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*Special Issue 1.2021*

## The Emergency Plan for the use and management of the territory

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# THE EMERGENCY PLAN FOR THE USE AND MANAGEMENT OF THE TERRITORY

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The cover image is a photo of the landslide that hit the municipality of Amalfi (Italy) in February 2021.

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TeMA Journal of
Land Use, Mobility and Environment

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# THE EMERGENCY PLAN FOR THE USE AND MANAGEMENT OF THE TERRITORY

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# Evaluation vs landscape planning in the Italian framework

## Is risk prevention a utopia?

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**Abstract**
Territorial management can be implemented through an intervention perspective concerning a plurality of characteristics inherent to natural and artificial resources, in order to guarantee protection of environmental and territorial identity. The thesis, to be addressed in this paper, concerns the question of whether landscape planning is able to prevent and protect against the risks deriving from poor management of the territory. In particular, in Italy the Landscape Plan, in the role it assumes under the so called Urbani Code, recognizes the value of the territories in an attempt to direct the safeguarding and restoration of landscape values. In this paper the role of Strategic Environmental Assessments in the prevention of risks in the hypothesis of reasonable alternatives has been analysed.

**Keywords**
Territory; Landscape planning; Risk; Indicators.

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# 1. Introduction

For the verification of the effects of the plan, the choice of the indicators in their dual value - qualitative and quantitative - is of fundamental importance. The indicators, as information capable of describing the spatial-temporal changes of the territory, involve environmental and perceptual landscape issues related to natural ecosystems, biodiversity, landscape, transport, cultural heritage, and energy.

The topic is the subject of numerous investigations: they were conducted by researchers who study manifold aspects of the territory and landscape and therefore identify the aspects related to their disciplines. What unites most of the research, albeit coming from different scientific interests, is the relationship between the phenomena of instability on the territory. These events are mostly connected to the widespread landslide and erosion phenomenon at a territorial level in many European countries and also worldwide. Furthermore, recent scientific research is increasingly oriented towards investigating the effects of climate change on these phenomena.

Landslide phenomena therefore affect a large part of the world and have certainly been aggravated over time by the increase in the building of settlements in particularly fragile areas. Landslides involve flowing, sliding, overturning, falling or spreading, and many landslides show a combination of different types of movements, either simultaneously or during the life of the landslide (Gariano & Guzzetti., 2016).

Sloping areas are, by their nature, unstable and the monitoring of such phenomena is a crucial issue. Added to this fragile nature are phenomena that negatively affect and contribute to the accentuation of the phenomenon: volcanic activity, seismic activity, precipitation (rain and snow) and, of course, the abrupt climatic changes that characterize recent years.

Geological and meteorological scholars advance increasingly detailed hypotheses on future scenarios (Seneviratne et al., 2012; McInnes et al., 2007; Crozier, 2010; Dijkstra & Dixon, 2010; Coe, 2012) and, above all, define the close relationship between temperature variations and the increase in sudden and violent precipitation.

Furthermore, many studies have been carried out on flood risk, especially in Europe (European Union, 2018). Italy is the European country which faces most hydrogeological risks due to climate change and this is also demonstrated by the latest studies by the EU. This was stated by the ANBI (National Reclamation and Irrigation Association), according to which Italy "is the European country most exposed to soil erosion, caused by the extremes of atmospheric events".

In Italy, according to ISPRA data, there are about 620 thousand landslides affecting 7.9% of the peninsula. This percentage rises to 16.6% (100% of the territories of Valle d'Aosta, Liguria, Emilia Romagna, Tuscany, Umbria, Marche, Molise, Basilicata and Calabria) including hydraulic hazard areas. More than five million people and about 79 thousand companies operate in areas with high landslide risk, while about 9 million people and 576 thousand businesses are in flood risk areas (ISPRA, 2018).

Spending capacity compared to the funds disbursed by the European Union also faces much criticism: "Yes, because from 2007 to today, according to the data of the Ministry for Cohesion, the Italian regions have presented about 700 interventions for the safety of the territory within the 2007-2013 and 2014-2020 ERDF programs. But they have just concluded 333, less than half, for an amount of payments received that is around 320 million euros. If you look at the resources allocated in the old ERDF and those programmed until 2020, Italy should have spent 1.6 billion in European funds by that date. Basically, we are at just under 20%" (Prestigiacomo & Lecca, 2018).

In this field too, numerous projects are being developed, such as a decision support system for eco-engineering solutions to slope stability problems. It is the first management tool of its kind, which aims to combine ecological and bioengineering techniques on the ground with easy-to-use software (Eco-engineering and conservation of slopes for long-term protection from erosion, landslides and storms). And numerous projects are being implemented, also under the Horizon 2020 funds, such as the "COproductioN with NaturE for City

Transitioning, INnovation and Governance" (European Commission, 2017-2022) which aims to find collaborative solutions for more sustainable, resilient, greener and healthier cities.
Some scientific studies show the positive results deriving from the interaction between biodiversity, ecosystem services and green urban infrastructures. In this sense, NBS (Nature-Based Solutions) have emerged as the main political engine for most cities in transition, because they can be used to create multifunctional arenas and fulfil multiple social, economic and environmental objectives simultaneously.
Another important line of research then turned to the role played by social behaviours. In recent decades, the impact of natural hazards has increased due to a rise in population density in hazardous areas, often associated with poor planning, and the increased frequency and intensity of extreme events as a result of climate change. The conditions of populations living near volcanic areas are very particular (in Italy the cases concern Mt. Vesuvius in Campania and Mt. Etna in Sicily). Disasters vary drastically depending on the local context. Indeed, the likelihood of a natural disaster having more devastating effects in one place than in another depends on the local vulnerable components of the affected population (cultural, social and economic). Therefore, there is an important correlation between potential risk and social resistance and resilience of a specific place, so the response to the disaster varies depending on the social fabric.
This paper analyses the panorama of the landscape planning process, focusing attention on the procedures of the Strategic Environmental Assessment (SEA), and focusing on the fact that the Regions have implemented the application of the SEA for Landscape Plans in a diversified manner.
Regarding article organization, the introduction is followed by paragraphs dedicated to the definition of the research methodology (paragraphs 2, 3 and 4), the description of the elements that emerged in the case-study of the Molise Region (paragraph 5) and the conclusions including some food for thought and considerations regarding the continuation of the research.

## 1.2 Raising planning awareness

Territorial transformation could be analysed through the set of cognitive identification, evaluation, planning, localization and intervention implementation, as well as supervision and control. These actions are aimed at pursuing the protection and enhancement of the territory and the regulation of uses and transformations in relation to development objectives.
The tools that regulate the aforementioned land management processes are the plans.
The plan is a tool for governing the whole territorial process that aims to implement widespread and shared policies with which it is possible to increase the usability, competitiveness and attractiveness of the territory.
Particular attention should be paid to the concept of landscape protection, which is the product of the stratification of natural phenomena and anthropogenic transformations over time. By nature, therefore, the landscape is not static, that is, it cannot be reduced to one, or a set of still images, of "panoramic views", but must necessarily be interpreted through its evolution over time. It can only be interpreted by walking through its spaces, and trying to read and reconstruct the traces of the different systems of relations that have alternated and overlapped over time.
The Landscape Plan, as understood in the Italian Code of Cultural Heritage and Landscape (Repubblica Italiana, 2004), provides for the adaptation of urban planning tools to the provisions of landscape planning and must have descriptive, prescriptive and propositional content. The objective of the Landscape Plan is to allow a survey of the entire territory, through the analysis of the historical, natural, aesthetic characteristics, of their interrelationships and the consequent definition of the landscape values to be protected, recovered and redeveloped by identifying landscape areas with the related landscape quality objectives. It is of fundamental importance that the provisions of these plans are able to be far-sighted, able to focus attention on the individuality of each territory and ensure excellent management of available resources, to make the territories of 'smart lands' increase their competitiveness.

## 3. The Strategic Environmental Assessment: the choice of indicators

The Strategic Environmental Assessment tool allows the evaluation of environmental effects resulting from the implementation of the plan forecasts and to hypothesize reasonable alternatives. The SEA process is structured following the indications of Directive 2001/42/EC relating to the environmental assessment of Plans and Programs and has been implemented in the Italian legal system with Legislative Decree 152/2006 and its subsequent amendments.

The SEA is a process aimed at ensuring that the significant effects on the environment deriving from its implementation are taken into account in the creation, implementation and approval of a Plan or Program. This does not represent an authorization procedure in itself or an evaluation of the contents but consists of a process in which the evaluation accompanies the whole planning process and where the competent authorities for the SEA and those groups with environmental expertise ensure their collaboration to guarantee the tool's sustainability. The SEA is therefore not only an evaluation tool but a process that contributes to the definition of the choices to be made within the plan or program. The objective is to identify the effects that will derive from the implementation of the plan or program choices in advance, thus allowing the selection of possible solutions among the alternatives most in line with the principles of sustainable development. Fundamentally important for understanding the effects deriving from the plan is the choice of indicators which have a double value: qualitative and quantitative. This is information capable of promptly describing both spatial and temporal changes in a territory and can be of different nature.

The definition and organization of indicators is a very important aspect of strategic environmental assessment as these are elements of connection and coherence between the different phases of the assessment. The set of indicators must make it possible to highlight the environmental and territorial characteristics of the area potentially affected by the effects of the plan, to assess the significant effects due to the actions envisaged and to monitor the implementation of the plan and the level of achievement of its targets. It is useful to choose a sufficient number of indicators on the basis of their effective ability to represent a given phenomenon (Bruni, 2016; Carvalho de Assis Dias et al., 2020; Walza & Steinb, 2018; Syrbe et al., 2018; Nowaka & Grunewaldb, 2018).

Only through an overall reading of various aspects, and therefore considering a plurality of indicators and the relationships between them, is it possible to understand how different a weight each one can have and how much it can contribute to making an effective evaluation of the plan.

The main topic of this study is the use of the Strategic Environmental Assessment for the plans, focusing on its application to the Landscape Plans. mThe evaluation process involves numerous competent subjects in environmental matters (Łowicki, 2017; Uuemaa et al., 2009, European Commission & Italian Environment Ministry, 2003; Cassatella & Peano, 2011), and, in harmony with national and regional legislation, is divided into a series of phases which are: the carrying out of a verification of eligibility limited to the plans and programs referred to in Article 6, paragraphs 3 and 3-bis of Legislative Decree 152/2006; the preparation of the environmental report; carrying out consultations; the evaluation of the environmental report and the results of the consultations; the decision; information on decision making and monitoring. The choice of indicators to carry out the SEA of the Landscape Plans is based on issues relating to the territorial context through the analysis of the current aspects, analysing the environmental issues thus taking into consideration different components, including environmental (air quality, climate change, water, soil and waste) and perceptive factors (natural ecosystems, biodiversity, landscape, transport, cultural heritage and energy).

## 4. Methodology

The SEA procedure is aimed at providing cognitive and evaluative elements for the formulation of the hypotheses of the plan allowing the documentation of the underlying reasons for the strategic choices to be made. Therefore, this paper focused on the methodologies adopted for Landscape Plans in Italy.

In the first instance, the study of the evaluation procedures already concluded has been deepened, in comparison with references to the above-mentioned landscape indicator literature, at national and international level. This analysis has been carried out, as will be specified in the case-study paragraph, in order to draft the Landscape Plan of the Molise Region.

The regions have implemented the indications concerning the application of the SEA for the Landscape Plans and each one identifies the main issues to be evaluated and is in a different phase of the SEA procedure.

The majority of the regions have reached the stage of drafting the Environmental Report which identifies, describes and evaluates the significant impacts on the selected components, the reasonable alternatives in light of the territorial scope of the plan.

It also contributes to the definition of the objectives and strategies of the plan and indicates the environmental compatibility criteria, the reference environmental indicators and the monitoring methods.

The Regions should control the planning process through the SEA. To do this, it is useful to be able to have environmental sustainability objectives, consistent with the supra-local development policies for the territory, as well as indicators to measure territorial transformation processes and to evaluate the contribution of the plan to the achievement of the general sustainability objectives.

The Strategic Environmental Assessment (SEA) - as an administrative procedure aimed at ascertaining the environmental compatibility of plans and programs - anticipates the insertion of environmental considerations in public decision-making processes (in application of the prevention principle). This allows the influence of administrative activity of a general nature and reaffirming the transverse nature of environmental issues. The Italian national environmental law (Repubblica Italiana, 2019) had established that all plans and programs with significant impact both on the environment and on the landscape (i.e. cultural heritage in which landscape assets are included) would be assessed. It specified, in fact, that the impact on specific factors (human population and human health; biodiversity; territory, soil, water, air and climate; cultural heritage and landscape) must be assessed not only individually but also on how they interact with one another (art. 5 and art. 6). It also introduces the concept of visual perception and the need for improvement measures (for example for the production sites of excavated earth and rocks).

Deepening the analysis on landscape issues, many studies have been made on "Landscape Character Assessment": "The character of the landscape can be defined as the presence, variety and arrangement of landscape features, which give a landscape a specific identity and distinguish it from the surrounding landscapes. The landscape character contributes to the aesthetic and perceptive value of an area" (Jellema et al., 2009) deepening in the various application cases typical aspects of the disciplines that have dealt with the topic from time to time (Butler & Berglund, 2014; Bartletta et al., 2017; Tudor, 2014; Vogiatzakis, 2011; Griffiths, 2018).

It is certainly more complex when thinking of a SEA specifically applied to urban planning tools. In Italy, the Landscape Plan is drawn up and approved by the Regions, in agreement with the Ministry of Cultural Heritage. The implementation of the SEA is entrusted to the Regions themselves. However, the State is responsible for the approval of the other plans and programs; the implementation of the SEA is the responsibility of the Ministry of Environment, assisted by the Technical Commission for the verification of the environmental impact.

At present, there are not many the concluded SEAs procedure for the Landscape Plans in Italy and they have been addressed with different approaches. By carrying out a critical review it would be useful to weigh, expand and integrate the various components to be analysed, considering different fields and disciplines to have a multi-sectoral and broad spectrum vision.

To do this, it is necessary to differentiate the type of indicators according to the specific plan to be evaluated in order to understand how the various elements interact and contribute to generating planning capable of evaluating the consequent evolutionary dynamics. Besides a more careful choice of indicators according to the type of plan, it would be desirable to define specific analysis methodologies based on the type of topic and the study context; not limiting itself to the application of the same analysis regardless of the evaluation theme.

A further aspect on which the urban planning discipline could improve this type of evaluation is to face a more in-depth discussion about the actions to be implemented. These must be based on the desire to control future events by identifying the potential impacts on the environment by the plan guidelines and choosing the best courses of action from the various alternatives.
At the European level, therefore, all countries should comply with the dictates of the aforementioned Directive 2001/42/EC, which strongly emphasizes the importance of assessing the likely effects of plans and programs on the environment. But very often in the phases through which this evaluation is carried out it is not possible to include - or at least not sufficiently - the concept of prevention. All this, despite the fact that the Directive states that the Community's environmental policy - as well as contributing to pursuing the objectives of safeguarding, protecting and improving the quality of the environment - must be based on the precautionary principle, favouring actions that promote sustainable development.
The question that seems appropriate in this discussion is, therefore, whether the mechanisms of the Plan's Strategic Environmental Assessment really have a preventive effect with respect to risk factors. Or rather how much such mechanisms can contribute to risk prevention.
In this paper, the major attention is aimed at introducing specific metrics for the assessment of "people perception". They are introduced both to deepen the prevention aspects and the aspects relating to landscape change: the greatest difficulty lies in calculating the effects of the landscape "detractors". Therefore - since Italy is subject to an infinite combination of risks - an attempt has been made to make a distinction between the detractors of identity character and the detractors of security.
In the comparison made with the methodologies used in other countries, great attention was paid to indicators: they mainly measure the effects on the elements of the environment or are oriented towards the definition and development of indicators that were capable of measuring landscape quality (Cialdea, 2007a; Cervelli et al. 2018). For a theoretical study (useful in order to answer the question that this study poses, or whether the strategic environmental assessment really manages to have a preventive effect), the research was carried out starting from the analysis of the indicators used in the VAS already implemented in order to make a comparison for a definition useful for application to the case study that is set out in paragraph 5.
The methodology's flow chart followed in this report is shown in Figure 1. A decision was made to investigate the phase of risks linked to physical instability and difficulties perceived by the population and to evaluate these factors through the creation of two grids, the Modification Map and the Resilience Map. The comparison of these two maps, within the SEA of the Landscape Plan, will be useful for the definition of those indicators that in Figure 1 are defined as C, S, V and F from the above mentioned literature.
The verifications of these indicators are being drawn up.

# 5. The Molise case-study

## 5.1 A long seismic tradition

In some areas, such as the case of the Molise Region, the presence of telluric phenomena is so constant that it becomes itself the element of identity. The earthquake in Molise is a common thread that has bound the people of Molise over the centuries. A succession of these phenomena characterized the story of this area from 280 B.C. until the last large seismic event occurred in 2002 with the tragic events in San Giuliano di Puglia (Repubblica Italiana MiBACT, 2003).
The oldest known earthquake is conventionally dated to circa 280 B.C. Evidence of this event has been found in so-called "archeo-seismic" studies, carried out on the Samnites Hercules Sanctuary in Campochiaro. A brief inscription on a tombstone marks a really destructive earthquake which took place at the end of the first century A.D., while San Girolamo describes an earthquake conventionally dated 346 A.D.

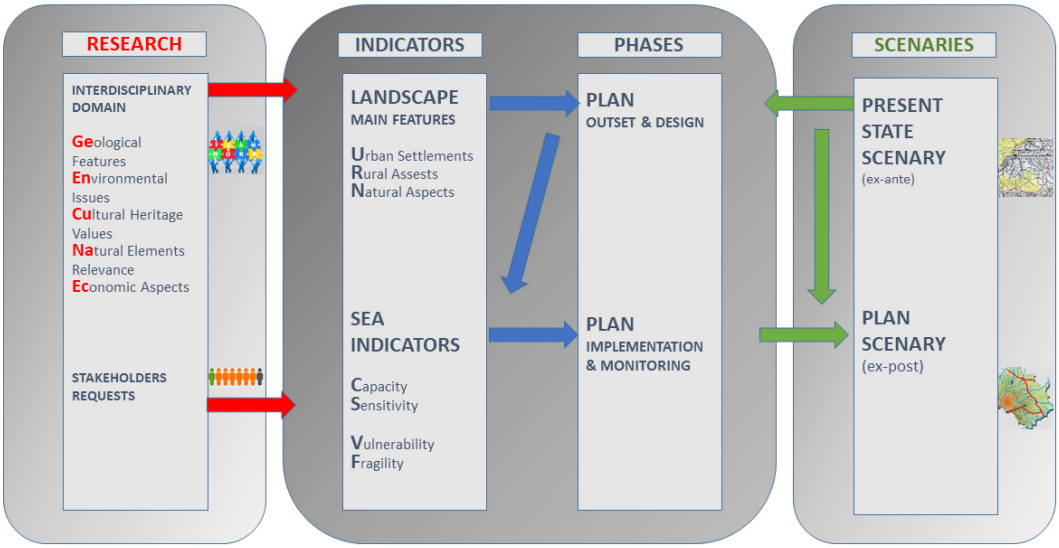


**Fig.1 The Methodology's Flow-chart (Source: Lacosta Laboratory, 2017)**

After this event the government had to rebuild all over the Molise area from Venafrum, to Aesernia, Bovianum and Saepinum. Until then Sannio was a single Roman Province with the Campania Region and it seems that it was just the state of emergency after the earthquake that led local people to create two distinct administrative units in order to facilitate reconstruction purposes. The governor Fabius Maximus carried out a lot of reconstruction, especially in Saepinum. Thanks to *Cronica Sancti Benedicti Casinensis*, there are records of another event in June 847 in the Benevento Principality (which then included all of the modern Molise Region) that caused a number of deaths and great devastation in the area between Isernia and San Vincenzo al Volturno. The 1294 earthquake is known only through a series of tax exemptions issued by Carlo II D'Angiò in favour of people affected by the earthquake. The most affected location was Bojano where there was "a great massacre of men and women".

In the middle ages two important seismic events struck the Molise Region: the earthquake on September 9, 1349 and that of December 5, 1456. Both of these earthquakes were the largest and most catastrophic that had occurred in Italy in the last 1000 years. The first one provoked several thousand victims which added to those caused by the plague epidemic of the previous year. Also the second, known through a manuscript of the humanist and diplomat Giannozzo Manetti, was a series of events activating numerous faults along the Apennine Chain. It provoked thousands of deaths and razed many churches and medieval castles to the ground in the central Molise area.

In the seventeenth century, there were two seismic events that interested two different areas of the region. The earthquake on July 30 1627, with its epicentre in the North part of Apulia, caused partial damage in Termoli and in Campomarino. Moreover, there was a devastating earthquake June 5 1688 generating effects in the Sannio Beneventano area up to northern Irpinia causing over 10.000 victims. The eighteenth century was characterized by a single seismic event that occurred November 3, 1706, known as the Majella earthquake. This event destroyed the city of Sulmona and led to 2000 deaths.

The nineteenth century was marked by the earthquake of 26 July 1805 (known as the Sant'Anna earthquake): the earthquake was strong enough to be felt in Naples and caused serious damage n the cities of Isernia and Campobasso.

In the twentieth century there were a number of seismic events. The earthquake on October 4, 1913 with its epicentre in the central part of the region, South of Campobasso, was not as devastating as previous events.

The January 13 1915 earthquake, the Fucino earthquake, was one of the biggest natural disasters in Italian history and led to the death of 33.000 people. In Molise it caused serious damage in the Volturno area up to Venafro and Isernia.
Events in 1930 and 1962 occurred in Irpinia. The first one, the more disastrous of the two, claimed 1400 victims with some damage in Molise. The May 1984 earthquake, with its epicentre in the Meta mountains, bordering the Molise Region, seriously damaged the area of the Isernia Province (Cialdea, 2019).
The last tragic event occurred October 31, 2002 devastating San Giuliano di Puglia and causing the death of many young people. It was characterized by two main shocks, of more or less the same strength, and it was followed by a seismic swarm lasting several months. This earthquake was significant, however, also at the national level, since following this event the seismic regulations at national level changed. In fact, the new seismic classification of the regional territory was carried out with Resolution no. 194 of 20 September 2006 (Regione Molise, 2006), containing the updating of the list of seismic zones according to the general criteria contained in the Decree of the President of the Ministers Council no. 3519 of 28 April 2006 (Repubblica Italiana, 2006). This Decree provided the Regions with indications for defining the seismic hazard of their territory, if they did not intend to implement the classification of Annex I of the previous OPCM no. 3274/2003 (Repubblica Italiana, 2003), (faculty allowed to the Regions by the Legislative Decree 112/1998 which attributed to the Regions the functions of identifying seismic zones and of training and updating the relative lists, invoking the State task of defining the general criteria for carrying out this activity).
The Molise Region, therefore, after having issued its own regional laws, no. 13, 17 and 21 of 2004 (Regione Molise, 2004a, 2004b, 2004c) approved a new re-classification, increasing the number of municipalities in the area at greatest risk, i.e. zone 1. In fact, before 2002 earthquake, there were 104 seismic municipalities (of which only 3 with grade 12, i.e. Castellino del Biferno in the province of Campobasso and Castel del Giudice and S. Pietro Avellana in the province of Isernia). With the subsequent law of 2004 all 136 municipalities of the Region are reported, 26 in zone 1, 95 in zone 2 and 15 in zone 3.
The subsequent resolution of 2006, finally, pays attention to risk and therefore of the 136 seismic municipalities, 43 fall into zone 1, while those in zone 2 go from 95 to 84 and those in zone 3 from 15 to 9 (Cialdea, 2007b, 2017, 2020).

## 5.2 Territorial Protection

The territory of the Molise Region is characterized by great fragility. This fragility largely depends on its geo-lithological structure. Hydrogeological instability has always represented a significant social problem for the Molise community due to the disastrous landslides and / or alluvial phenomena that involved both inhabited areas and communication routes.
The above-mentioned seismic event, for example, marked a milestone, also because it was then followed by another major meteoric event: the two calamities, the earthquake and the flood event, caused the triggering of new landslides, and the reactivation of many quiescent phenomena (Aucelli et al., 2003, 2004; Rosskopf & Aucelli, 2014).
Needless to say, these phenomena have become more and more frequent in recent times, due to the repeated phenomena that occur throughout Italy but which record critical situations in the increasingly fragile territory in question, more and more frequently leading to the regional government asking for the declaration of a state of emergency. In the region, in fact, 100% of the municipalities are affected by landslide hazard areas P3 and P4 and / or P2 for hydraulics risk and is among the five Italian regions (with Valle D'Aosta, Liguria, Abruzzo and Basilicata Regions) with higher risk values for the resident population in these areas (ISPRA, 2018, IDROGEO Web Portal). Already with the law 9/7/1908 n. 445, which represents the first legislative reference of national value for the official recognition of those situations of instability concerning inhabited centres, implementing measures were also issued for two Molise villages (Castellino sul Biferno and Rocchetta al

Volturno). Subsequently, up to the 1970s, 42 settlements in the province of Campobasso and 16 settlements in the province of Isernia were classified to be consolidated and / or transferred, for a total of 58 inhabited areas in poor conditions or in precarious conditions of stability (compared to 136 municipalities in the region, it is more than 40% of the total). Subsequent investigations by the region highlighted alternative situations for inhabited centres affected by landslides for another 11 municipalities in the province of Campobasso and 18 municipalities in that of Isernia.

Undoubtedly, conditions have progressively worsened in relation to urban planning choices because many of these areas have been inappropriately chosen as areas of urban expansion with inevitable negative consequences on the stability of the areas themselves and with serious damage to what has already been built. Too often, in fact, anthropic activities have been aimed only at maximum profit and have neglected the "basic cognitive analyses and reconstructions of evolutionary models" capable of allowing, where possible, the formulation of hypotheses and forecasts on potential disastrous phenomena. These scenarios would be able to activate preventive measures at least able to reduce, if not reverse, the negative effects.

## 5.3 Risks, human activities and the landscape

The choice of anthropic sites, therefore, causes major changes to the landscape and an important role is naturally played by urban planning tools. In the region under examination there is a large deficit with regards to this issue. Molise is currently devoid of Province Territorial Plans, even if a preliminary study for the Isernia Province was planned but never carried out and a study about functional matrices was drawn up in 2005 for the Campobasso Province – this also never concluded.

The Plans of the two Molise Provinces, as already highlighted, are not yet operational, while the Master Plans have already been adopted by the municipal administrations and, in some cases, are already approved and operational. Consequently, in addition to the general delay that characterizes the urban situation of the area under study, the quality of the tools in force, or in progress, is also limited by the absence of guidelines at the supra-municipal level.

Of all the Molise Municipalities (136), the overwhelming majority adopted the simplified Building Plan as an urban planning tool with the related Municipal Building Norms. On the contrary, only a little more than twenty municipalities have adopted the Master Plan, while for a municipality in the province of Isernia the Building Regulations apply exclusively and for the aforementioned Municipality of San Giuliano di Puglia the Reconstruction Plan has been in place since 2004. Therefore, the only vast area tool already existing in the region is the Landscape Plan, drawn up under the Galasso law (Repubblica Italiana, 1985).

The Landscape Plans currently in force in Molise were adopted in the early 90s and approved during the following decade: they do not cover the whole region, but leave some large areas uncovered, like that of the municipality of Isernia with some neighbouring municipalities and above all a large area of central Molise, including Campobasso, the regional capital.

The Regional Law 1 December 1989, n. 24 (Norms for Landscape-Environmental Territorial Plans) established that all urban plans, sector plans and programs must be compatible with the provisions of the landscape plan. Furthermore, it provides for the identification, assessment and indication of the protection methods and enhancement of the protection of elements of public interest; it also requires that the contents of the plans be binding for private individuals and take precedence over the activities of Local Authorities. So in Molise, a region where land-use planning is lacking, the operation of landscape plans plays a significant role.

The mechanism underlying these plans was to make up for the lack of a regional cognitive framework of environmental matters, which unfortunately is also accompanied by an unclear will of the regional policy. In essence, the Landscape Plans did not want to define the current use of the territory, instead highlighting a methodology to characterize the possible uses compatible with the current conditions of the sites. The plans,

in fact, were considered opportunities to define the guidelines for a project in the area, a procedure that would not have been necessary if a Regional Urban Planning Law had already been in place.
Therefore, there is a classification of defined homogeneous areas, for which from time to time we try to define compatible uses, with the consequent ambiguity deriving from having juxtaposed areas in which values of exceptional value are recognized, and which are given strict restrictions, to areas in which, since particular elements are not highlighted, it is possible to intervene without problems. As regards the basic philosophy of the plans, it can be said that it is aimed at defining the transformability of the territory, based on the value of the elements already mentioned by the law, therefore concerning the natural and anthropic, qualitative and quantitative features, also analysed in their historical stratification.
At present, the Molise Region has entrusted the preparation of the New Regional Landscape Plan pursuant to the already mentioned "Urbani Code" (Repubblica Italiana, 2004) to the University of Molise (and in particular to the laboratory directed by the writer) (Regione Molise, 2019).
The documents of this new plan were drawn up with the primary objective of identifying the situations of greater deterioration and alarm for the landscape system of the region. In particular, in the light of the above considerations, ample space has been dedicated to the topic of vulnerability, so widespread in the regional territory. Therefore, the map of Landscape Evidence of Hard Sites (Fig. 2) has been drawn up: it describes the areas with the greatest concentration of problems or the whole regional territory. In this map, the results of the geological grid carried out on the presences identified in the analysis map were identified throughout the region. Five types of indicators have been taken into consideration (hydraulic risk, geological risk, the settlements to be consolidated and / or transferred, the surfaces subject to seismic constraints and those subject to hydrogeological constraints) and for each of them a grid based on the specially defined weights. They are summarized in Table1.

## 6. Conclusion and remarks

The investigation being carried out wants to answer the question: what can the role of the planning tool really be in the protection of the territory and the landscape?
The topic was addressed in particular with regards to the vast area planning tool, and in particular by analysing the panorama of Landscape Plans in Italy.
In general, there is no lack of technical knowledge of hazard phenomena, but in planning activities, both at general and sectoral levels. If on the one hand a sufficiently exhaustive image of the preconditions of risk exists, on the other, however, it's hard to carry out real risk prevention.
For this reason, the research focused on the choice of indicators.
Therefore, the indicators analysed relate to the verification of risks, as identified by the current sector plans as regards the classification with respect to risk (geological and hydrogeological). Furthermore, the surfaces of the region subjected to constraints (hydrogeological and seismic) were evaluated and finally the surface of the inhabited centres subject to a particular restriction was also evaluated, which concerns the identification of inhabited centres (or part of them) as inhabited by consolidate and / or transfer, included in the L.445 / 1908 and subsequent acts.
Specific reference is made to hydrogeological risk, since studies in this field are strongly linked to the geomorphological study of the territory and hydrographic networks, especially for the control of floods and river floods. Territories involved in these phenomena undergo very rapid changes and the recognition of these phenomena allows the understanding of the evolutionary tendencies of the transformations.
Of course, seismic activity amplifies the weakness of the soil linked to hydrogeological instability. However, it is a factor strictly linked to the structures of buildings and involves the sphere of their design, regulated by specific regulations on the matter. The Region under study, as highlighted in this paper, was sadly known for the 2002 earthquake, which led to the changing of regional norms and changing of national classification.

Certainly, some elements have been identified among the indicators, especially with reference to the safety of public structures and infrastructures.

| | INDICATORS | WEIGHT |
|---|---|---|
| *HYDROGEOLOGICAL RISK* | Risk Classes | |
| | R1 | 1 |
| | R2 | 2 |
| | R3 | 3 |
| | R4 | 4 |
| | | |
| *GEOLOGICAL RISK* | | |
| | R1 | 1 |
| | R2 | 2 |
| | R3 | 3 |
| | R4 | 4 |
| | | |
| *HYDROGEOLOGICAL CONSTRAINT* | Localization | |
| | Existing | 2 |
| | Not-Existing | 0 |
| | | |
| *SEISMIC CONSTRAINT* | Acceleration | |
| | 0,125 | 1 |
| | 0,150-0,75 | 2 |
| | 0,200-0,225 | 3 |
| | 0,250-0,275 | 4 |
| | | |
| *URBAN CENTERS TO BE CONSOLIDATED AND / OR TRANSFERRED* | Included in the L.445/1908 and subsequent acts | |
| | To be consolidated | 2 |
| | To be transferred | 2 |
| | To be consolidated and transferred | 4 |

**Tab.1 Main indicators utilised in the creation of the Hard Sites Map (Source: Lacosta Laboratory, 2019)**

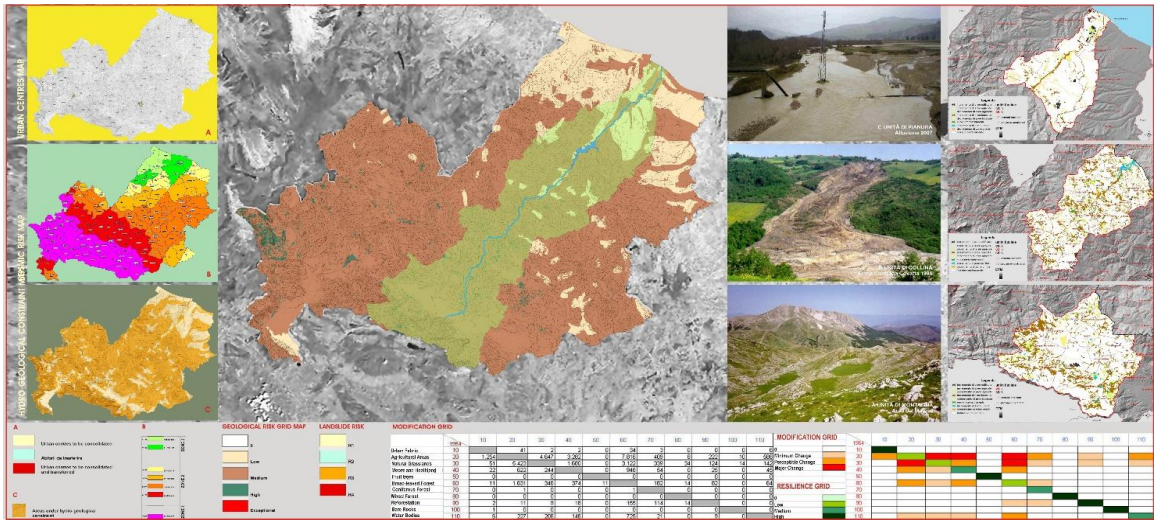


**Fig. 2 The Landscape Map: Hard Sites related to main changes (Source: Lacosta Laboratory, 2019)**

The biggest problem, however, is related to hydrogeological risk: although numerous studies and sector plans highlight the areas with the greatest issues (depending on the risk and on the hazard), they are trivially

reported within the municipal urban planning tools, while it is also necessary to deepen the relationship with what surrounds these areas, with more definitions and indications.

In conclusion, the thesis aims at supporting the basic idea of the need for adaptability to territorial situations. In Italy the physical conditions vary greatly from one region to another. As shown, the regulatory systems in some cases are insufficient. The field of at-risk areas is where it is possible to investigate more deeply; this includes social phenomena, and connections between economy and ecology. The multiple factors that define a possible future of the territory, give value to the concept of prevention.

The definition of risk prevention, protection and restoration policies is fundamentally integrated with other protection strategies for specific sectors (air, water, ground resources and the landscape itself), and, therefore, the idea that soil degradation can also pose a risk to the population.

This has contributed to the launch of research into specific fields for the definition of tools for assessing risks to the soil, the impacts on the ecosystem and the economy, assessing the soil quality and the value in relation to the soil consumption to identify strategies of limitation in use, compensation and mitigation but above all to the production of a numerous series of projects and experiments. This work, however, looks to investigate the 'big picture', trying to contribute to and build upon the existing studies on this topic.

The in-depth analysis of the indicators normally used for the purpose of verifying the sustainability of a plan were applied in the drafting of the SEA of the landscape plan, which in the region in question is the only existing vast area tool. There remains little doubt that further efforts are needed in order to tackle the problem of non-emergency related prevention and this task can only be accomplished by an ever greater awareness of the development of urban planning tools.

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