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Carmine Gambardella

XXI INTERNATIONAL FORUM

Le Vie dei Mercanti

World Heritage and Dwelling on Earth

GANGEMI EDITORE
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Carmine Gambardella
WORLD HERITAGE and DWELLING ON EARTH
Le Vie dei Mercanti
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Carmine Gambardella

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WORLD HERITAGE and DWELLING ON EARTH

Le Vie dei Mercanti

XXI International Forum

Naples | Capri
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Conference report

200 abstracts and 330 authors from 30 countries:

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XXI FORUM WORLD HERITAGE and DWELLING ON EARTH

Abitare la terra! Questo è l'obiettivo essenziale, sintetizzato dalla denominazione della conferenza, cui abbiamo continuamente teso con i Forum "Le Vie dei Mercanti" lungo gli ultimi ventuno anni. Ancora oggi, questa rimane per noi la stessa prospettiva di lavoro. Un intento da perseguire con ancor più forte convincimento e con persino maggiore efficacia, dal momento che tutti noi siamo coscienti di trovarci in uno stato di emergenza con lo scenario drammatico aperto dai cambiamenti climatici.

Quindi, come agire adesso rispetto a questo imperativo globale?

Per prima cosa, mi piacerebbe partire dal lavoro che abbiamo fatto in tutti i Forum annuali, dagli approfondimenti interconnessi sulla transizione ecologica, la contaminazione, il patrimonio culturale, i disastri ambientali, per ciò che concerne il loro impatto sul World Heritage. In tale modo, la preoccupazione per l'abitabilità della nostra terra ha non solo integrato capacità, esperienze, buone pratiche di ricercatori e accademici, ma ha anche creato una comunità scientifica con provenienze da ogni parte del mondo che fosse in grado di interagire in modo interdisciplinare. Ci siamo fondati sul convincimento che un'azione collaborativa richiedesse, oltre una prassi di controllo, una profonda fiducia nella capacità umana di riuscire a difendere il proprio patrimonio ereditario rigenerandolo con forte determinazione. Questa è la migliore strategia per trasmettere al futuro i beni che ci ha consegnato la storia e che noi dobbiamo difendere. Lo scopo perseguito è ovviamente non solo di quello potere agire in anticipo rispetto a un disastro ambientale, ma anche di promuovere nel nostro mondo un processo progettuale in grado di ridisegnare la relazione tra ciascun uomo e l'ambiente in cui vive.

Ribadendo in ciascun Forum che "il futuro è un eterno presente", abbiamo continuato a guardare a ciò che verrà con ottimismo, con la speranza che, cominciando sin d'ora con azioni effettive e coscienti, noi potessimo porre le basi per il mantenimento di un equilibrio globale. La recente pandemia ha mostrato come, al di là delle strategie resilienti per neutralizzare processi produttivi che si sono mostrati ostili al benessere ambientale, dovessimo ricercare una nuova omeostasi nel nostro ambiente abitabile. Solo lavorando insieme in questa direzione, potremmo efficientemente riadeguare via via le reazioni, in modo da neutralizzare persino gran parte degli impatti ambientali nella ricerca di un nuovo equilibrio.

L'argomento del Forum di quest'anno invita i ricercatori a riflettere sulle buone pratiche implementate con progetti operativi, strategie o proposte progettuali. Obiettivo principale è contrastare il processo che ha portato le persone e l'ambiente in cui vivono alle condizioni inaccettabili che riusciamo fisicamente a individuare con chiarezza nel degrado territoriale e paesaggistico. Inoltre, bisogna pensare a nuove strategie per un progetto difensivo che possa realmente dimostrarsi efficace. Ma ciò che è ancora più importante, una volta resosi conto dell'urgenza della situazione, è che l'enorme responsabilità ambientale ci impone di non fare affidamento su soluzioni semplicistiche. Non c'è alcuna semplice prestazione tecnologica che da sola possa essere assunta tout court come soluzione definitivamente ottimale, ma bisogna intervenire attraverso una dinamica osmotica di conoscenze e tecnologie. Solo attraverso un processo di conoscenze continuo le persone possono misurare lo stato del loro benessere e allo stesso tempo agire come garanti della qualità terrestre. Una nozione di "misura", fondata su una dinamica perpetua di conoscenza, può mostrarsi affidabile promuovendo nuovi modelli di sviluppo fondati su un rinnovato Umanesimo.

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XXI FORUM WORLD HERITAGE and DWELLING ON EARTH

Abitare la terra! Dwelling on Earth! That is the essential goal, synthesized by the title of this conference, towards which we have been working with “Le vie dei Mercanti” forum over twenty-one years. It still remains today the same perspective for us. An intent to be pursued with greater commitment and providing even higher effectiveness, as we all are now aware of being in an emergency with the dramatic scenario opened by climate change.
Therefore, what are we to do now with respect to this global imperative?
First, I would like to start from the work we have done in every annual forum, the interconnected focus on Ecological Transition, Contamination, Legacy, Knowledge and Disaster, as regards their impact on World Heritage. In that way, the concern for the habitability of our Earth has not only integrated skills, experiences, good practices of Scholars and Academics, but has also created a scientific community from around the world for discussing such multidisciplinary topics. We had the conviction that collaborative action requires not only practices for control, but also a reliance on human ability to ever succeed in defending his patrimonial value with the strong determination to re-design our everyday places. This is the best way for transmitting to the future the values that heritage has passed on to us and we must protect. The pursued goal is obviously not only to act in advance with respect to an environmental disaster, but also to promote in our world a design process in order to re-design the relationship between each man and his living environment.
Emphasizing in each forum that for us the future is as an eternal present, we have continued to look at the future with optimism, with the trust that, beginning now with effective conscious actions, we can put the basis for maintaining a global equilibrium. Recent pandemic has shown that, apart from resilient strategies for neutralizing productive processes which showed to be hostile to the environment, we need to search for a new homeostasis into our habitable environment. Working towards this direction, we could effectively adjust responses to environmental changes, in order to neutralize even most of their consequences for reaching a new equilibrium.
So, the topic of this year’s forum invites researchers to reflect on good practices implemented with operative projects, design proposals or strategies. The main goal is reversing the trend which has led people and the environment in which they live to the unacceptable conditions we can physically recognize into territory and landscape decay. Then, we must think about new strategies for an adequate defensive design which can ultimately provide an efficient aid. But which is more important, once we have suddenly become aware of the urgency of the situation, the new enormous environmental responsibility requires us not to rely only on simple solutions. There is no easy technological performance to be assumed as a definitively optimal solution. Only the continuous practice of a “measure” that has been built upon continuous education process may give reliance; people, only with an adequate formation, can measure the state of their wellness and at the same time they can act as the guarantors of earth quality, for a new development model based on a renovated Humanism.

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Territorial governance and climate adaptation. Towards an environmental perspective of urban regeneration [1]

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Abstract
The literature, the scientific and disciplinary debate and the growing awareness on the part of national and international bodies of the impact of climate change on the territory (European Green Deal, 2019, Horizon Europe 2021-2027) have highlighted, in recent years, the need for climate-proof policies, strategies, tools and actions as a goal to be achieved through the updating and innovation of spatial government tools, according to an integrated and inter-scalar approach for the construction of urban regeneration strategies in coherence with the objectives of the European Strategy on adaptation to climate change (EU, 2021) and the addresses of the 17 Sustainable Development Goals of the 2030 Agenda for Sustainable Development (UN, 2015) and the Climate Conference (COP26, 2021).
This scenario is reflected in the most recent EU programming and policies and is, moreover, a transversal objective of the PNRR (Mission 5 Inclusion and Cohesion (Urban Regeneration and Social Housing), as well as of the PNR 2021/2027 (AT 2 Humanistic Culture, Creativity, Social Transformation, Inclusive Society in close correlation with AT 5 Climate and AT 6 Environment).
In this context, the contribution presents some of the results of the research activities carried out by the authors that highlight, starting from the analysis of national and international planning experiences and best practices, the urgency of defining new perspectives and new theoretical-methodological and operational references for an innovative planning system, as a tool for a sustainable and resilient regeneration of contemporary cities and territories, at the supra-municipal, municipal and local scale, with significant impacts on mitigation and adaptation to the effects of climate change.

Keywords: urban regeneration, adaptation, climate-change, local plan

1. Urban regeneration and governance of the contemporary city. The framework of European and national policies and programming
In the contemporary city, the many contradictions induced by the effects of globalisation, physical degradation, social, economic and cultural marginality [2], environmental fragility, extreme climatic changes and seismic events, and the pressure of migratory flows, the new instances resulting from the changing system of values and behavioural patterns of the population, overlap with the 'genetic anomalies' that have characterised the development of Italian cities since the early 20th century, highlighting the emergence of a new, pressing '*urban question*' [3].
An issue that implies the various marginalities mentioned above and that underlines, also concerning the recent global health emergency, the urgency of activating policies, strategies and tools that provide integrated responses to the instances of environmental regeneration, social revitalisation, cultural and economic enhancement of the city, according to principles of sustainability, combining quality of life and quality of the environment, and prioritising the implementation of new *urban welfare* to guarantee local communities the right to health, education, public mobility, housing, and the city [4, 5].

The realisation of this new *welfare* recalls, therefore, the need for and constitutes the priority objective of an integrated and inter-scalar strategy of public governance aimed at urban regeneration and territorial rebalancing [6], which finds a punctual contextualisation in the EU policies [7], in the *European Urban Agenda* [8], in the policies for the promotion of sustainability and efficiency of cities from a *Smart* perspective [9, 10], as well as in strategies aimed at ensuring the protection, restoration and enhancement of ecological-environmental components through the construction of *Green and Blue Infrastructure* [11].

Energy efficiency and ecological transition, climate change adaptation, *smart grids* and mobility have also constituted the growth-supportive thematic objectives for 2020-2027 within the European Cohesion *Policies* (ERDF, ESF+, Cohesion Fund and EMFF), aimed at a smarter Europe, through innovative economic transformations; greener and low-carbon; more connected, through mobility and regional connectivity; more social, through the implementation of the European Pillar of Social Rights; and closer to citizens, through sustainable and integrated development of urban, rural and coastal areas through local initiatives.

In this, fully grasping the sense of the guidelines sanctioned by the United Nations with the identification of the 17 "*Sustainable Development Goals"* (SDGs), within the "*2030 Agenda for Sustainable Development"*, adopted by the Member States in 2015, and in particular the need to "*make cities and human settlements inclusive, safe, resilient and sustainable*" (SDG no. 11), through the experimentation of forms of innovation for the improvement of the living conditions of citizens and for the cultural, economic and social growth of communities, consistent with the goal of "*protecting, restoring and promoting the sustainable use of terrestrial ecosystems, sustainably managing forests, combating desertification, halting land wastage and halting biodiversity loss*" (SDG No. 15), including through the adoption of "*urgent measures to combat climate change and its impacts*" (SDG No. 13).

More recently, urban regeneration and related issues have found further operational references and specific funding channels in the *European Green New Deal* [12], the EU's main growth strategy aimed at the transition to a sustainable economic model that will make Europe the first climate-neutral continent by 2050, in the *Just Transition Fund* [13], aimed at providing support to territories facing serious socio-economic challenges resulting from the transition to climate neutrality, and in the new EU programming *2021/2027 Horizon Europe* [14], which introduces, as a core principle, the need for change in the EU economy and society to reduce environmental degradation and risk, halt and reverse the decline of biodiversity and sustainably manage key resources while respecting the EU's climate objectives.

In particular, the *Food, Bioeconomy, Natural Resources, Agriculture and Environment Cluster aims* to ensure a balance between environmental, social and economic objectives through actions aimed at: "*restoring ecosystems and biodiversity, sustainably managing natural resources to ensure food security and a clean and healthy environment; make Europe the first circular, climate-neutral and sustainable economy through the transformation of mobility, energy, construction and production systems; create a more resilient, inclusive and democratic European society, prepared and responsive to threats and disasters, addressing inequalities and providing high-quality health care, empowering all citizens to undertake green and digital transitions*". Objectives shared with the *Climate, Energy and Mobility Cluster*, which supports the implementation of the *Paris Agreement* [15] and the *2030 Agenda for Sustainable Development*, within the framework of the European Commission's long-term strategic vision '*A Clean planet for all'* [16] for '*a prosperous, modern, competitive and climate-neutral economy*', emphasising the interdependence between the transition to a neutral economy and the energy and mobility sectors.

At the national level, this integrated vision between territorial government policies and environmental, economic and social policies is operationally reflected in the *National Recovery and Resilience Plan* [17], launched in 2021 in implementation of the European *Next Generation EU* (NGEU) programme. The PNRR is fully consistent with the six pillars of the NGEU and "*amply meets the parameters set by the European regulations on the quotas for 'green' and digital projects", in line with the 'do no significant harm' (*DNSH) *principle* that inspires the NGEU. Moreover, as tangible evidence of the attention paid to the issue of territorial rebalancing, the NRP allocates about 40 per cent of the territorial able resources to the South and contributes operationally to the pursuit of all seven *flagship* projects of the EU's *annual Sustainable Growth Strategy* (*European flagship*).

In particular, the Mission "Green *Revolution and Ecological Transition*" is aimed at achieving "*the green and ecological transition of society and the economy to make the system sustainable and ensure its competitiveness. It includes actions for sustainable agriculture and to improve waste management capacity; investment and research programmes for renewable energy sources; investments for the development of the main industrial sectors of the ecological transition and sustainable mobility. It also envisages actions to improve the efficiency of public and private real estate, and initiatives to combat hydrogeological instability, safeguard and promote territorial biodiversity, and ensure the security of supply and the sustainable management of water resources*.

In this context of reference, as is already the case in the major European capitals, the integrated and inter-scalar strategy of public governance aimed at urban regeneration and territorial rebalancing must

become, therefore, also in Italy, the central axis of a National Urban Agenda and which, for these purposes, must invest all the policies about the government of the territory, from the development policies of the settlement and infrastructure system to those of protection and enhancement of the environmental system and its ecological, landscape, historical, cultural, social and economic values; from local 'territories' policies to national and supranational ones [4].
A strategy, therefore, not only of town planning, referring mainly to the physical part of the city, but of social inclusion and local economic development, which, for these purposes, takes the public city, the set of public components or public use relating to open spaces, green areas, services, mobility, and social housing, as the reference structure [18].
The public city must, therefore, be constituted as the framework of the coherence of the structuring choices of an overall and compensatory process of regeneration of contemporary cities and territories, aimed at the realisation of new urban *welfare* constituted by a tangible and intangible, interactive and integrated 'network of networks' that guarantee capillary territorial protection and endowment [19].

2. Urban regeneration and governance of the contemporary city. The ecological-environmental perspective

In the context of European and national policies and programming, the construction of new *urban welfare* requires, therefore, the deployment of a new conception, which, through an experimental approach, characterised by high levels of interdisciplinarity, inter-scalarity, iterativity and integration, acknowledges the new instances of the contemporary city, responding both to the need for an overall vision, capable of interpreting the outcomes and regeneration potential after the urban explosion phase, and to the need for a renewed relationship with planning and design processes.
Integration from which to derive, operationally, a convergence of paradigms, legislative and regulatory apparatuses; programmes; new forms and new contents of instruments; implementation mechanisms; *performance* parameters and indicators; prototyping; levels of governance; to substantiate the notion of urban regeneration, build the public city and realise the new *welfare*, implementing a concrete policy of planning and production of services.
On this objective converge research and experiences conducted at national and international levels that, through concrete experimentation in plans, programmes and projects, have produced new points of view, and practised new approaches, in any case, characterised by the tendency to overcome the logical devices linked to the concepts of *separation* and *opposition* [4].
In this framework, therefore, the elaboration of new perspectives and new theoretical-methodological and operational references appears necessary, which use the physical-territorial dimension as a structural reference, of integration and interaction, grasping *"the direct link between the country's productive and social transformations and the repercussions on the cities and the territory"* [20] and which recover significant relations between understanding and proposal.
Among these, in particular, the contribution emphasises several planning experiences, at the level of vast areas and the local level, conceptually ascribable to an ecological-environmental perspective of urban regeneration, examined in the context of research conducted in various capacities by the authors [21].
These experiences, which show the search for a transcalar continuity of objectives and actions, in the dual strategic and regulatory form of plans *"* [22], take on an operationally decline crucial issues at the heart of EU policies for sustainable development and *climate change*, for the improvement of territorial connectivity and the harmonisation of ecological, landscape and cultural values *"* [23], the promotion of the efficiency of cities from a *smart and green* perspective, concretely pursuing an integration between urban planning and ecology.
With these aims in mind, the plans' forecasts direct urban transformations towards redevelopment and modernisation of the existing city, triggering virtuous processes of environmental regeneration, based on the concepts of *compensation* and *ecological-environmental potential*, linking each intervention to actions to improve the fundamental resources air, water and soil; highlighting the role of environmental components to provide integrated responses to instances of anthropic development and preservation of natural capital, combining morphological, cultural and social redevelopment interventions with actions of an ecological and landscape nature [18].
The interventions are, therefore, aimed at the implementation of new strategies for adaptation and mitigation of the effects of climate change and settlement pressures, which take the form of integrated actions for the reconfiguration of environmental components; the reduction of soil consumption, environmental regeneration, soil renaturalization to the protection and enhancement of biodiversity, through the creation of green infrastructures, hierarchical ecological networks, *green ways*, as real 'regeneration matrices', united by indicators/requirements/standards, including ecosystem services, soil permeability, water management, social inclusion, tree and shrub densities, and the promotion of new environmental values to hydraulic invariance through sustainable stormwater management, water saving and sustainable urban drainage; to the reduction of sealing levels, energy saving and the safety of existing buildings, favouring the formation of an urban environment with high climate adaptation

performance the mitigation of the 'heat island' effect through the reduction of energy used in cooling and heating buildings; the reconversion, adaptation and implementation of sustainable and non-polluting collective mobility systems; the remediation of contaminated soils in brownfield sites; the regeneration of the existing building stock [24].
Starting from these experiences, it is, therefore, possible to outline new theoretical-methodological and operational references for an innovative planning system, able to support urban regeneration strategies according to the specificities of territorial contexts and to pursue, through urban planning instrumentation, actions that have significant effects on mitigation and adaptation to the effects of climate change.
New references that, in a perspective of reform of the national urban planning legislation, allow for integration of the contents and the form of the instruments, responding to that need, already present in the reformist plans of the nineties, of a wide and organic "dilatation" of the field of competence of urban and territorial planning, which comes to involve the ecological-environmental contents, developing a model of urban sustainability centred on the ecological regeneration of the city, hence on the set of actions for the qualitative improvement of environmental resources activated directly by the plan, in the awareness that *"modern urban planning discipline was born rigidly linked to the layout of the city, but progressively it has involved (also by laws) the territory and then the landscape, the environment and today it involves the entire ecosystem*" [25].
Therefore, new references to innovate operationally, paradigms, legislative and regulatory apparatuses; programmes; forms and contents of the instruments; implementation mechanisms, parameters and *performance* indicators; prototypes; levels of governance, as well as practices of the urban plan as a tool for a sustainable and resilient regeneration of contemporary cities and territories, at the supra-municipal, municipal and local scale, to substantiate the notion of urban regeneration, build the public city and realise the new *welfare*, implementing a concrete policy of planning and production of services [26].

3. Experimentation and innovation of plans between strategic and regulatory dimensions

In recent years, an increasing number of guidelines and toolkits have been developed to support local governments in assessing the impacts of climate change and identifying effective policies, strategies and tools to respond to risk phenomena [27]. However, despite the undoubtedly significant role of urban planning in the processes of spatial adaptation to climate change [28], concrete experiences incorporating these contents, in some national contexts, are still quite limited. There is, therefore, a large literature concerning the guidelines for climate change adaptation policies, but there is a gap concerning the literature on the outcomes, in operational terms and terms of the transposition of these policies into spatial government instruments.
The dual strategic and regulatory form of the plans, already recalled in paragraph 2, refers, respectively, to the supra-municipal planning level (metropolitan or regional area), which identifies the main strategies for cities adaptive and resilient to climate change, and to the local planning level, which highlights a gradual process of integration of the plan contents, both in terms of implementation of the cognitive framework of territorial vulnerability, with the preparation of management documents that give the consistency of the areas affected by the risk phenomenon, differentiated by level of hazard and in relation to any time horizons analysed (heat islands, floods, flooding phenomena, subsidence, etc.), and in terms of identifying possible mitigation and adaptation project actions on target areas identified by the Plan, from which quantitative and qualitative indicators/requirements/standards can be identified, referring to the measures adopted [29, 30].
Concerning the Italian national context, the *Euro-Mediterranean Centre on Climate Change* Foundation in its 2021 report [31] has drawn up an integrated analysis of the risk related to rising temperatures, heat waves, and urban flooding, aimed at highlighting the expected scenarios for six of the ten Italian metropolitan cities (Bologna, Milan, Naples, Rome, Turin, Venice) through four filters comparing the different territorial realities:

1. *Climate past and future,* in which an analysis is proposed on how the climate of cities might change in the coming decades, also based on the phenomena recorded over the last 30 years in each city;
2. *Climate impacts,* in which changes in the frequency and intensity of temperature and precipitation are analysed about the effects of climate change on the territory;
3. *Risk assessment,* in which a detailed analysis of how each city deals with the assessment of risk from climate change affecting its territory is proposed;
4. *Adaptation Tools,* which offers a summary of the main tools deployed by each city to cope with climate risks.

Starting from the results of this Report, and with particular reference to the contents of the fourth filter "*Adaptation Tools*", the contribution proposes, through the preliminary identification of several criteria, an assessment of the level of effectiveness of policies and planning tools concerning adaptation to climate change in the case study of the city of Bologna. The assessment concerned three levels of

government (Region, Metropolitan City and Municipality) and the respective planning levels and tools (regional, supra-municipal and local) (Tab. 1).
The activity of analysis and critical investigation of the case study was based on the study of the plan tools drawn up by the respective levels of government, the dossiers and reports produced by public administrations and published on institutional websites, and the study of scientific articles and *proceedings* produced on the subject.

	The regional level		**The supra-municipal level**	**The local level**	
Cities	**Regional Urban Planning Law (LUR)**	**Regional climate change adaptation strategy**	**Supra-municipal level planning**	**Climate Change Adaptation Plan**	**The local level of planning**
Bologna	LUR No. 24/2017	Climate Change Mitigation and Adaptation Strategy (2018)	PTM - Metropolitan Territorial Plan (2021)	Adaptation Plan Municipality of Bologna (2015)	PUG - General Urban Plan (2021)

Tab. 1 Planning levels and tools in the Bologna case study

The assessment criteria identified for the regional level relate to the presence or absence of climate change adaptation content within the Regional Urban *Regulatory Framework (Regional Urban Planning Law)* and the possible approval of the Regional Adaptation Strategy (in coherence with the *National Climate Change Adaptation Plan* [32], as a framework for the definition of adaptation goals and actions at the supra-municipal and local level.
The assessment criteria identified for the supra-municipal level, which is the responsibility of the metropolitan city governing body, concern the *consistency of adaptation objectives* contained in planning instruments, understood as objectives of an explicit nature (defined specifically as a response to climate change) or implicit nature (not specifically defined as a response to climate change, but also useful for adaptation).
The assessment criteria identified for the local level, which is the responsibility of the local government body, concern the possible approval of the Adaptation Plan (in coherence with the 2018 *National Climate Change Adaptation Plan*); the *consistency of the adaptation measures* contained in the planning tools(implicit or explicit) the measurability of the expected impacts about the adaptation measures through parameters/indicators/standards for the measurement of the expected impacts about the implementation of the objectives and actions; the *updating of the* Plan's *Territorial Knowledge Framework* about the climate analysis and the identification of territories potentially at risk.
A further criterion for the overall assessment of the effectiveness of adaptation policies and tools concerns the *level of consistency* (full/partial/zero) between the contents of supra-municipal and local-level plans and the regional urban regulatory framework.
The authors believe that the criteria identified for the evaluation of the effectiveness and consistency of planning tools can represent a reference grid for the subjects in charge of the territorial government to assess the strengths and weaknesses of their urban planning tools and, more generally, the level of response to climate change of the governed territories, for a possible process of updating and innovation of the same.

4. The case of Bologna

4.1 The Regional Level

The Regional Town Planning Law

The LUR of the Emilia-Romagna Region no. 24/2017 "*Regional regulation on the protection and use of the territory*" contains explicit references (art. 1 and 21) to the need to combat land consumption and enhance the territory in its environmental and landscape characteristics through ecological and environmental endowments that translate into the reduction of climate-altering emissions responsible for global warming; in the remediation of air and water quality; in the proper management of the water cycle; in the reduction of noise and electromagnetic pollution; in soil permeability; in the ecological rebalancing of the urban environment; in the mitigation of the effects of global warming; in the reduction of seismic, hydrogeological, hydraulic and flooding risks [33].
Article 34 '*Strategy for urban and ecological-environmental quality*' sanctions the need for '[...] *adaptation to climate change, the defence or relocation of built-up areas and infrastructures at risk and the improvement of the healthiness of the urban environment, also thanks to the implementation of environmental and territorial compensation and rebalancing measures and the realisation and enhancement of ecological and environmental endowments* [...]'.
Concerning the '*cognitive framework*' the importance of updating is declared (art. 22) as a constitutive element of the territorial and urban planning tools for an organic representation and evaluation of the state of the territory and of the evolutionary processes that characterise it, with particular attention to

the effects linked to climate change, and as a necessary reference for the definition of the objectives and contents of the plan.

The Regional Climate *Change Mitigation and Adaptation Strategy*
The *Climate Change Mitigation and Adaptation Strategy* (D.C.R. 187 of 20.12.2018) identifies fifteen reference sectors, which correspond to the main regional areas of competence and intervention, divided between the physical-biological and the socio-economic sectors, and divides the regional territory into five homogeneous territorial areas concerning which it highlights the risk analysis according to value classes.
The strategy formulates proposals and "suggested actions to complement/adapt existing programming (where possible) or to be introduced in the definition of future sectoral Plan and Programme documents", divided between those "useful for standardisation/planning/incentivisation", "useful for improving emergency management" and "necessary for research and development" [34].

4.2 The supra-municipal level
The Metropolitan *Territorial Plan of the Metropolitan City of Bologna* (PTM), approved by DCM no. 16 of 12/05/2021, outlines 5 main strategies that it calls 'challenges' articulated in 10 strategic policy objectives:
Challenge 1: Protect the soil;
Challenge 2: Ensure security (about the effects of the climate crisis and urban metabolism)
Challenge 3: Ensure inclusiveness and liveability (through regeneration processes of the urbanised territory);
Challenge 4: Attract sustainable investment;
Challenge 5: Apennines, Via Emilia and the plains: a single territory
Implicit structural objectives of climate change mitigation and adaptation can be found in some of the Challenges. In particular, Challenge 1 identifies the fight against settlement dispersion through the preservation and protection of natural ecosystems and the reduction of land consumption by a maximum of 3% of the current urbanised land, and Challenge 4 the promotion of attractiveness and accessibility by strengthening and qualifying metropolitan networks and nodes sustainably.
Explicit objectives are instead identified in Challenge 2 and refer to the recovery of usable space for cycling and pedestrian mobility, as well as permeable and vegetated surfaces, reducing (where necessary and possible) the size of the road section; to the transformation of parking areas with re-permeable and vegetated interventions to avoid flooding and reduce 'heat island' phenomena; the creation of 'green and blue infrastructures' including protected areas, wetlands, forests, wooded areas and parks, with an overall review of ecological corridors including uncultivated land and areas that can be reclaimed and renaturalised (the NMCP adopts the objective of increasing the average urban green area per inhabitant by 50% to 45 square metres); the recovery of 'space for the environment', to reduce the number of people living in the city to a minimum of 1,000.); the recovery of the 'space for water', with landscape solutions alternative to the emergency solutions of the lamination basins; the 'territorialisation' of a strategy of local production of energy from renewable sources; the identification of areas subject to different forms of 'risk' (hydrogeological, seismic, due to climate change, pollution from dust, infiltrating substances, noise) to exclude them from possible new urbanisations; incentives for all types of intervention to counter the 'heat island' phenomenon and to favour the absorption of rainwater [35].

4.3 The Local Level
Adaptation Plan Municipality of Bologna
The plan was created in 2015 thanks to the LIFE+ BLUEAP (*Bologna local urban adaptation plan for a resilient city*) project and analyses vulnerabilities related to three areas:

1. combating heat waves in urban areas;
2. extreme events and hydrogeological risk;
3. combating droughts and water shortages.

In an attempt to limit the rise in temperatures in the urban area during the summer season, an increase in green areas is planned, from large peri-urban parks and street trees to smaller interstitial spaces in more structured urban areas. The Adaptation Plan aims to act and implement green infrastructures that retain water, rather than accelerate its runoff, and enhance the role of natural ecosystems. One of the measures is to make pavements permeable and to encourage rainwater storage through green roofs or the creation of storage volumes and to encourage the reduction of sealing. The Plan's measures aim to reduce water withdrawals, both by further limiting losses from the distribution network and by reducing consumption, particularly civil and agricultural, and by using alternative water resources and recovering rainwater for non-drinking uses.
The Plan was drawn up through a participatory process involving public and private bodies, businesses and citizens and includes several challenges, for each of which objectives and actions are identified to

increase the safety and resilience of the territory, which are fully effective when integrated into municipal planning tools [36,37, 38].

The General Urban Plan

The General Urban Plan, approved by DCC No. 342648 of 2021, synthesises the 5 challenges into 3 prevailing 'urban strategies' that constitute the vision of the Plan itself: Resilience and Environment (Fig. 1); Habitability and Inclusion; Attractiveness and Employment.

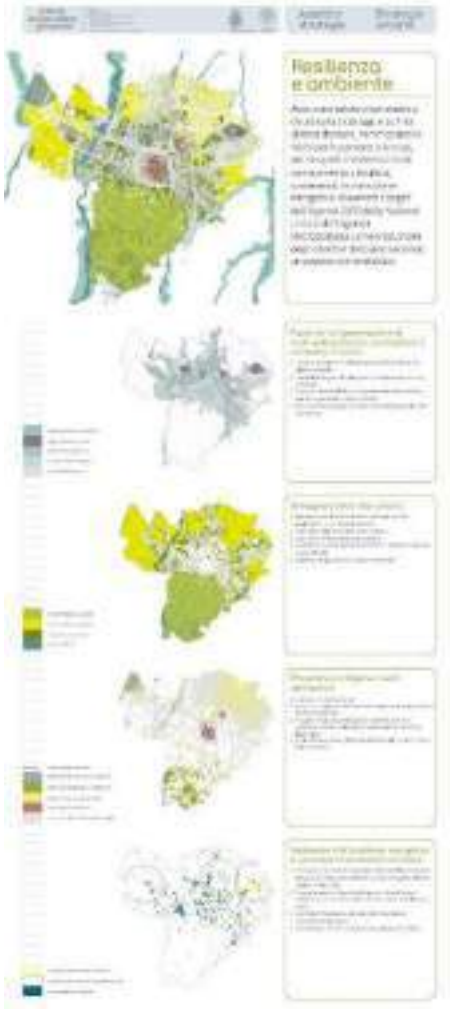

Fig. 1 Bologna General Urban Plan (2021). Structure and strategies. Urban strategies

In particular, in strategy no. 1, the Plan identifies, in coherence with the contents of the MTCP, implicit and explicit structural objectives and actions to counter territorial fragilities connected to climate change, such as the recovery and efficiency of the existing building stock; interventions for the reuse and urban regeneration of built-up areas and anthropised soils; interventions for the de-sealing and de-paving of soils to recover hydraulic functionality and the function of the ecological corridor; urban blue infrastructure and improvement of the urban tree balance through urban forestation measures at different scales, urban greening; regular water flow in the mouths of canals and ditches and the network for the adduction, distribution and accumulation of rainwater for compatible uses inside or outside buildings; mitigation of the heat island effect in urban areas and the introduction of measures aimed at climate adaptation in buildings.

The urban strategies are then broken down into 24 'Local Strategies' using sheets containing the individual local actions to achieve the strategy (Fig. 2). The local strategies, referring to individual parts of the territory, identify the opportunities and criticalities of the site related to natural and anthropogenic risks and the possibilities for project transformation.

Concerning the territorial cognitive framework, the Plan has elaborated a microclimate map, which identifies a series of microclimate fragilities, based on climate scenarios for the Bologna area elaborated by ARPAE - Emilia-Romagna Climate Observatory, in collaboration with the University of Bologna, Department of Civil, Environmental, Chemical and Materials Engineering (DICAM).

The Plan also identifies significant indicators about the objectives and strategies and their association with a target value to evaluate the Plan's implementation actions and monitor the effects, through annual

updating of the set of indicators that make up the environmental framework, such as the permeable, semi-permeable and impermeable surface area (sq m) indicator; the private and public green surface area (sq m) indicator; the tree balance indicator (number of trees); the surface water quality indicator [39].

Fig. 2 Bologna General Urban Plan (2021). Draft Local Strategies

The case of Bologna is certainly one of the most interesting in the national panorama, both from the point of view of the explication of 'explicit' climate change adaptation objectives and actions within the supra-municipal and local level instrumentation and in terms of coherence between policies, strategies and planning instruments. The case study highlights the presence of an updated Regional Regulatory Urban Framework concerning climate change adaptation contents and the approval of both the Regional Strategy and the Local Climate Change Adaptation Plan. Moreover, concerning the regulatory dimension, the Local Plan identifies indicators for the measurability and monitoring of the effects of adaptation actions regarding the objectives and strategies and presents the update of the Territorial Knowledge Framework about the vulnerability of territories.
In this sense, it is possible to assess a full consistency between the contents of the regional regulatory apparatus, the contents of the Regional Strategy and Adaptation Plan, the strategic objectives of the supra-municipal planning level and the regulatory guidelines of the Local Plan, adapted and modulated from the regional/supra-municipal to the local scale.

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Urban vineyards as example of city regeneration

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Urban vineyards as example of city regeneration

The urban vineyards are an example of city regeneration both in terms of tourism and of the quality of life for citizens, a model which in some Italian and European cities is an integral part of the urban fabric and has always seen in nature the strength to survive. We could dare to define it as a sort of model of urban life that is increasingly sought after and updated, not only in a common vision of well-being, but also as a distinctive feature and tourist driving force. As in the past, the territories of urban agriculture show this desire for a new rurality. The union of a series of small agricultural areas becomes the strategic key for real environmental effects on general quality. In particular, urban vineyards become places of regeneration to be inserted into a complex system with osmotic criteria. Among the many examples, and the new urban vineyards that are spreading throughout Italy, perhaps very few people know that the territory of the Municipality of Naples is in second place in Europe, after Vienna, in terms of the number of hectares devoted to vineyards: Agnano, the Camaldoli, Posillipo, the Vomero, are the areas of the cities that host most of them. The agricultural culture therefore becomes a change of life, towards a different social conception, and a widespread well-being.

Keywords: urban vineyards, city regeneration; social conception

1. The idea of Urban vineyards[1]

Today the life of more than half of global population is concentrated in urban areas and over the next few years the urbanization process is supposed to expand. In this perspective designers' attention should be focused on avoiding urban life collapse at a certain moment. A new vision is essential with the goal of pursuing adequate urban adaptation processes, in view of sustainable biological and physical natural strategies to be introduced and monitored into built environments.
While urban life changes, communities express the desire to find better places for enjoying everyday moments of profound wellness. The goal is consequently searching for spaces with the appearance of being in a certain sense separated from the town, as this desire is a twofold one: we would like to live in a country and at the same time we want to remain connected to the built environment.
Urban agricultural places could help us in this perspective for their connection to local biodiversity, with a variety of species to be protected and enhanced. Even when urban agriculture territories are confined and small, they express the desire for a new rurality as the union of a series of small agricultural areas becomes the strategic key for real good environmental effects on general quality.
Urban vineyards, particularly, where they remain, are places in which is evident the ancient practice of previous generations and can become places of regeneration to be introduced into a complex system with osmotic criteria. Here, the ancient practice of previous generations is evident connecting them again to the food chain, the environment regeneration, heritage and culture.

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