TeMA

Journal of
Land Use, Mobility and Environment

This Special Issue of TeMA - Journal of Land Use, Mobility and Environment, collects twenty-seven contributes of international researchers and technicians in form of scenarios, insights, reasoning and research on the relations between the City and the impacts of Covid-19 pandemic, questioning about the development of a new vision and a general rethinking of the structure and urban organization.

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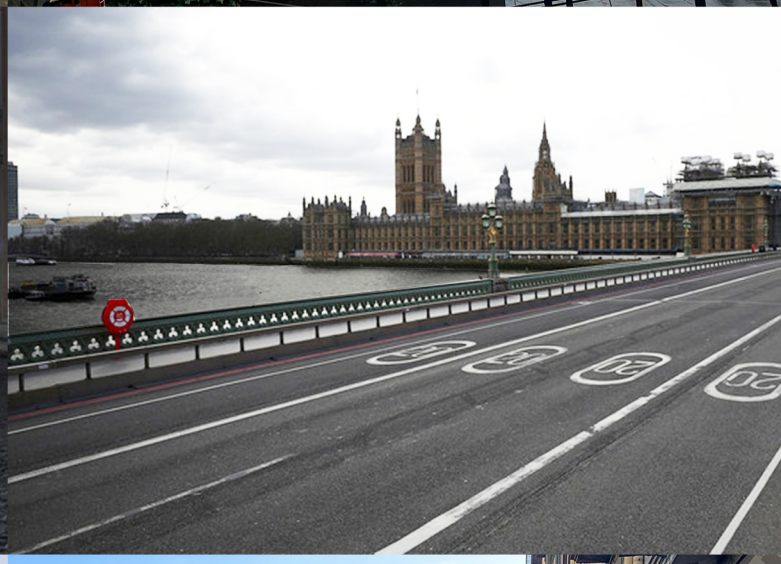
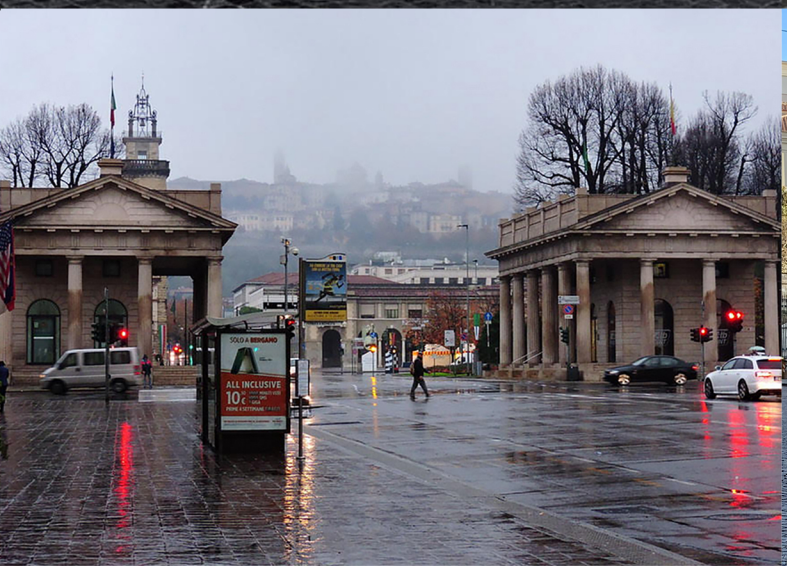
Special Issue

Covid -19 vs City -20

scenarios, insights, reasoning and research





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COVID-19 vs CITY-20
SCENARIOS, INSIGHTS, REASONING AND RESEARCH

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The cover image is a photo collage of some cities during the Covid-19 pandemic quarantine (March 2020)

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The city and natural resources

Pandemic disaster can be a driving force for new perspective

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Abstract
The fragility of cities went into crisis with the outbreak of the recent Covid19 pandemic. This paper contains some reflections, born during the preparation of the next National Table for River Contracts. The city needs the territory and the pandemic can be a driving force for new perspectives, in which the urban condition can be revisited with a view to improving quality. Recent Climate Adaptation Plans, which some cities are drawing up, have to be reinforced by considerations involving natural elements. Cities crossed by rivers are fully included in the objectives of the Policy 2 "A greener Europe" of the Cohesion Policy will be financed by the Cohesion Fund, the European Regional Development Fund (ERDF) and the European Social Fund + (ESF +) in the period 2021-2027.

Keywords
Fragility; Pandemic; Climate adaptation plan; River; Landscape.

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1. Introduction

The crisis caused by the recent Covid 19 pandemic has shown the close relationship between its spread and the climatic conditions of cities. But not all cities are the same.

In Italy there are many Regions, especially in the south, where the classic city structure (physical and demographic) doesn't exist: it is instead possible to identify a continuum between a municipality and the adjoining one, in a territory whose settlement matrix is strongly rural.

In these cases the relationship between the urban element and the natural element is closer, especially when territories are crossed by waterways and the city and water live together and create special landscape features.

The network of natural, historical and infrastructural connections in general becomes the connector of environmental, landscape, historical and cultural resources.

Already in 2015 the Ministry of the Environment, in developing the SNAC "National Strategy for Adaptation to Climate Change" (Repubblica Italiana, 2015) raised the issue of differences between urban areas.

In devising a national vision on common paths to be taken to face climate change, in fact, urban settlements are identified as the main culprits and at the same time the main victims of climate change.

The document notes that in Italy the majority of urban structures are made up of small and medium-sized towns. The small to medium-sized urban centres (from 10,000 to 40,000 inhabitants) total 1,007 and host about 30% of the Italian population (18,206,000 people). The set of small centres (up to 10,000 inhabitants) host a similar overall population (18,714,000 people; 31.5% of the national total) but distributed in 6,888 municipalities.

This is a considerable number, especially when compared with the 46 large population centres (> 100,000 inhabitants), which host about a quarter of the population (13,700,000 people), and with the 151 medium-large population centres (from 40,000 to 100,000 inhabitants), with a total population of approximately 8,845,000 inhabitants, equal to approximately 15% of the national figure.

In small-medium sized urban centres suffer the same climate impacts as larger settlements, but climate adaptation initiatives could be hampered by aspects related to their small size (lack of information, of internal competences of administrations, of resources) and consequently a policy of greater attention by the local Authorities (State, Regions, Provinces, Associations of local bodies) is also necessary.

The main scope of this paper is to challenge the distinction made between interventions for the city and interventions for the territory: this distinction can be valid for large cities, where the transition of the city towards the countryside passes through the settlements of the vast suburban area.

This pandemic has taught us that there is a need for new parameters for density, distance, building height, health in the workplace, dwellings and also for leisure activities. Attention must be paid to all natural resources of the city and the territory which will have to converge strongly on the implementation of the SDGs "Sustainable Development Goals" of the 2030 Agenda (United Nations, 2015, 2019). The objectives that aim to favour the concept of sustainable development mainly concern the management of the territory and require the coherent monitoring of the metrics related to land cover (productivity, land cover, soil carbon, urban expansion). In particular, Goal No. 11 focuses on cities with the aim of making them safer, resilient and sustainable, and more inclusive always in close relationship with the protection of their natural and cultural heritage.

Undoubtedly, the pandemic has taught us that the city needs the territory.

2. Climate Adaptation and Pandemic

In the purposes of climate adaptation, then, cities begun to define their own programmatic guidelines, including the planning tools aspect. From the operative point of view, the numerous guides that many cities

in Italy have in recent years begun to prepare - for subsequently drawing up the Climate Adaptation Plan – express the necessity to act at different scale, both in terms of climate change forecasting (for a framework of risks), and in terms of potential impacts (for a framework of interventions). Because of its location and its own distinctive shape, Italy is particularly exposed to risks of climate changes. At present, therefore, the need to draw up strategic lines, aimed at making them proactive in a short span of time, is increasingly emerging.
This initial form of disadvantage must necessarily be transformed into a new opportunity to move quickly from great general targets - defined at global level - in real adaptation interventions, inevitably fell on specific territorial contexts. The document, drawn up during the Regions and Autonomous Provinces Conference, held at the end of last year, confirmed the Regions' commitment to share a common strategy for the whole Country: the common goal was to enhance synergies between adaptation, sustainable development and risk management, as encouraged by the European Commission.
The "Guidelines for regional strategies for adaptation to climate change" (Conferenza delle Regioni e delle Province Autonome, 2019) are dressed to Regional Authorities to intervene within their governance tools.
Obviously, they refer to the "European Strategy on adaptation to climate change" (European Commission, 2013), to the document drawn up by the European Environment Agency (EEA, 2013), and also to the aforementioned "National Strategy for Adaptation to Climate Change" (Repubblica Italiana, 2015).
From this last document the "National Plan for Adaptation to Climate Change" was born, broadly shared by all Italian Regions in 2018: its main aim is that national and regional strategies must get to bring themselves the goal of making routine the management of risk linked to changes in climate.
It is important to underline, for the purposes of this work, that there is already a clear reference to what Local Authorities (at Municipal level) must do for their planning tools.
Although it is clear that both the National Plan and related Regional Strategies should not be an additional over-level imposition, which all other plans must comply, the emphasis is stressed especially for local-level tools, certainly in line with Regional directives. The general structure, at a multilevel governance, pours on Municipalities the capacity of adaptation of its planning tools (also through possible unions between them, aimed at common and collaborative purposes for areas involving more than one Municipality).
Among these, also voluntary participation planning tools are mentioned, including River Contracts (RCs), which will be discussed in the next paragraph.
In addition, the above mentioned European Agency document, highlights how the underway climate changes is intended to continue, even with many questions to which there is no answer.
Effects are known: the temperature increasing, the rainfall trend changing, the ice and snow melting, the sea level raising. Quantifications of ecosystem changes are less known: moreover, there are a lot of negative influences on human health both in relation to intensity and frequency of heat waves and in relation to the spread of infectious diseases (a topic naturally involving these recent pandemic).
What is in question for interventions to be implemented is that, in addition to the so-called "technological" measures, it is necessary to address measures that promote "behavioural" changes. And it is precisely these last ones that force us to rethink cities.
The main issue is that this pandemic can hardly be traced back to the already known feared risks. For it, in fact, the biggest problem to face (in addition to verifying the fragility of health systems everywhere) was its speed of diffusion, which forced all States to apply strict behavioural rules in the hope that they would be useful to face the emergency. But nothing has yet been done in order to reorganize the life-style.
More recently, therefore, by virtue of the now full-blown emergency Covid-19, the European Union states on the need of some now inevitable practical measures (such as giving up fossil fuels or deforestation in order to maintain the increase of the temperature below the threshold of 1.5°C) with its economic measures (for example, the tax on emissions of CO2). For global level interventions a new document was enacted: the

"European Green Deal". The process starts as early as 2019 and, as stated in its intent, wants to "provide the roadmap to make the EU economy sustainable" (European Commission, 2019a).
The main aim is to provide financial support and technical assistance to help people, businesses and regions that are most affected by the move towards the green economy. This is called the "Just Transition Mechanism" and will help mobilise at least €100 billion over the period 2021-2027. To set into legislation the political ambition of being the world's first climate neutral continent by 2050, the Commission enacted the first 'European Climate Law' (European Commission, 2020a).
The Green Deal most recent act was the presentation of the "EU Biodiversity Strategy for 2030", which occurred on 20 May 2020, in order to protect fragile natural resources of our planet. It pays attention to the loss of biodiversity in view of its strong connection with the crisis climate.
In the time period provided for the attainment of prearranged levels of mitigation, ie within the 2030, interventions are planned for restoring forests, soils and wetlands. Moreover, creating green spaces in cities is essential to achieve the climate change mitigation needed by 2030.
It should be emphasized that the indispensable actions are addressed to degraded terrestrial and marine ecosystems across the whole of Europe with the aim of restoring at least 25,000 km of EU rivers to a free-flowing state. Even more interesting is that from this, the "Bringing nature back into our lives" document was derived. Although the restoration of nature is already partially required by the States members in the current legislation of the EU, the Commission presents a proposal for targets legally binding the recovery of nature in the EU in 2021 to restore the ecosystems degraded, especially for preventing and reducing the impact of natural disasters. "The evaluation of impact will consider also the possibility of a methodology to level the EU to map, assess and achieve good conditions of ecosystems in a way that can bring benefits in terms of regulating the climate, regulation of water, health of the soil, pollination and prevention and protection from disasters." (European Commission, 2020b).
Even in these case, a special attention was paid to the function of rivers and to the need of restoring freshwater ecosystems. The Commission undertakes to supply technical support to Member States by 2023 on their measures oriented to natural aspects (as improving water regulation, flood protection, nursery habitats for fish, and the removal of nutrient pollution) but also to economic enhancement. In fact, it can provide a major economic boost for the restoration sector and for local socioeconomic activities such as tourism and recreation.
These objectives must be in line with what cities are doing in the meantime for climate adaptation.
In particular, the already mentioned Municipal Climate Adaptation Plan must now inevitably include what declared in these new measures, including behavioral ones, that Covid-19 has made necessary.
"Italy is more exposed than other countries to the impacts of the changing climate and is in 2nd place in Europe for the losses economic generated by changes in climate with over 63 billion of euro"; the biggest financial loss in the last thirty years is caused by meteorological phenomena related to extreme events (European Commission, 2018).
In face of such impacts, only 26% of European cities has made a plan for climate adaptation, only 17% for impact mitigation, while 33% do not have any local plan related to climate.
In Italy, in 2019 many Italian cities signed a 10 points-statement for the adaptation to changes in climate, during the 2nd National Conference of Green City. It was organized by the Green City Network, a network promoted by the Sustainable Development Foundation in order to develop activities and measures to make the Italian city greener (Fondazione Sviluppo Sostenibile, 2019).
The Conference aimed at promoting a greater and more qualified commitment of Italian cities through these ten points: 1 defining and updating plans and measures for the cities climate adaptation; 2 integrating policies and adaptation measures with those of climate change mitigation; 3 updating risk assessment and measures both for emergency and for medium and long term; 4 valorising positive effects of the adaptation measures

and account the costs of the absence of such measures; 5 developing adaptive capabilities; 6 focusing more on nature-based solutions; 7 reducing the vulnerability and risks of very intense precipitations; 8 addressing heat waves and heat islands; 9 promoting investments in adaptation measures; 10 strengthening governance (Green City Network, 2019).

For the purposes of this paper, it is interesting to underline what is defined above all for developing adaptive capabilities, in order to incorporate the resilience to changing climate in urban plans.

In this process, it is vital that the existing legislation is applied appropriately, but also that Local Authorities take advantage of research and identification of best practices and techniques useful to increase their local adaptive skill, both in recovery settlements and in new designs.

Moreover, it is necessary to deep nature-based solutions. Tree-lined streets, public and private gardens, parks, green roofs and walls, every urban and peri-urban agricultural area provide ecosystem services, and widely contribute to climate adaptation, to heat waves reduction, and to water outflow surface improvement. The coronavirus pandemic requires rethinking urban planning standards in terms of physical public spaces and assets for access to public services and common goods. It also requires the revision of the urban parameters but, above all, demolishing and rebuilding public and private stocks which are inefficient from an ecological point of view but also poorly productive in terms of social exchanges and which today are not very responsive to the need for the "social distance" (Green City Network, 2020).

In most cases, however, innovative plans and policies that address the climate issue are still conceived as "experimental" and are not integrated into normal spatial planning regulations. Municipal Authorities are urgently called to ensure efficient planning for adaptation and to ensure coordination of actions to increase territorial and infrastructural resilience at all scales. Therefore, it is essential to identify "sensitive areas" in cities and to investigate solutions for them.

3. Water courses in the city: their role

Territories crossed by watercourses constitute a field of application of great interest, for the purposes of climate adaptation and are, today more than ever, a new chance in the post-pandemic panorama.

This is what has been focused for the preparation of the next National Table for River Contacts in the meeting held in April 2020. It had been preceded by numerous preparatory meetings and by a public summit held in the previous month of November (Cialdea, in press). In the Assembly of the Steering Committee of the National Contract Table, of which the writer is a member, a Discussion paper was prepared, aimed at the River Contracts inclusion in the new national and regional programmes. At present, River Contracts are given an important role in the implementation and improvement of local government policies. In a River Contract, the participation of all Authorities involved in the governance management of water bodies -in particular rivers - and well connected with people requirements, allows to face a multiplicity of aspects (hydraulics, agriculture, urban planning, economics) overcoming inconsistencies and conflicts more easily, reducing time and optimizing available resources (Bastiani, 2019).

River contracts contribute to the definition and implementation of district planning tools at the river basin level, as "voluntary strategic and negotiated planning tools that pursue the protection, the correct management of water resources and the enhancement of river territories, together with the protection from hydraulic risk, contributing to the local development of these areas". This is the definition given by Art. 68bis of the Italian Environmental Code, introduced in 2016 in the third part "rules on soil protection and fight against desertification, protection of water from pollution and management of water resources", in the Title II "The river basin districts, tools and interventions" (Repubblica Italiana, 2019). Legitimately, therefore, the River Contract is, in every respect, a planning tool for managing water resources (Martini,

2020). RCs now face the new cycle of European programming. In May 2018, the European Commission issued a Regulation proposal for the Community funds of the 2021-2027 Programme.
As multilevel governance and participation tools, they can contribute to the achievement of many of the Sustainable Development Goals of the 2030 Agenda. The experience, conducted in the above mentioned National Table for River Contacts within the Smart Rivers Network (for the European Innovation Partnership Water Action Group) has given us the opportunity to have an international comparison and to verify our approach with other European and non-European situations.
French, Belgian and Italian RCs can represent within the new EU programming a patrimony of partnerships (Public-Private Partnerships) and a model for the development of future agreements. This hypothesis was already advanced in past meetings, but now it could be the time to test new opportunities: the private sector and the civil society can cooperate for the implementation of local measures for improving territorial resilience through the introduction of new forms of agreement. In fact, private participation can be a useful tool to improve resilience and stimulate economic growth, income and well-being - traditionally considered issues of public policies. It will also be possible to promote the annual reuse of financial resources deriving from the State property water rent: in this way these resources can return to the territory from which they derive, and Regions could use them for environmental interventions envisaged by the RCs, especially oriented to Water Ecosystem Services.
About Italy, the "Water Resource Strategy" tries to cope with the challenging scenario of water quality and quantity depletion. Some strategic actions have been defined, as the climate adaptation in water management, especially regarding flood and drought controlling, and also in this the rivers' role is crucial (WHO & UN, 2019). Furthermore, the RC offers an interesting opportunity for reflection, also in relation to participatory policy processes (Cialdea & Pompei, 2019, 2020). The river is a privileged place for the recovery of the relationship with nature, when it crosses the city and along its course which can become a privileged path to get out of the city. It can also be home to green spaces for the biodiversity rebirth.
The research, set out in this paper, is evolving in this perspective and it refers to a case of the Molise Region. Molise is one of the regions that is still not particularly active as regards the RCs implementation: there are some initiatives that are still in the preliminary phase for various waterways, which in this region are often of an interregional character (such as the Trigno River, which for a big part of its course forms the border with the neighbouring region of Abruzzo, or the Fortore River, with the neighbouring region of Puglia). The only one that falls entirely in Molise is the Biferno River, which is being analysed in detail.
The Molise Region, addressing the New Regional Landscape Plan, through an Agreement with the "l.a.co.s.t.a." Laboratory of the University of Molise, directed by the writer, aims at analysing landscape features, and providing their valorisation (Regione Molise, 2019). In the landscape study approach, the need to experiment new intervention modalities emerges. The River Contract can be an opportunity to achieve the landscape quality objectives, set by the National Code of Cultural and Landscape Heritage (Repubblica Italiana, 2004). The River Contracts, in fact, match the Landscape Plan protection principles, both for naturalistic and environmental aspect and for artificial aspect, caused by human beings.
As shown in Fig. 1 part a and b, the river basin was divided into three sub-areas. The first area, including the river source, is a flat agricultural area with numerous environmental elements and characterized by several quality farms; the central part of the river course is characterized by a hilly territory with great geological and environmental fragility, and the last one consists of the coastal area, with intensive agricultural production, but also surrounded by large residential settlements and by the largest Industrial Centre of the region (Cialdea & Cacucci 2017, Cialdea & Quercio, 2017).
Analysing the third sub-area, which involve the Termoli city along the Adriatic Sea, the natural infrastructure, such the river is, actually connects different "almost urban" situations, very different from each other.

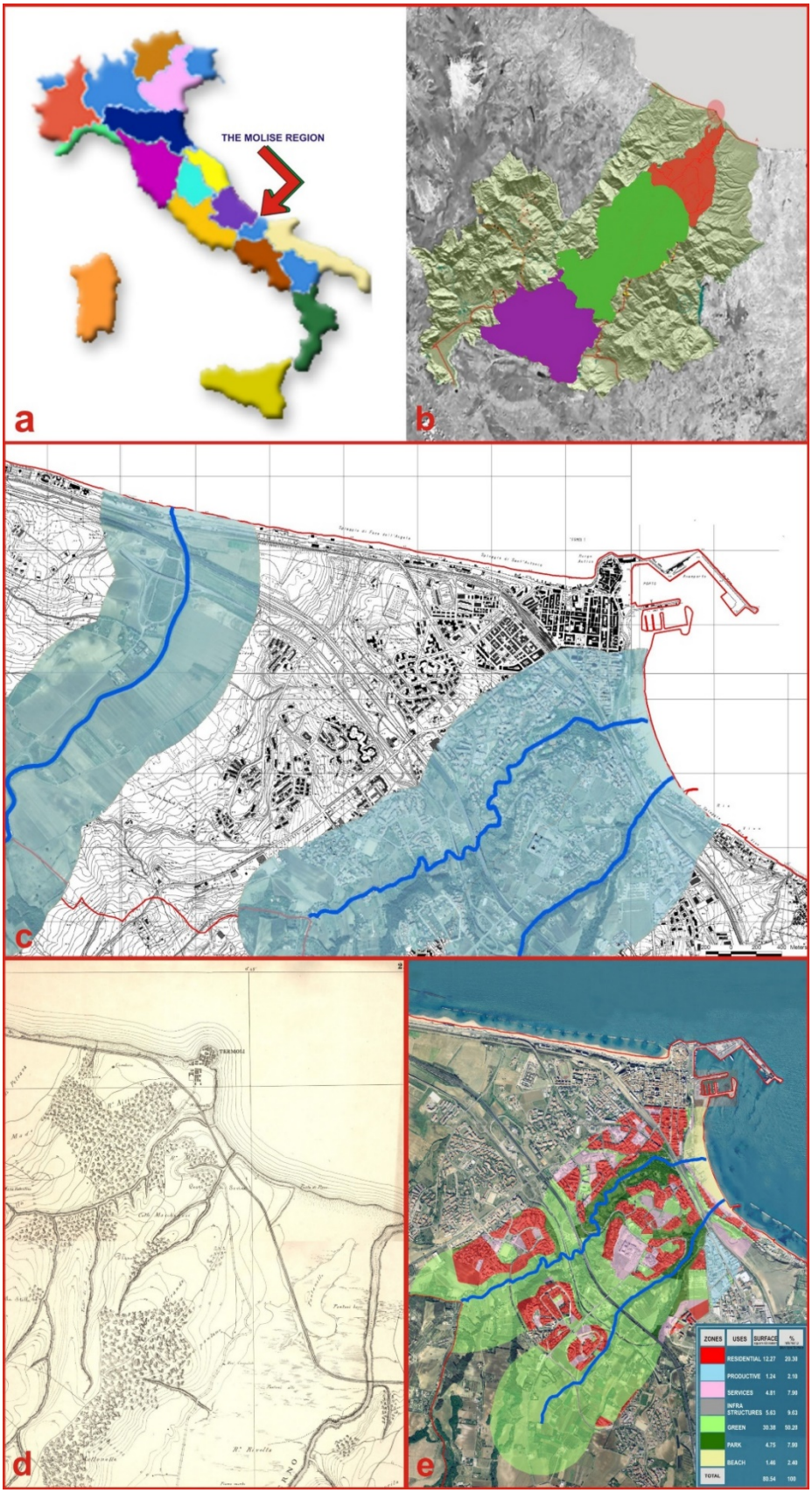

Fig. 1 The sample area: a Molise Region Localization in Italy; b Molise Region and the Biferno River basin divided in three sub-areas (Source: l.a.co.s.t.a. Laboratory 2016); c Water Flows in the Municipality of Termoli and their buffer areas (Source: l.a.co.s.t.a. Laboratory 2016); d Provincia di Molise (Source: Istituto Topografico Militare, Carta al 50.000 delle Province Meridionali in Sesto Antico 1:10,000, Foglio 17, 1863-1876, Torino – Napoli; e The Termoli Master Plan and its prescription (Source: Geographic Information System of the Termoli Municipality, processing by l.a.co.s.t.a. Laboratory 2020).

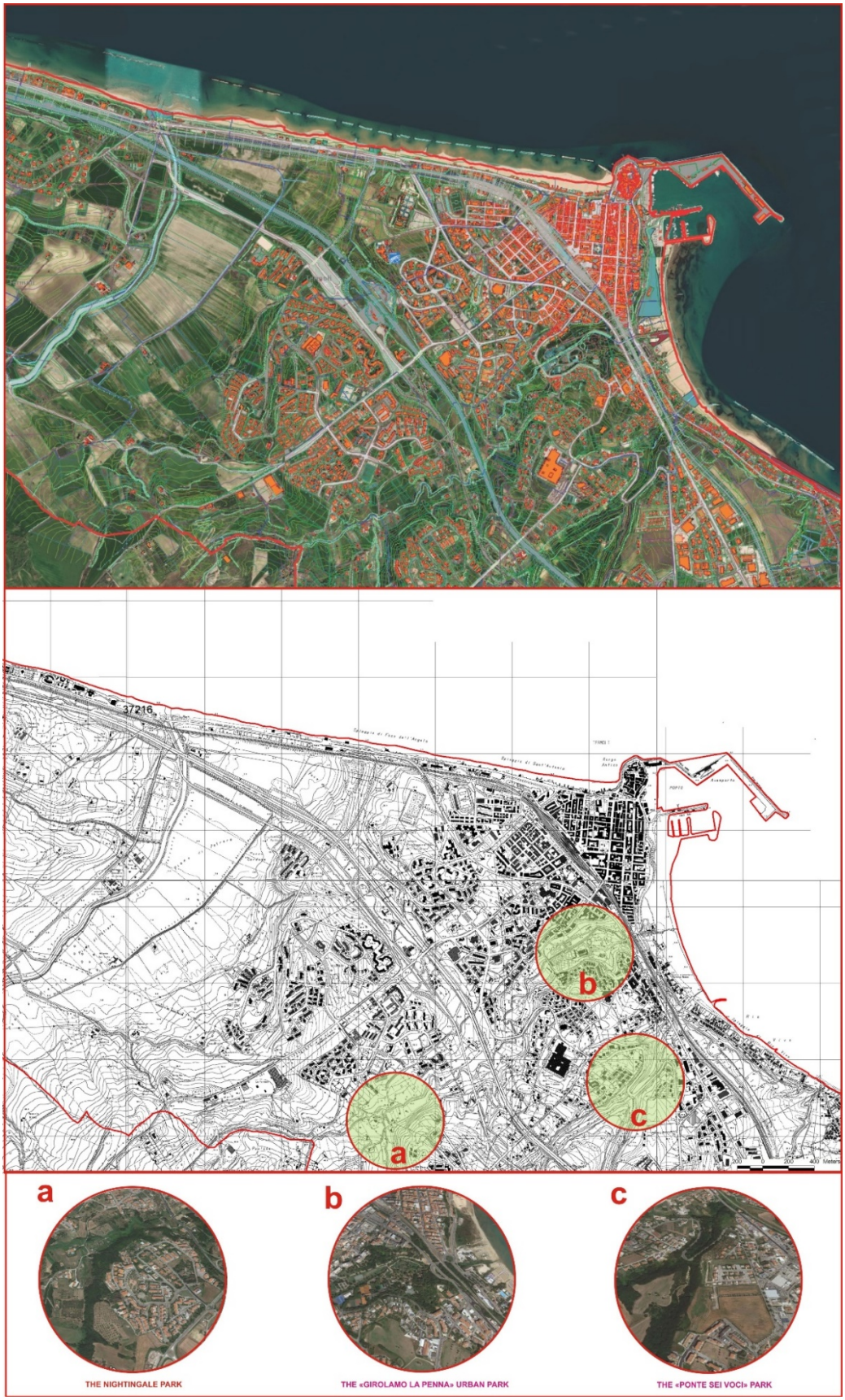

Fig. 2 The green areas system of the Termoli Municipality, located in the Satellite image and in the Regional Technical Map: a the proposed area named the "Nightingale Park; b the existing "Girolamo La Penna" Urban Park; c the proposed area named "Ponte Sei Voci" Park (Source: Geographic Information System of the Termoli Municipality and the Molise Region, processing by l.a.co.s.t.a. Laboratory 2020)

In some cases, regeneration and urban resilience projects could offer an integrated approach for the waterfront valorization. In other cases, the predominance of natural elements could improve the attractiveness of the region, enhancing the relationship with nature. Once more in other cases, the relationship between "water" (the mouth of the river) and "green area" has been deformed, erasing the natural spaces memory.

In Figure 1, part c, the urban centre of Termoli is visible, surrounded on the left side by the course of the Sinarca stream and on the right side by the two ditches, called Fosso Mucchietti and Fosso La Gatta (in the figure waterways are surrounded by a 500 meter buffer for each river bank).

Figure 1, part d, shows how, at the end of the 19th century, this area was strongly characterized by wooded areas.

A verification of the will of the urban planning tools was then performed (Figure 1, part e).

This area is approximately six square kilometres. The Termoli Master Plan recognises its strong naturalistic feature; in fact, more than half of it was defined as public and private use (sub-zones in agricultural use), to which 475 hectares for public parks and more than 144 hectares for beach strips were added. It is also deeply marked by the passage of infrastructures that develop parallel to the coastal line: the railway, the A14 motorway, the Adriatic State Road and the Termoli ring road are about 10% of the whole selected area. Residential uses are located close to the urban centre and their expansion is situated in the strip near the motorway track. In the southern part, facing the Adriatic State Road, there is a productive and commercial area, which characterizes the entrance to the town of Termoli. Other zones are useful for services, both for residence and for harbour and seaside activities.

Moreover, it looks like a sequence of dwelling areas for tourism (residences, camping and especially holiday homes or second homes) and there are no parking lots, service equipment (including commercial) and sports facilities, as visible in the Figure 2. Located outside the infrastructure barriers, the new city is made up of islands separated from each other by vast free and disconnected spaces.

There are spontaneous buildings, creating in recent years, as urban settlements without any service structure; their location is mainly concentrated precisely in the under study area, Rio Vivo - Marinelle.

Furthermore, the Termoli Municipality identified the green areas system, aimed at restoring degraded gardens, increasing arboreal surfaces, redeveloping existing parks and proposing new projects.

They are represented in Figure 2 with the letters a, b, and d.

In the Rio Vivo – Marinelle zone, there is the only already existing urban park in Termoli.

Its birth dates back to 1962, when the municipal administration decides to build on a large public garden, in the old private territory used for pasture and cultivation. The project, drawn up by the architect De Felice, was definitively approved in 1964. In the following years, some active sports facilities were added, including tennis and soccer fields, and finally a large swimming pool that is now in disuse. The connection between the two parts of this park, divided by the Rio Vivo stream, and therefore by the watercourse, is provided by graceful wooden bridges.

Reflecting on these issues, therefore, most delicate cases concern: a. The expansion of the residential settlements (see the Master Plan analysis in Figure 1); b. The recurrence of flood phenomena (remembering the damage of the two most recent floods in 2003 and 2015); c. The excessive proximity to the State road and other main infrastructures, as the Motorway and the railway.

Territorial analyses have highlighted, for this case-study, a highly critical area, which would require specific urban and territorial regeneration policies. The RC could be the driving force for redesigning this part of the city: it could become a useful "green lung", especially now that the post-pandemic condition requires a better use of the open spaces inside the city.

4. Conclusion: for a greener Europe

Based on foregoing territorial analyses, therefore, it is particularly important to engage in the implementation of interventions for this portion of the city. The rivers system, which invest so much the coastal territory, is closely related to natural and semi-natural spaces around it, almost seamlessly. In fact, it constitutes a primary "ecological corridor", which can play a strategic role for the territory of the whole area.

The expected result at the end of this analysing process, could be a River Contract, thought as a collaborative form between public and private actors, both involved in resource improvement. The realization of these intents could ultimately make use of the European programming 2021-2027 funds.

The link between alteration of natural ecosystems and pandemics increases the importance of the European Green Deal, after the Covid-19. Nowadays, priority is being given to the health emergency and it is difficult for the government to manage the climate crisis simultaneously. However, the protection of ecosystems is deeply linked to the fight against pandemics (Berg, 2000; Taylor & Laville, 2020; Acuto, 2020; van den Berg, 2020; Zevi, 2020; Daneshpour, 2020). So "the European Green Deal and other actions in favour of the environment are not a noble form to save future generations, but a measure to be taken urgently to safeguard mankind today and prevent pandemics" (Di Gennaro, 2020).

The proposal for next investment expenditure related to the European Cohesion Policy goes in this direction, with five aims (a Smarter Europe; a Greener Europe; a more connected Europe; a more Social Europe; a Europe closer to citizens). The majority of European Regional Development Fund and Cohesion Fund investments will be geared towards the first two objectives: a Smarter Europe and a Greener Europe.

In particular, a Greener Europe, Policy 2, will have to focus increasingly on the issue of biodiversity and pollution, in order to create green infrastructures aimed at restoring the ecosystem and climate adaptation in most vulnerable urban areas. In this context, the importance of enhancing ecological connectivity was also highlighted through green infrastructures. This last point is particularly emphasized, on the basis of the past programming experience.

The aim is to avoid the risk of the situation occurred with expenditures with 2014-2020 funds, which were too oriented to increase recreational and tourist use, without adequate attention to environmental conservation. That is what must be avoided in the 2021-2027 programming cycle (European Commission, 2019b; Repubblica Italiana, 2020).

The Commission is devoted to supporting locally-led development strategies and making citizens more and more involved. However, there must be an active action by Local Authorities. But precisely from this point of view, it is important to favour mechanisms related to participatory forms, such as the River Contract: because it involves different categories of actors and because it is a tool capable of promoting an increase in awareness of the environmental heritage value and their importance for the human life quality, also affecting those sectors where traditionally responsibility is given to Public Authorities.

River contracts constitute a tool still partially unexplored as regards an instrumental use for the implementation of adaptation plans to climate change. However, they have already been applied in different geographic contexts around the world.

In Italy specifically, some Regions often support the RCs paths with their own funds or work to intervene from the legislative point by issuing their own regional laws aimed at directing the interventions planning on water courses, based on the RCs activation. RCs not only guarantee the maintenance and protection of rivers, but they can also be a tool for finding implementations useful for local development solutions in the context of integrated management of water courses. These considerations are aimed at raising

awareness that it is necessary to develop concrete actions, knowing how to use the opportunities that the European Community offers.

RCs can become a tool for the recovery of identity values and at the same time be a flywheel for overcoming the lack of integration between environmental policies and urban planning issues. Landscape planning could allow the implementation of a contract activation path, with a concrete involvement and substantial sharing by all the actors, as part of a river requalification path, aimed at a public utility and at the same time at an environmental strategy.

Complexity in landscape can be read as the balance between the natural resources maintenance and settlement features of the site (Denier et. al., 2015; Cialdea, 2019), maximizing those which are aimed to satisfy basic needs and improve physical and social health. Coordinated action among Local Authorities and land users offers the potential to face the landscape at different scales. The river involves a multiplicity of factors and it is necessary to have a wide-ranging view for increasing the probability of successful outcomes.

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Image Sources

Fig.1: The sample area: a) Molise Region Localization in Italy; b) Molise Region and the Biferno River basin divided in three sub-areas (Source: l.a.co.s.t.a. Laboratory 2016); c) Water Flows in the Municipality of Termoli and their buffer areas (Source: l.a.co.s.t.a. Laboratory 2016); d) Provincia di Molise (Source: Istituto Topografico Militare, Carta al 50.000 delle Province Meridionali in Sesto Antico 1:10,000, Foglio 17, 1863-1876, Torino – Napoli; e) The Termoli Master Plan and its prescription (Source: Geographic Information System of the Termoli Municipality, processing by l.a.co.s.t.a. Laboratory 2020).

Fig.2: The green areas system of the Termoli Municipality, located in the Satellite image and in the Regional Technical Map: a) the proposed area named the "Nightingale Park; b) the existing "Girolamo La Penna" Urban Park; c) the proposed area named "Ponte Sei Voci" Park (Source: Geographic Information System of the Termoli Municipality and the Molise Region, processing by l.a.co.s.t.a. Laboratory 2020).

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