristics of a territory; we can say that the semiology study of landscape’s changes can explain the genesis of the evolutionary processes of the territory and guide the future management of ecosystems [3] by recognizing what the dominant changes are and the causes that produced them, and distinguishing the resilient components and custodians of the identity characteristics in which local communities recognize themselves. The right to identify oneself in one's own landscape is one of the founding principles of the Florence Convention with the declared desire to confirm the belonging of a landscape context to the characteristics of the place, where the locution “as it is perceived” identifies the manifestation of iconographic values in which the inhabitants recognize themselves; affirming, in this sense, the importance and the right to landscape of their places.

The affirmation of the principles for the protection of landscapes and rights on the landscape implicitly attests to the existence of the risk of irreparably losing value in terms of memory and identity of places, of which the landscape is an unwritten text of great documentary value.

The risk of landscape distortion and adulteration can take on multiple aspects in relation to the forces acting on the territory. Urbanization, abandonment, industrialization, intensive cultivation, tourism development, are powerful drivers of change that must be appropriately directed as they act on territorial resources and risk to compromise them irreversibly.

The tourism exploitation of the landscape is, among the development activities, the most reckless and self-injurious in that, with the integration of infrastructures and services aimed at satisfying the demand for tourism, it compromises the very source of attraction.

The rural, coastal, mountain and urban landscapes are often, in our country, resources of great attraction, and therefore subject to economic interests, but at the same time they arouse the dissent of the inhabitants who feel the discomfort of the invasive presence of tourism and fear that the vocation to tourism can alter their usual habits; therefore, the consideration that *landscape tourism* and *landscape identity* are conflicting entities increases, if referring to the interaction with man, where the sense of belonging of the permanent community, heritage of peasant cultures intrinsically rooted in the territory, comes into conflict with the extraneousness of visitors [4].

Mentioning Michael Jakob [5]: «The authentic landscape and the non-authentic landscape do not exist. ... The experience of the landscape is the experience of oneself. It is important both what the subject perceives and the act of perceiving as such: the subject is part of the landscape that composes it».

I can't help but think of the enchantment of famous urban landscapes of our cities, such as Rome, Venice, Florence, Naples, to name just a few, where the animated component of tourists is constant and that the recent pandemic has emptied from people, hibernated in a timeless dilated space; landscapes that could only be appreciated with the help of darkness in their essence, offered themselves in the light of day in the eyes of the bewildered world.

Fig. 1. Ventotene, Roman Port (photo credits: Paola De Joanna).

But despite the fascination and emotion of feeling alone for a moment in contemplation, as if that moment was only ours and only for each one, in which silence amplifies getting lost in the dimension that makes one observer and observed, remains the clear awareness that landscapes, in a tautological sense, exist when they are discovered (Fig. 1).

Focus and topics

The focus of this Landscape at Risk session is aimed at the impact of the exploitation of local resources for tourism purposes on the landscape intended as a common good, therefore not only as a value to be protected in itself nor as an exclusive identity heritage of the inhabitants, but as good whose enjoyment everyone has a right to. The contributions herein explore the relationship between tourism and landscape according to the different aspects in which the image of places represents both the resource with its recognized value that attracts tourism, and the theatre in which tourism moves, a *tableau vivant* in balance between the value

produced by the attractiveness of the landscape in terms of tourist appeal and the deterioration suffered by the impact that tourism produces. The debate on the theme generally refers to tourism phenomena whose size tends to exceed the carrying capacity of places in terms of absorption of the flows of people and the possibility of adapting resources and services to the demand dimension without changing the character of places; however, it would be an understatement to think about the impact of tourism only compared to the large scale of sites of extraordinary interest; tourism can have many facets that affect local development in a capillary way, I refer to those many seaside resorts of our coasts that live in winter hibernation and then explode in the summer season, or, conversely, to the destinations of winter tourism, but also the growing interest in hiking, and last but not least, tourism out town that attacks destinations within the suburbs that are increasingly crushed even when they are the object of interest and never of protection. Out-of-town rural tourism is in fact proposed as an alternative for some social, economic and environmental problems in peri-urban rural areas, it is an innovative economic activity that nevertheless also appropriates and consumes the territory [6].

The tourist phenomenon, therefore, is proposed in very variable ways which in each place can take on different characteristics and produce different impacts; it should also be considered that in the last twenty years the approach to tourism has changed due to greater ease in access to means of transport, to the reception structures, more and more widely distributed and flexible for every need, and still ease in communications.

Facing with a phenomenon in rapid and uncontrolled evolution is a new challenge in which the World Tourism Organization (UNWTO) intervened by dictating the directives for sustainable tourism aimed at:

- make optimal use of environmental resources which constitute a key element in the development of tourism, maintaining essential ecological processes and helping to preserve natural heritage and biodiversity;
- respect the socio-cultural authenticity of the host communities, preserve their built and living cultural heritage and their traditional values and contribute to intercultural understanding and tolerance;
- ensure long-term sustainable economic operations, providing equally distributed socio-economic benefits to all stakeholders, including stable employment and earning opportunities and social services for host communities and helping to alleviate poverty [7].

The here presented studies come to the awareness that only the search for synergies between tourism and landscape can collaborate in the resilience of tourist destinations; resilience is a key concept in the thought of the socio-ecological system and implies not the resistance to change but, above all, the ability of a system to positively adapt to change [8].

Among the tools of greatest interest for the control of transformations and the adaptability of a site to the impact of tourism and to the rapid and continuous evolution of tourism, the experiences of collaboration are identified in the management with the stakeholders of the involved categories and local populations [9] (Fig. 2).

Fig. 2. Walkways along the top of Monteriggioni's walls (photo credits: Paola De Joanna).

Sustainable tourism for resilient communities

Sustainable tourism development is one of the most cited examples of actions that make a community more resilient. Tourism, indeed, is an integral part of contemporary communities, and as such, reflects the challenges that communities face under the growing pressures of global environmental and social change. The most common resilience perspective in tourism has concerned the recovery of tourism industries and tourist arrival numbers following rapidly occurring changes – that is, disaster and crisis preparation and recover [10]. These have included the global economic crisis of the 2000s, the terrorist attacks during the last 2 decades, the Indian Ocean tsunami in 2004, earthquake threats in several areas of the world, and, last but not least, the COVID-19 pandemic. The bewilderment caused by Covid-19 has crushed every desire for escape and travel, temporarily closing the tourism golden age. This pandemic has grounded our hyper-mobility, and within the space of 3 months, the framing of the global tourism system changed from overtourism to "non-tourism" [11].

In this perspective, the tie between tourism and landscape will involve, once again, an array of resilience-driven approaches across a range of more sustainable levels. Many of these post-pandemic changes will be driven by new technologies that may herald an era of cyber-tourism. Therefore, there is a need for the tourism industry to position itself as a strategic early mover, in terms of community planning, trialling and incorporating emerging ideas and technologies, and applying multiple strategies to deliver new options to preserve the landscape. Such ideas will generate new tourism streams, thereby further strengthening the industry's global competitiveness into the future. The tragic event of the Coronavirus pandemic requests an afterthought about the connection between the demand of use by tourist flows and their spatial adaptation, both referring to the mobility aspects and, mostly, to the relationship between the host community and the tourist one. This is all the more true in relation with the forecasting models of growth used till now for tourism: in such models the lack of attention paid to unexpected risks that can occur and that are inevitably related to the global climate change generates impacts that have shaken the certainty of the stability of the western culture and have further amplified the fragility of the weaker geographical areas of the world. Disasters are expected to lead to a critical reconsideration of the global volume

growth model for tourism, for reasons connected to the risks posed by global travel and the contribution of the tourism industry to global pollution, climate change and, more in general, the socio-cultural instability of certain geographical areas of the world. Given the seeming inevitability of social and environmental change, resilience planning has recently emerged as perhaps a more effective approach to community planning and development than the sustainability paradigm. The approach we saw before - based on the carrying capacity – does not seem to guarantee protection in reference to the inhibition of the evolutionary processes of resources and with reference to their possible subtraction from more advantageous uses, which represents per se a form of potential impoverishment. The issue of the inhibition of evolutionary processes of resources concerns those areas strongly characterised in biological terms (such as, for example, the shrubs and forests, the garigues or coastal dune systems); dynamic ecosystems that change continuously according to trajectories that are highly sensitive to the degree and forms of human habitation. This sensitivity to exogenous factors and the inhibition of their evolutionary process are not peculiar to the biological systems alone, but are equally important for social resources. Similarly, sustainability based on the principle of resilience pays scarce attention to the issue of alternative use potentials; it does not consider that the use of a resource implies the inhibition of other possible uses, regardless of whether these could be more advantageous, profitable, or in any way preferable. In addition, the conflict, among other things, is not limited to tourists and non-tourists, but also between residents who benefit from tourism and those who are excluded, in relation to the alternative use of public spaces, tangible or intangible, resources. In this sense the contexts of tourism represent an interesting laboratory, where themes and problems seem more obvious and explicit; and where the plan/project seems necessary and unavoidable to reduce contradictions and conflicts. Public involvement in planning and development is axiomatic because of the nature of tourism – in offering communities, environments, and cultures, it is a peculiarly pervasive industry which '…uses the community as a resource, sells it as a product, and, in the process, affects the life of everyone' [12]. It is important to instil a "sense of purpose" in regions where tourism development is taking place [13], and a distinctive destination identity needs to be established. Encouraging local production of goods and services to substitute for those imported from faraway regions is one way of doing this, including some of the most obvious measures - making maximum use of local architects and builders, purchasing building and other materials locally, promoting quality local farm produce, and incentivising front-line tourism businesses to use a range of regional products where appropriate. In this way, a supportive local industrial environment built up over time will help to improve levels of indirect and induced economic gain for the industry, with concomitant positive effects upon employment and income levels. Adopting such a genuinely collaborative approach to tourism development will result in developments which, rather than being 'blots on the landscape', enhance the local area, foster involvement and pride in community, ensure a 'good-neighbourly' relationship between tourism and other local industries, and contribute to the distinctive 'sense of place' sought after by discerning travellers. Also, raising the profile of the nascent destination will make it easier to lever the investment necessary in order to develop facilities and service standards appropriate to the target markets - in the short-term derived from the host community, in the longer-term from external sources. Thus, much of the action may lie within the remit of regional or local authorities who are the prime guardians of the planning system, landscape quality and tourism possibilities. "In the sheer volume of its geographical flows and presence impact, tourism represents a highly effective factor of change in the landscape" [14]. Yet tourism can also create new landscape qualities and contribute to sustainable landscape development, settling a symbiotic relation with mutual profits. Regions profit from leisure and tourism developments, but these come at a price. The development of leisure and tourism needs to be subjected to careful planning in order to become and remain a valuable contributor to people and landscape. "Sustainable development" strategies attempt to find more well-balanced approaches. At the time of writing, there is no evidence that sustainable tourism is a consideration within massive socio-economic post-COVID19 stimulus package in Italy, although several European environment ministers have called for plans prepared for the European Green Deal to be central in rebuilding European economies [15]. Changes to tourism as a result of a global community-resilience will be uneven in space and time over the world. While some areas will undoubtedly reconsider the nature of their landscapes and focus more on local and more sustainable forms to manage the tourism, without substantial institutional and governmental interventions, which are currently overwhelmed with saving lives and creating conditions to restart domestic economies, the juggernaut that is international tourism will roll on. The touchstone of these new perspectives should be "empowerment" to combine everyone's power in collective action for the common good. Such developments are essential if slogans such as 'think global, act local', or even 'think local, act global' [16] are to be given some substance. We just should find the way by which local communities can be linked with each other in order to create collaborative action at global level. These discussions are fledgling, and they are not so obvious.

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VENICE LANDSCAPE: BETWEEN THE WORLD HERITAGE SITE AND CRUISE TOURISM

Abstract
Since 1987, Venice and its Lagoon is an UNESCO World Heritage site. However, from 2014 it risks to be included in the "World Heritage in Danger" list due to the complexity in the governance and protection of the heritage. Nowadays, the city is approaching its breaking point caused by many factors related to the bad effects of tourism. This paper focuses on the effects caused by the cruise industry in consideration of an increasing issue particularly felt by the inhabitants and ever more analyzed by the scientific community. Firstly, this paper analyzes the impact caused by the cruise tourism and its relation with the UNESCO site. Secondly, two kind of possible risks for the area (immaterial and material) are identified. Finally, this research mainly contributes to identify the scheme of the stakeholders in order to develop a future governance network necessary to establish actions to improve the actual situation.

Keywords: UNESCO site, cruise tourism, Venice

Introduction
The modern world is facing a whole series of challenges such as climate change and resources exploitation as well as the speed with which we move from one place of the globe to another. Moreover, haste and frenzy are driving not only our daily life but as well our tourism habits.
It can't be denied that Venice is one of the most famous tourist cities in the world. Since the "grand tour" period, the lagoon city is defined as a bestseller of international tourism. In addition, Venice and its Lagoon is part of the UNESCO world heritage list and it attracts about 11.7 milion people a year [1]. Nonetheless, this site is struggling with climate change effects, over-tourism and constant exploitation of its cultural and natural resources. For all that reasons, it represents a model case study.
With this in mind, this paper focuses on the complex relationship between the UNESCO world heritage site and the cruise tourism. The tourist presence in the city is divided into two main tourists' types characterized by the length of stay in the city. This paper focuses the attention on the daily tourist, also called “excursionist” or “one-day-tourists” [2] and precisely the cruise tourists. Nowadays, the cruise tourism lobbies the Venetian system from different point of view, such as economic, social and environmental.
In this context, the paper tries to answer to the following question: “Has Venice already reached the tipping point in the tourism destination life cycle?”. Accordingly, the authors individualize the necessity to intervene within the governance structure of the city in order to enhance the future preservation and sustainable development.

Venice: UNESCO heritage and Cruise Tourism
Venice and its Lagoon is widely known as one of the most beautiful cities and landscapes in the entire world and its characteristics are studied since many years. The state-of-the-art of this section presents two analysis of Venice: Venice as UNESCO World Heritage Site and a Venice’s Cruise Market overview. Nowadays, these two realities create elements of interference on the territory of Venice. In this paper a separate analysis is proposed in order to create a state of the art which is propedeutic to the risk analysis defined in the next section.

Venice as UNESCO World Heritage Site
The close relationship between Venice and UNESCO started in 1966, when the General Director of UNESCO of that time, René Maheu, launched one of the most significant international safeguarding campaign for the conservation of Venice, after the major flood of that year. In that context, UNESCO promoted several international actions, such as the establishment of International Private Committees for the Safeguarding of Venice, to safeguard the city from the “Acque Alte” (floodings) and to protect and restore the lagoon ecosystem.
Furthermore, in the late 1980s UNESCO also established an office in Venice, to promote the safeguarding policies. This is the only case, in its structure, of an office dedicated to a specific project [3]; that office was later on integrated into the UNESCO Regional Bureau for Science and Culture in Europe, established in the 1990s to facilitate the advancement of the overall UNESCO program with special focus on South-East Europe and the Mediterranean basin.
Meanwhile, in 1987 the World Heritage Committee inscribed "Venice and its Lagoon" in the World Heritage List, on the basis of all six cultural criteria. It is a very rare fact, in the Convention system [3].
Nowadays, what concerns us more in terms of time and possible emerging consequences is the presence of the naval water flow of Great Ships within the Lagoon and the San Marco basin as well as the governance of the persistent whelming city tourism and the related side-effects of it.
In fact, in 2014 the international community put pressure on the Committee to take actions towards Italy, therefore the first Advisory Mission in Venice took place in 2015. The year after, the discussion was opened at the 40th session of the Committee, in Istanbul. As a matter of fact, Italy had been asked to implement within two years proper solutions, otherwise Venice and its Lagoon would have been classified in the World Heritage in Danger list. The final decision that should have been taken in 2019 during the 43th session of the Committee was postponed by a year after sending another Advisory Mission to Venice early in 2020.
What we know, at the moment, is that the Advisory Mission was held in Venice between January and February 2020. However due to the pandemic of Covid-19 the 44th session of the Committee was postponed as well as the final decision.
Meantime a new UNESCO Chair on Water Heritage and Sustainable Development was assigned to Ca’ Foscari University. Could this be a sign of how strong the relationship between UNESCO and Venice is (or should be)? Surely, even if Venice is universally known for its artistic and cultural heritage even independently of the recognition of UNESCO, there is no doubt that since the international safeguarding campaign of 1966 UNESCO has helped to keep the focus on the need for its conservation, contibuting to the achievement of significant objectives (e.g. approval of the law of 16 April 1973, No. 171 - Interventions for the safeguard of Venice [3]).

Cruise market overview of Venice
Since 1980 the Cruise Industry has shown an increasing growth and also nowadays it is one of the fastest growing sectors in the world. Cruise Lines International Association (CLIA), the world’s largest cruise industry trade organization, published the 2019 State of the Cruise Industry Outlook report predicting a continuous growth throughout 2019 with an estimated 30 million passengers worldwide, compared to 28.2 million in 2018, 25.8 million in 2017, and 7.8 million in 1998. The increasing globalized cruise phenomenon can be attributed to both to the development of onboard product (e.g. the technological advances in the design of ships and onboard services [4]) and to the shore-based tourism opportunities (e.g. land excursions, intermobility and new port areas [5]). Although difficult to believe, the cruise industry continues to make a positive impact on communities around the globe by sustaining 1,108,676 jobs equalling $45.6 billion in wages and salaries and $134 billion total output worldwide in 2017 [6].

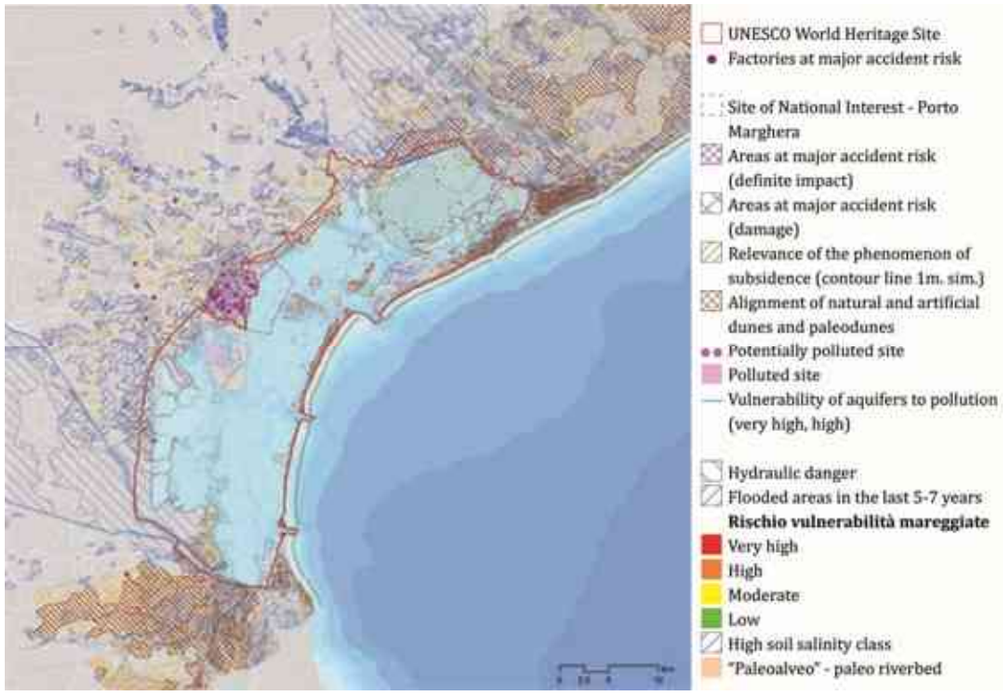

Fig. 1. The vulnerability and fragility map of Venice (source: Venice and its Lagoon Management Plan 2012-2018, p.58).

The European area covers the 26% of global passengers and 2017 marks a further growth for European demand, with 6.69 million passengers. Moreover, the CLIA in its 2017 European Economic Contribution Report shows a contribution of record €47.86 billion to the European economy due to the cruise industry. The Mediterranean area is characterised by a patchwork of ports [7] with six leading ports for people movement (Barcelona, Civitavecchia, Balearic Islands, Marseille, Venice, and Piraeus). The solutions provided by this paper on the area of Venice are relevant and associable to other cruise destination areas with similar characteristics, such as Dubrovnik and Kotor. Venice area has an increasing trend in people movement, from 1.215.088 in 2008 to 1.427.812 in 2017 and can receive until 7 cruise ships simultaneously. The huge number of passengers embarked/disembarked in the Venice area cause multiple reactions in the local population due to their awareness of Venice's vulnerability and fragility (Fig. 1).
Moreover, the increasing number and size of cruises entering in Venice's lagoon raise questions on safety and security and on social and environmental impacts. For all this reasons, in the last years, the Port Authority imposed restrictions for the cruise industry. Firstly, they have restricted the tonnage of ships that can enter in the San Marco Basin and in the Giudecca Canal. Secondly, in the 2018 they increased the restrictions by introducing an algorithm, which considers not only the tonnage but encourages the use of even more green ships with cutting-age technology. As a result the cruise ships number has decreased from 535 cruise in 2008 to 466 in 2017.

The material and immaterial risks of Venice
Since the 80s, tourism has been the economic force of Venice area. The local population has benefited from this development in terms of work, economic income and investments [8]. However, the growing tourism demand has created a strong gap between the residents and local entrepreneurs due to the need to provide services and infrastructure for visitors. Moreover, it is a need to preserve the vast artistic and cultural heritage of the city as well as the natural environment of the lagoon (Figs. 2, 3).
In the recent years, many researchers are studying the effects of the tourism on the Venice area, precisely because the lagoon is increasingly affected by various factors that have been developed over the years and nowadays they are appearing unmanageable. Also UNESCO [9] pointed out a list of elements that are particularly concerning about the safeguarding of the World Heritage Site: big cruise-ships in the Lagoon, digging new channels for big cruise-ships, potential threats for nature, also in relation with MoSE, tourism pressure, lack of maintenance of buildings, change of use of buildings, crowding-out inhabitants and loss of traditional craftsmanship. As we can see later on in this paragraph, several of these elements will also be identified by other researchers.
Since 2014, Settis argues [10] that the tipping point of Venice won't be caused by irruption of a new civilization (that could be tourism) but the loss of awareness regarding the role of its uniqueness and diversity. Moreover, this paper in the forward chapters supports the Settis thesis by introducing the peoples' awareness as a key for the future projects' success.
Furthermore, as argued several times by the economist Van der Borg [11], it would have been better if Venice had previously estimated the future economic impacts, both positive and negative on the city itself.
In addition to the economic impacts, since 2007 Marvin e Davis [12] started to analyse the sociocultural impact of the tourism on the city. The morphological configuration of Venice doesn't allow to delimitate, circumscribe and dedicate a specific area to the tourism system, due to the vast distribution of attractions and monuments all over the area/city. Consequently, there isn't a distinction between the areas purely dedicated to tourism and other areas designated to activities and services of residential users. This has led to a necessity to individualize the tools for over-tourism management [13], given the fact that the majority of residents are moving out from the lagoon area in order to use their accommodations for touristic purposes. The problem of over-tourism is clearly visible also in other studies were Venice is identified as a leisure park. For example, Fabbri [14] identifies the historic city as an urban scenography where the tourists can cause diverse problems to the locals. An example for that is the congestion of the public transportation.

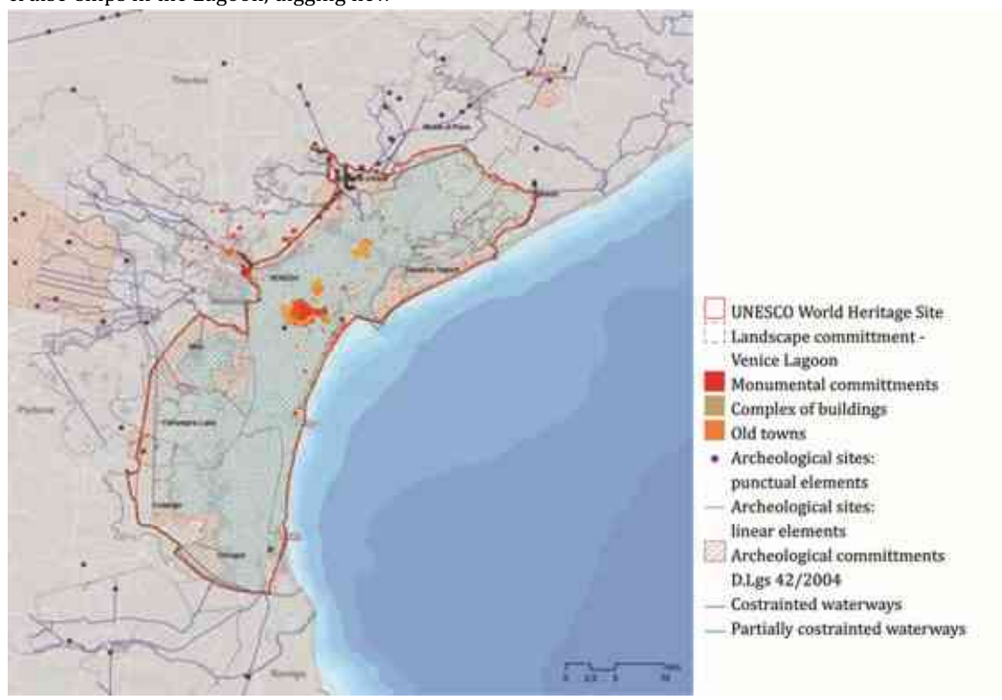

Fig. 2. The preservation map of Venice (source: Venice and its Lagoon Management Plan 2012-2018, p.58).

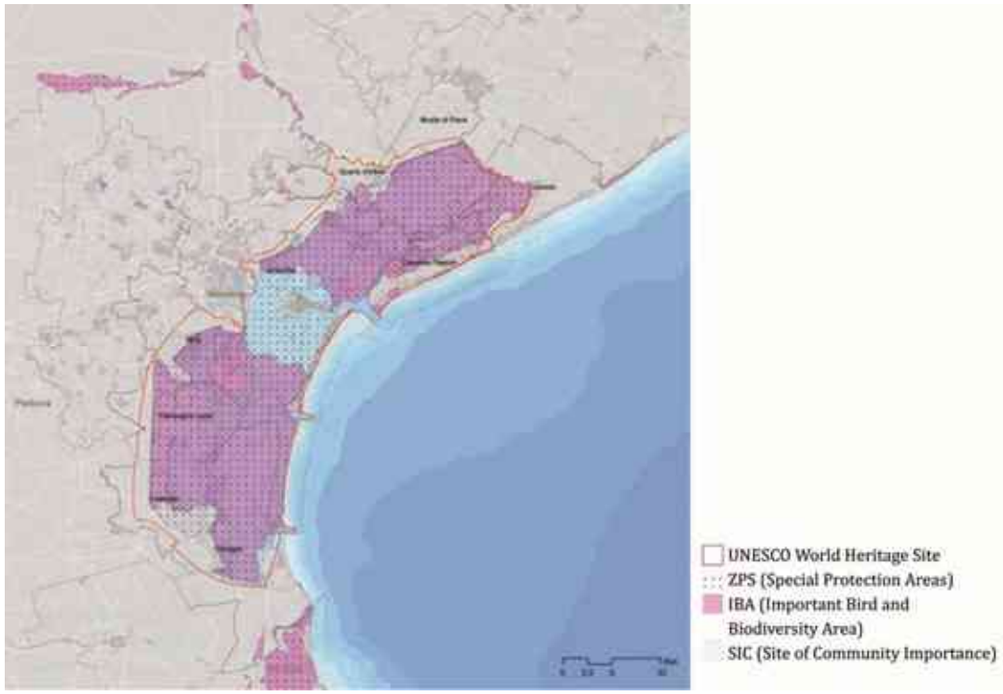

Fig. 3. The SIC, ZPS and IBA areas map of Venice (source: Venice and its Lagoon Management Plan 2012-2018, p.49).

Among all type of Venice's tourism, the cruise tourism cannot be overlooked because it is one of the main entry routes for tourists in the city [15]. It attracts a high number of tourists and this can cause a variety of impacts on the area e.g. on the landscape, on the constructive structures, on the heritage and the people, without generating a long-term wealth condition in the city. There are many papers in the literature [16]-[17]-[18]-[19]-[20] that analyse the cruise impacts on the Tourism Destination such as emissions (e.g. pollution, noise, smoke), alteration of heritage and the environment, endangerment of citizenship, architectural and cultural heritage and the environment.

This paper expands on the current debate by proposing two main categories of risks which are detectable in the Venice area: material and immaterial ones. Hereafter, a synthetic description of both possible risk categories that Venice area is currently undergoing (Tab. 1).

The five identified risks of Venice were chosen based on the "interference" elements between tourism – cruise tourism in particular - and Venice as an UNESCO Site. Furthermore, these risks can lead to various effects on the Venetian territory. Leaving aside the economic and environmental risks due to a wide analysis in the literature (e.g. [21], [22]), this paper focuses on the remaining risks. For example, the social risk emerges for residents and students in the difficulty of renting an apartment because it is too expensive and as a consequence of that they move to the mainland.

In this regard, some researchers [23] have evaluated the impact of tourism on residential uses of the city and have measured the sustainability of growth of the tourism facilities in the period 2008-2019.

Further architectural and art risks are for example identifiable through the physical damage caused to the canals' docks by the cruising ships. Until now, the damage was from a structural perspective but imagine in the future a cruise ship would break-in San Marco square; the damage would result in an inestimable loss of the UNESCO heritage. In this context, some researchers [24] introduced the Multi-Criteria Decision Analysis (MCDA) for the identification of a sustainable cruise line route by the weighing of various criteria and metrics related to the environment, economy, and social sustainability.

Moreover, from the aforementioned analysis it can be deduced that a difficulty in managing, maintaining and preserving heritage emerges. Therefore, this leads to a necessity to individualize a new managing system, which could save Venice from the current unsustainable over-tourism [25]. The introduction of an innovative network governance could project Venice to a sustainable territory-development as well as to new tools for a more efficient management and education of tourists.

Classification	Material Risks	Immaterial Risks
Environmental	Water and air pollution	Landscape distorted perception
Economic	Transformation in a theme park	Loss of artisan man craft
Social	Overtourism	Social impoverishment
Architectural and artistic	Heritage and urban damage	Loss of historical memory
Cultural	Loss of public space	Loss of traditions and urban identity

Tab. 1. Classification of the material and immaterial risks of Venice.

Players and stakeholders of Venice

In order to be able to hypothesize plans, actions and punctual projects that can enhance the overall situation in the Venetian area by improving the management, education and awareness of tourists, as mentioned above, the first necessary step to project a reticular way of governance is to identify the scheme of the players and the stakeholders. Everyone of them can have a different role linked to the governance, protection or enhancement of the city and the lagoon, but first of all heading back to one (or more) of the three systems visible in (Fig. 4).

Hereafter, a synthetic description of the players and stakeholders that play a major role in the governance, protection, enhancement and daily life of the Venice area.

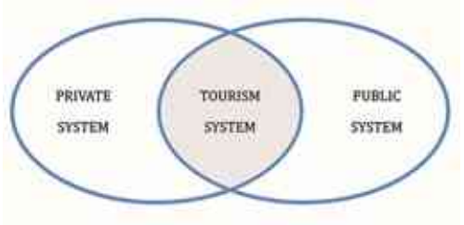

Fig. 4. The three system scheme of players and stakeholders' (source: authors processing).

Private system

In this group the authors point out the unorganized groups of stakeholders, as:

- Locals: inhabitants, resident and commuting students, resident and commuting workers, etc.
- Tourists: overnight staying tourists, one-day tourist (or excursionists).

Tourism system

This group includes all the figures involved in the tourism industry:

- Hospitality: hotels, B&Bs, vacation rentals, etc.
- Restaurateurs: restaurants, pubs, cafés, take away, etc.
- Cruise tourism: passengers logistic, freight logistic, port authority, municipality.
- Tourism workers: tour operators, tourist guides, info points, etc.

Public system

This group classifies the different institutions that are public or have a public role. For each type of institution, some examples are listed as followed:

- Regional or local authorities: regions, provinces, municipalities, etc.
- Peripheral state institutions: superintendence of archeology, fine arts and landscape, water authority, port authority, etc.
- Agencies: consortia, chambers of commerce, health authorities, environmental agencies, smart control room (to study and track tourist flows), etc.
- Subsidiary companies: public transportation, passenger terminal, etc.
- Cultural institutions: museums, art galleries, schools, universities, institutes of higher education, etc.
- Companies operating in the arts and crafts as well as in the cultural and

entertainment sector: film productions, design, works of art, etc.
- Organized groups: local associations, lobbyists like trade associations, etc.
- Managing body of the World Heritage Site: formed by regional and local authorities, peripheral state institutions and the Steering Committee; this last one is composed of the representatives of each entity responsible for the Site, with the functions of addressing, programming and controlling the activities related to the management of the UNESCO Site.

As can be seen, this list highlights the amount and variety of players and stakeholders that are involved within the group. As a matter of facts it emerges how articulated the managing body of the UNESCO World Heritage site is taking all the other identified players and stakeholders into account. Therefore, it seems necessary to develop an innovative reticular organism to make them dialogue and collaborate in the best way.

As previously mentioned, this first subdivision of the players and stakeholders is, in the authors' opinion, the first step to succeed in defining actions and projects aimed at improving the governance and the degree of involvement and awareness of the tourists. Subsequently, the second fundamental step in this direction must be the in-depth analysis of all the general and specific skills of the entities, companies and more generally of all the players examined so far.

Furthermore, it is essential to support this analysis that either the general and specific interests, that concern the various stakeholders identified so far nor the identified residents, will be incorporated.

Therefore, once all these data have been identified, it will be possible to start designing a network organization that is constantly able to evaluate the current situation and offer new, effective and shared solutions for the protection, enhancement and sustainable development of Venice, also starting from a better management of tourist flows and more awareness and disclosure in the tourists.

Actually, the authors consider rather difficult that single projects, carried out by individual entities, manage to have the strength to bring real improvements in such a complex and articulated situation, especially if there is no sharing of choices and objectives. In fact, the involvement (inhabitants included), are on one hand warmly suggested by UNESCO within the site management strategies [26] and can on the other hand really make a difference in the success of the projects put in place, mobilizing a collective and widespread effort. All this must take place through the grouping of skills and interests according to the different objectives (protection, enhancement, sustainable development), creating a multilevel network organization.

Thus, this organization will consist of the various networks comprising players and stakeholders united by single themes and objectives and by a macro-network that holds them all together at a higher level, allowing the comparison and dialogue between them to be maintained constantly open in a profitable exchange work.

Conclusions

The paper stresses the importance of a new governance scenario for Venice and its Lagoon. As widely known from 2014, the UNESCO community is considering to include Venice in the World Heritage in Danger list due to the .complexity in the governance and protection of the heritage. After the analysis of material and immaterial risks that Venice's territory is facing, the researchers find in the concept of an innovative network governance the way to loosen up Venice from the current unsustainable tourist situation. To achieve this objective it is necessary to identify the scheme of the players and the stakeholders and to analyze general and specific skills of the entities, companies and more generally of all the players examined so far. Only after this stakeholders' interpretation it is possible to hypothesize plans, actions and punctual projects that can enhance the overall situation in the Venetian area by improving the management, the education and the awareness of the tourists.

Future works foresees a refinement phase of stakeholders' characteristics and interests to start a participatory programming by including all the stakeholders with the aim to start the preliminary phase of the network governance process.

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Elena-Codina Duşoiu

THE HERITAGE OF THE APUSENI MOUNTAINS

A magnificent landscape at risk

Abstract
"The spirit builds the place and, in the same time, the place endows and structures the spirit" is stated in the Declaration of Québec, conceived in 2008. No better place to express this reasoning than the commune of Bucium, in the Apuseni mountains, in the heart of Transylvania. The landscape of Bucium is created by superposing a multitude of natural and anthropic layers, such as: topography, specific geological assemblies, particular ecosystems, a rich subsoil including the most precious metal: gold, systems of underground mining cumulating an experience of more than 2000 years, traditional housing and costumes, specific handicrafts and even a specific musical instrument (*bucium*) whose sound is inspired form the context of the place. RPER Association (Rencontres du Patrimoine Europe-Roumanie), born in Paris the same year with the Declaration (2008) decided to establish in Bucium the headquarters of its yearly Summer University. The paper briefly presents the results of the work coordinated by RPER and their continuity for the future.

Keywords: spirit of the place, landscape, mining, heritage, tradition

To the memory of the architect Şerban Cantacuzino (1928-2018), friend of RPER, who has always been in love with the Romanian heritage

Introduction
In the same year when the Declaration "On the Preservation of the Spirit of the Place" was being signed in Québec (2008) [1], an Association dedicated to the preservation of heritage (Rencontres du Patrimoine Europe-Roumanie - RPER) [2], was born in Paris and, afterwards, Romania. RPER had the particular understanding of heritage as a whole of layers related with a particular place. The "spirit of the place" seems to be a perfect definition for the area of Bucium, where the binomial material/immaterial heritage perfectly meets the ancestral values. "The spirit of the place may be defined as the ensemble of material elements (sites, landscapes, constructions, roads, objects) and immaterial elements (memory, oral stories, written documents, rituals, festivals, crafts, traditional knowledge, values, texts, colors, perfumes), therefore the physical and spiritual elements that confer to the place sense, value, emotion and mystery. Instead of separating the spirit from the place and the material from the immaterial, and consider them as opposite, we explored the diverse manners of union of the two concepts in a tight interaction and their way of constructing each other. The spirit builds the place and, in the meantime, the place invests and structures the spirit" (Québec Declaration, 2008) [1].
There is for sure a spirit, an effervescence of life specific to a certain place, with a deep effect on people, aside from producing only aesthetic pleasure, conferring sense to the Latin expression „genius loci". „The spirit of the place" becomes, therefore, the fresco of a specific site, concentrating all its specific attributes. This genius loci ensures the everlasting continuity of tradition. "Popular art evolutes according to other laws and another rhythm: for it there is no time. It is useless to search for epochs. Executed in ephemeral materials, the secret of its lasting consists in its uninterrupted renewal" [3].
The *RPER* Association created the Summer University from Bucium, a yearly event, held continuously since 2009. The Summer University developed in time as a melting pot of ideas and solutions, a fertile space for interdisciplinary communication for specialists in restoration from Romania, France and other European countries, for students from Bucharest, Cluj, Sibiu etc. and for representatives of the local community of Bucium. One of the characteristics of the Bucium Summer University is simultaneous action on several layers, such as demonstrated in the five published Repertories of Rural Patrimony of the area. Due to the annual editions of the University we have now the inventory of the most representative traditional households of the commune, as well as of the workshops and installations of popular technique, of the landscape elements and equipments for traditional mining with extended documentation on all these objectives (architecture survey, photography, data collection), ideas and strategy interventions. This work also lead to the official classification of constructions with historical value as monuments, inscribed in the official national list (crosses, votive and commemorative crucifixes on the road), to the rehabilitation in traditional techniques of two houses (the Colda house from Bucium Poieni village – built in 1851, the Doicear house from Fereşti village, built in 1870) and to the animation of the local community for keeping in a good shape and revitalizing exceptional constructions (discovered and awarded a prize within the contest *The Most Trimmed House* - „Casa cea mai dichisită").
The provocations of the last editions of the Summer University Bucium were Mărioara Abrudeanu house, from Valea Negrilesii village, raised at the beginning of the last century, proposed to be transformed in the Cultural Centre Ovidiu Bârlea (famous folklore scientist born in the area), the Gligor house (which was repaired *in situ* through an emergency intervention) and several designs of proposals of intervention required by owners of houses in Bucium. A complete restoration project for the Cross erected by the Metropolitan Andrei Şaguna, an important historical figure of the XIX-th century, was realized as well. The cross had been inventoried and measured during the previous editions of the Summer School and afterwards was officially included in the List of National Monuments (Fig. 1).

Fig. 1. The Cross erected by the Metropolitan Andrei Şaguna – 1897, on the site of a former wooden cross from 1847, and its protection structure in wood (photo credits: Elena-Codina Duşoiu, 2015).

Methodology
Since 2009 10 editions of the Summer University took place in Bucium, with diverse investigation topics: "Along the Roman Roads"

– 2009 and 2010, "Restoration of the Old School of the Village and Repertoire of the Rural Heritage of Bucium" – 2011, 2012, "Repertoire of the Rural Heritage of Bucium" – 2012, 2013, 2014, "Survey and Restoration Project for the Church from Bucium – Izbita" – 2015, "Survey of the Mărioara Abrudeanu House" (1860-1890) – 2017, „The Cultural Centre Ovidiu Bârlea House – Intervention Project. Inventory of Rural Furniture" – 2018, „Reparation of the Gligor House. Intervention Projects on Traditional Houses and on the Cross erected by the Metropolitan Andrei Şaguna" – 2019 [2]. The Summer Schools were focused on various components of intervention in territory, from studies concerning inventory and survey of traditional houses, their assemblage in diverse volumetric and planimetric typologies, complex surveys, restoration and rehabilitation projects: the church from Bucium Izbita (erected before 1790, with its first construction phase in the end of the XVIIth century), project for the Ovidiu Bârlea cultural centre from Bucium Poieni in a traditional house, the house of the Gligor family (end of the XIXth century) etc. Landscape studies have been developed as well, concerning the placement of the mining galleries and traditional mining constructions on the valley of the Abruzel river. The Summer University managed as well to realize concrete interventions of rehabilitation in traditional techniques on houses with historical value, that have been practically restored (the Colda house - 1851 and the Doicear house - 1870). Other actions conducted by the Summer Universities were classifying some architecture monuments into the official List of monuments of Romania (six votive and commemorative crosses), the competition *The Most Trimmed House* (meant to encourage local community in keeping traditional values and maintaining their houses within the ancestral spirit of the Romanian village), development strategies for the touristic promotion for the Bucium commune and its surroundings, with the purpose of strengthening local community. RPER also activated collaboration mechanisms, such as partnerships with local cultural entities – Cultural Association „Ovidiu Bârlea", Association "Baia Domnilor" (*The Mine of Lords*), Museum of the Bucium Inhabitants. During the various editions, participants in the Summer University had the chance to connect themselves to all the later described superposed layers that form "the spirit of the place", to study and interpret them and to get involved into their preservation, in the integrality of their values [4].

Pre-industrial archeology – traditional mining

In the surroundings of Bucium, there is a whole network of mining galleries, whose entrances are covered with vegetation that has not been removed in years. Some of those are still in relation with traditional mills specially conceived for golden ore, located in neighbor households (*şteampuri*). Such construction has been restored and is now exposed in the Museum of Bucium Inhabitants, in a perfect functioning state (Fig. 2). The access to the majority of mining galleries was made through the well known itinerary of miners through the Abruzel valley, but many more entrances have been discovered during the Summer Universities by the students of the Babeş-Bolyai University from Cluj, guided in this adventure by the legendary "shepherd Colda", a tireless provider of stories that make the place reborn.

Fig. 2. Reconstruction of a traditional ore mill (ştеamp) at the Museum of Bucium Inhabitants (photo credits: Elena-Codina Duşoiu, 2017).

Landscape

The natural and anthropogenic elements of the place create a prototype of landscape specific to the Apuseni mountains, which have a rather accessible height (about 1000 ms), forests of coniferous and foliated species, hay meadows, villages settled on the valleys of rivers or spread on the hills, ships and cows grazing as living accents and, not least, clues of the long periods of traditional mining exploitation (Fig. 3). This type of landscape, in which the people of the place get integrated as elements in movement, should be classified as a heritage value in itself, respected and understood by all visitors of Ţara Moţilor (Land of the *Moţi,* as are called its inhabitants). The identification study of cultural and natural heritage resources with the purpose of their touristic valorization, the creation of itineraries and of a network of services offered by the local people, the investigation in situ of the whole territory of Bucium with the purpose of identification of local resources, registration of the touristic itineraries through a GIS system, conceiving a series of thematic itineraries (Itinerary of the sites of gold from Apuseni, Itinerary of the "Trimmed houses" etc.) were all formulated within a strategy of touristic development. The team specialized in tourism and geography tightly interacted with local people in collecting data and involved as well the other participants of the Summer University in going through future personalized touristic itineraries. Life of the inhabitants of Bucium was organized around gold that was extracted from the mountain called Vâlcoiul de aur, a topographic element which organized the life of people through centuries.

Fig. 3. Landscape from a hill in the commune of Mogoş, in the neighborhood of Bucium (photo credits: Elena-Codina Duşoiu, 2017).

Sacred architecture. The church. The cross.

How sad would be the space if not marked by the churches!, once said, with wisdom and nostalgia, the philosopher Petre Ţuţea[5]. In Apuseni the towers sting the sky from between the hills, with the precision of arrows. Though they are built in brick and stone, the churches of the place repeat the silhouette of wooden churches from Maramureş, a prototype of spirituality related with the legends of the North. Admiring these dominants of height, thinking flies to the exercises of essentialised skylines sketched by the architect G.M.Cantacuzino, subtle observer of landscape and of the spatial characteristics of place. The church from Bucium-Izbita was chosen as subject for the Summer University of 2015, whose participants realized the complete survey of the church and formulated proposals for its conservation. In the attic of the church original icons and old cult objects were found and proposed for restoration (Fig. 4).

Fig. 4. Church from Bucium Izbita – emergence of the tower in landscape (source: watercolor by the author, 2018).

While the height of the churches dominates the landscape, road crosses enjoy divine blessing as well (Fig. 5). Roads are protected by stone or wooden crosses, some wearing the well known wish: „Norocu la băişagu" (*Good luck at mining*). Six of those, documented by the students of the Bucium Summer Universities, have been classified as historical monuments with local importance.

Fig. 5. One of the six stone crosses protected by wooden constructions documented and listed as monuments by the Bucium Summer University (photo credits: Elena-Codina Duşoiu, 2019).

Traditional habitation

During the time, the RPER Association inventoried various traditional houses and households that have been completely measured, with the detailing of important constructive elements (joints, facades, socles, eaves etc.) and published repertories of rural patrimony, elaborated since 2011. The repertories created a compendium which illustrated the typology of the traditional house from Ţara Moţilor, solid, integrated to a complex household, conceived for the families of the miners and mainly maintained by the wives who waited for their husbands to come back from the underground. More than 90% of the houses of the region are built in wooden beams and have roofs covered with shingle. A morphologic element giving identity to the house prototype is the exterior entrance porch (*târnaţ*), including as well a tall covered stair leading to the main dwelling level (Fig. 6). The household was surrounded by a tall wooden fence, provided with a massive gate proper for carriages and people. Beside the inventories, RPER realized the rehabilitation in traditional techniques of two houses considered to be representative for the aria (the Colda house from Bucium Poieni village, raised in 1851, fully restored and the Doicear house from the Fereşti village from the year 1870, which has been provided with a new shingle roof), waking them to a new life.

Fig. 6. The house of a shingle master on the Valley of the Abruzel river (photo credits: Elena-Codina Duşoiu, 2019).

Community – people

The most important component of the place consists, undoubtedly, in the people. They take further tradition and legends and are a living source of information and stories. Local community consists in former miners, craftsmen, their wives and mothers, women more than 80 years old that traverse every day several hills and kilometers (Fig. 7). Together with them there are families from Cluj or other neighboring towns who come back to discover the perfume of the roots, spending long holidays in fatherly houses that they helped to revive to a new life. Beside those, strangers settled in Bucium as well, as a consequence of falling in love with the forests of the Apuseni mountains. This allowed homes as the "Ursita" Inn (Inn of the Destiny) to appear. "Ursita" is an old traditional rehabilitated house that shelters an impressive collection of objects from the past centuries: icons, furniture, pottery, towels etc.

A communication deck with the local community was created as well through the annual competition "The Most Trimmed House", an opportunity for the participants of

Fig. 7. Ladies living on the hills of Mogoş and Bucium (photo credits: Elena-Codina Duşoiu, 2017)

the Summer Universities to make friends with the inhabitants of the Bucium commune and to involve them into their projects.

The traditional Romanian interior from Ţara Moţilor

The interior of the house from Ţara Moţilor has elements which are typical to the ambience of the Romanian house from the mountain area, integrating some elements of urban interior as well. The majority of the houses are accessed through the exterior porch (*târnaţ*), a multifunctional space dedicated to all members of the family, conducting through all the rooms of the house.

There is a main room ("the clean room"), dedicated to celebrations and guests, oriented through the street. This room is followed by the room dedicated to everyday activities, that sometimes is a kitchen as well, a main hall ("tinda"), sheltering some working tools, and sometimes a toilet integrated to the house. (Fig. 8)

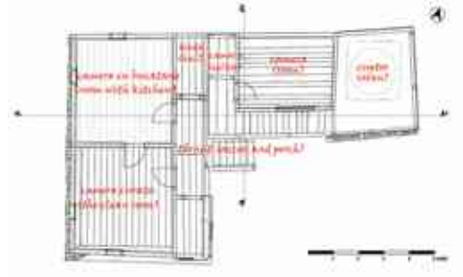

Fig. 8. Plan of the Mărioara Abrudeanu house, XIX-th century (realized during the Bucium Summer University 2017).

The former editions identified a local style in interior furniture, in different physical conditions. Furniture was made in massive wood of fir tree, cherry tree, ash, birch, and was mainly carved out or painted, sometimes with marquetry in other essences. This generated the idea of an inventory, to be realized, based on a research to be continued on several years, pointing out some traditional elements giving identity to the interior ambience. The inventory was started with the 2018 edition, when a compendium of documentary sheets was realized. Furniture objects such as the traditional wooden sofa - "laviţa", (Fig. 9), the kitchen cabinet (called with the regional term "credenţ"), the multifunctional bed, with an incorporated chest, tables with different dimensions and utilities, chairs, stools etc. The 2018 edition identified more than 100 pieces of furniture and inventoried more than 50.

The actuality, ergonomic efficiency and flexibility of these furniture objects are

Fig. 9. Traditional multifunctional furniture in the Colda house (photo credits: Elena-Codina Duşoiu, 2018).

impressive, proving that actually design was born neither in the XXth century, nore in urban space.

Objects of everyday life

Many times legends are based on objects, which testify, together with people, about past times. Climbing through the Detunate rocks, just above the church from Bucium-Poieni, a halt called "Fefeleaga" welcomes the travelers. The host, a jestful former miner, presenting himself with his nickname, Vătălău, recommends himself to be the great-grandson of the famous Fefeleaga, the character created by Ion Agârbiceanu, priest and writer, a personality of Bucium. He may show you the saddle of the horse Bator, baskets for carring golden ore (*corfe*), gas lamps etc. (Fig. 10)

Many of the „trimmed houses" have been awarded, as well, beside the integrality of their architectural volume, for the collection of authentic objects holded by the proprietaries (there are old ladies of the place that still know how to use the spinning cradle or the loom).

Fig. 10. Homemade bags (desagi) to be carried on the back or on horseback (photo credits: Elena-Codina Duşoiu, 2018).

The traditional costume

The ladies of Bucium are still proud of their costume, considered to be the nicest in the whole area of the Apuseni mountains (Fig. 11).

Fig. 11. Two pieces of the popular costume of Bucium (photo credits: Marcela Alexandrescu, 2017).

The suit is composed out of a long white shirt in hemp cloth, black apron in wool wore in front (*opreg*), anther red one behind (*zadie*), a big headkerchief, sheep waistcoat, long stocks and traditional shoes (*opinci*). Jewels are habitual as well, especially specific earrings in pure gold. Many women wear as well the colors of the national flag as a belt. I was surprised to discover that many young women know how to sew traditional clothes with the same talent and skill as their great grandmothers.

Sound

It is not random that sound was the one that gave the name of the Bucium commune. With its grave and long vibration, the alpenhorn (*bucium*) is a living call from mountains and forests (Fig. 12). The closing ceremony of the 2017 edition of the Summer University included the participants at the MOTZart festival (dedicated to the traditional instrument *tulnic*), organized by the well known musician Mircea Florian and other artists that delighted us with their sonorous harmonies.

Fig. 12. An ancient photo showing a peasant playing his bucium (http://www.micul-dac.ro/?p=905).

Results (some conclusions)

We may ask ourselves which is, in the end, the result of the editions of the Bucium Summer University, thoroughly organized, lived with passion and continued with dedication? The activity has several components: a practical one, consisting in the restoration of constructions using traditional techniques (the Colda house – built in 1851 and the Gligor house, from Bucium Poieni village, the Doicear house from Fereşti village, built in 1870, the Cross erected by the Metropolitan Andrei Şaguna, 1897) and a scientific one: six publications containing Repertories of the rural patrimony of Bucium.

The two practical rehabilitation interventions functioned as pilot insertions in the tissue of the village, being in the same time good practice models for the rural area and vectors for a correct recuperation of the local built heritage.

A complete restoration project for the Cross erected by the Metropolitan Andrei Şaguna, an important historical figure of the XIX-th century is a present provocation RPER is working at (since 2019), expecting to be turned in a restoration site.

The six "Repertories of the rural patrimony of Bucium" represent a complete survey of the categories of mobile and immobile heritage of the place and constitute now a valuable reference source for the further investigation concerning the area, for instance in the *Monography of the Bucium Commune* the author bases his conclusions concerning the architecture of the place on the documentation published in the Repertories [6]. The almost complete documentation on the valuable establishments, churches and road crosses, elements of industrial archaeology dedicated to gold extraction, landscape, traditional furniture transforms the study into a basic scientific material for any researcher aiming to investigate the area.

Due to the editions of the Bucium Summer University, sustainable links with local community have been constructed as well, supported by "The Most Trimmed House" competition, by partnerships with local associations, by strategies for touristic development which are beginning to be turned into reality in collaboration with local administration. The fact that the RPER Association managed to classify six local constructions (historical road crosses) as monuments officially listed in the National List of Patrimony opened for the inhabitants of the place a new conscience of the value of their living area, changing the paradigm of their interpretation on their own habitat (Fig. 13,14).

Fig. 13. The Gligor house in Bucium Poieni before its reparation (source: watercolor by the author, 2019).

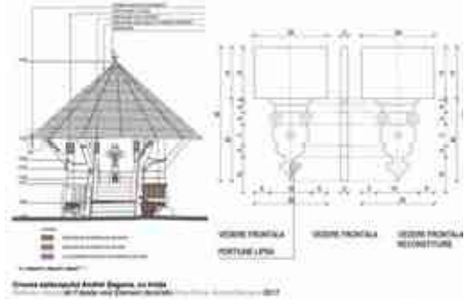

Fig. 14. The Cross erected by the Metropolitan Andrei Şaguna (source: study realized during the Summer University in 2017)

But maybe the most important realization is the fact that the participants to the various editions of the Summer University (more than 150) remained in love with this blessed place and animated with the desire of protecting and multiplying its values.

Acknowledgement

The activity of the Summer Universities from Bucium has been developed due to all participants: professors, students, architects, sociologists, geographers, historians, photographers and, of course, to the members, founders and friends of RPER. A warm tribute to all of them!

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