12th International Conference on Innovation in Urban and Regional Planning

Working for sustainable soil management and the role of land planning
L'AQUILA, 6-8 SEPTEMBER 2023

CONFERENCE SESSIONS

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S_01 - Resilient, Circular and Sustainable Cities

ORGANIZERS: *Balletto Ginevra (University of Cagliari), Ladu Mara (University of Cagliari) Trinh tu Anh (University of Economics Ho Chi Minh), Borruso Giuseppe (University of Trieste), Fancello Gianfranco (University of Cagliari) and Balázs Kulcsár (University of Debrecen, Hungary)*

Session description: Cities consume over 75% of natural resources, produce over 50% of global waste and emit between 60 and 80% of greenhouse gases. The scenario that by 2050 two thirds of the world population will live in cities, highlights how cities are still responsible for the growing consumption characterized by linear economic processes, with the production of various types of waste. In this unsustainable framework, the Circular Economy offers the opportunity to shape the urban system by means of rethinking the possibility to produce and use goods and services exploring new ways to ensure long-term prosperity. Resilience and circularity represent two advanced concepts, inserted in the broader one of sustainability. They propose elements of innovation that tend to affect settlement, social and economic processes directing them on new growth paths. In this sense, the most recent exceptions of the term sustainability is less divisive and more accepted by both the economic system and from the social one. The Circular City paradigm contains in fact all the principles of the Circular Economy: recovery, recycling, reuse and sharing. In particular, Circular City also introduces actions related to the development of renewable energy communities, use of green materials and CO2 uptake, increase and diversification of urban accessibility and spatial proximity and digital connectivity (Triple Access Planning). These principles fully fit the objectives of the 2030 agenda. In this framework, this session is proposed to host contributions from those scholars interested in analyzing such phenomena from the different spatial points of view, including, but not limited to, the planning, economical, geographical ones. In accordance with the quests as raised by the current ICT revolution, the attention will be driven also on the role played by the available – and future promising – technologies in addressing such urban issues and propose sustainable solutions.

Keywords:
resilient city; circular city; sustainable city; proximity city; Triple Access Planning.

S_02 - GEOSPATIAL EARTH DATA TO SUPPORT THE RESTORATION OF SOIL ECOSYSTEMS AND IMPLICATIONS FOR SPATIAL PLANNING (GEO4SP)

ORGANIZERS: *Tarantino Eufemia, Esposito Dario and Capolupo Alessandra (Polytechnic University of Bari)*

Session description: Anthropogenic activities are progressively endangering the Earth by altering soil features and causing the seal of natural and rural areas by impervious surfaces on a global scale. This has resulted in the loss of soil whose relevance, as an essential and non-renewable resource, has been recognized just recently. In fact, the soil is responsible for the provision of food and materials as well as the regulation of water, energy, and matter, and, lastly, the preservation of biodiversity. Such phenomenon has been even more exacerbated by climate change (CC). Therefore, the 2030 Agenda for Sustainable Development recognized the "soil" as the element to restore and preserve in order to achieve and guarantee the planet's prosperity, now and in the future.
The new perspectives offered by Earth Observation and Geographic Information Systems (GIS) technologies provide the opportunity of an easy and integrated way to collect and process a variety of spatial data. In this way, nature-based solutions as well as proper planning and mitigation activities may increment the knowledge and awareness about soil loss. This should lead to a sustainable and resilient land transformation able to tackle global challenges.
Therefore, all papers dedicated to the adoption of geospatial data to support planning strategies are welcome in this session.

Keywords:
Ecosystem services, sustainable urban development; nature-based solutions, geospatial and earth observations data, spatial information for decision making, Geographical Information System (GIS).

S_03 - GEODESIGN FOR INFORMED COLLABORATIVE SPATIAL PLANNING AND DESIGN

ORGANIZERS: *Campagna Michele (University of Cagliari), Mourao Moura Ana Clara (Universidade Federal de Minas Gerais) and Scorza Francesco (University of Basilicata)*

Session description: Aim of this session is to foster the discussion on all the dimensions of Geodesign, including the process (geodesign as a verb) and its product (geodesign as a noun). Experiences from research, education and practice are welcome in order to contribute to the discussion on geodesign innovation with regards to representation and forecasting of territorial dynamics at all scales, as well as to evaluation, impact assessment and decision-making. Particular attention will be given to collaboration in planning, design, and decision-making, and to its role in addressing current complex challenges in spatial governance.

Keywords:
geodesign; collaborative planning; spatial planning; Strategic Environmental Assessment

S_04 - Integrating Ecosystem Services into Spatial Planning Processes: Sustainable Solutions for Healthier and Safer Urban and Rural Environments

ORGANIZERS: *Privitera Riccardo (University of Catani), Lai Sabrina (University of Cagliari) and Zoppi Corrado (University of Cagliari)*

Session description: Ecosystem services and biodiversity represent crucial elements to be investigated for shedding light on urban and rural nature and their capability to effectively contribute to enhancing human health and wellbeing in urban and rural environments. Green infrastructure act as systemic providers of ecosystem services, whose classification, quantification, and spatial distribution identify the interpretive framework to analyse and assess the outcomes generated by spatial planning policies, as well as their (un)even or (un)balanced spatial impacts.
One outstanding feature of green infrastructure is the provision of high levels of biodiversity that generate relevant flows of ecosystem services. To this end, more effective and innovative 'green interventions' should be explored in order to enhance the green infrastructure capacity to deliver ecosystem service flows and provide real improvements in terms of health and wellbeing of urban and rural environments.
Frameworks, models, indicators and available spatial tools should be researched for assessing the social, economic and environmental impacts of green interventions and proposing design scenarios to be transferred to local planning practices and land-use plans in particular.

Keywords:
green infrastructure; ecosystem services; green solutions; scenario assessment; urban and rural environments

S_05 - The Urban Digital Twin: a new dimension for the land planning

ORGANIZERS: *Fistola Romano (University of Naples Federico II) and Fasolino Isidoro (University of Salerno)*

Session description: The information modeling tools, typical of City Information Modeling, allow today to set up a "Digital Twin" of the city capable of replicating, in its components, the urban system. The Urban Digital Twin (UDT) represents an innovative tool for urban planning because, on this model, it is possible to simulate and test the choices, policies and actions of territorial management, checking in advance the appropriate use of available resources. The session aim is to collect papers that are related to the topic of UDT but also focused on issues like: digital urban modeling, urban function virtualization, urban enactivism, augmented and mixed reality for urban prefiguration, urban planning in the metaverse, structure from motion using drones, the GIS /BIM joint urban model.

Keywords:
digital twin; urban system; urban functions; digital modeling; Geographical Information System (GIS); augmented and mixed reality

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S_06 - Supporting the transition towards ecologically-oriented urban planning: what's the role of early-career researchers*? Innovative findings, experiences, and ways forward

ORGANIZERS: *De Luca Claudia (University of Bologna), Ronchi Silvia (Polytechnic university of Milan) and Cortinovis Chiara (Humboldt-Universität zu Berlin)*

Session description: The increasing negative consequences of climate change and multiple crises such as biodiversity, social and health-related crises urgently call for ecologically-oriented urban planning. Ecologically-oriented urban planning acknowledges the role of natural capital in supporting health and wellbeing, and promotes the integration of ecologically-sound measures/strategies that benefit humans and other species, also in the face of current and future climate impacts. Several policies and initiatives at multiple levels promote the transition to a more ecologically-oriented urban planning. The EU Biodiversity Strategy to 2030 marked a clear step forward in mainstreaming ecologically-oriented urban planning, which should become a consolidated practice through preparing Urban Greening plans. Also, the EU's proposal for a Nature Restoration Law is working in the same direction defining objectives for the long-term recovery of nature.

However, innovations in planning meet several barriers that limit this paradigm shift and ecological transition, including low awareness and commitment of decision-makers and other stakeholders involved in the process, silo mentality, inertia and lock-in mechanisms associated with consolidated approaches, and rigid rules, among others.

In the last few years, several scientific disciplines have developed a growing interest in concepts and tools that can promote the transition towards ecologically-oriented urban planning. This is demonstrated by the increasing popularity of topics related to ecosystem services, urban climate adaptation, performance-based planning & design, nature-based solutions, and environmental and climate justice. Mainstreaming these topics into urban planning is one of the main challenges of contemporary territories. Theoretical approaches, methods, and indicators developed within these contexts can play a key role in promoting ecologically-oriented planning by supporting the definition of ambitious but realistic goals, assessing strategies and actions, analysing alternative scenarios, and monitoring their implementation. The new generation of researchers trained in these fields, who often have a multidisciplinary background and international experiences, can contribute to scientific and academic development, the science-policy interface, and the wider societal debate around ecologically-oriented urban planning and practices.

In this session, we aim to collect, showcase, and discuss the recent scientific advancements related to ecologically-oriented urban planning promoted by early-career researchers, as well as their experiences with planning support. We especially welcome contributions around the topic that embraces a multidisciplinary and transectoral approach. Follow-up activities, which might include further meetings and common publications, also in view of future funding applications, will be proposed to the participants and discussed during the session.

(*) early-career researchers (ECR within 8 years since the award of the PhD)

Keywords:
ecological transition; urban planning; multidisciplinary; knowledge exchange; networking; early-career

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S_07 - Towards denser and greener cities? Methods and indicators to monitor trends and impacts in support of urban planning and policies

ORGANIZERS: *Cortinovis Chiara (Humboldt-Universität zu Berlin), Ronchi Silvia (Polytechnic university of Milan) and Geneletti Davide (University of Trento)*

Session description: While urban areas continue to attract new inhabitants even in contexts characterized by an overall stable or decreasing population, densification is advanced as a key strategy to achieve a more sustainable urban development. Compared to sprawling and sprinkling urban forms, compact and dense cities have fewer environmental and socio-economic impacts, among others in terms of soil sealing, habitat fragmentation, social disruption, and un-healthy lifestyles. However, changes induced within the city by in-fill developments and densification often show contrasting effects. On the one hand, they may promote rational use of energy and infrastructures, guarantee walkability, reduce the need for commuting, and increase social interactions. On the other hand, they may worsen local environmental conditions such as the urban heat island, exacerbate the risk of flooding, reduce opportunities for recreation, and increase crowding and stress. Most of these negative aspects are directly or indirectly linked to urban nature and the benefits that it provides. For this reason, greening interventions are increasingly seen as a necessary complement to densification strategies: the new paradigm of "green densification".

However, the extent to which the two strategies can be achieved simultaneously is still unclear. Recent research findings based on remote sensing-derived indicators have shown that some cities, including Berlin, Stockholm, and Seoul, have become both denser and greener in the last decades. Indeed, many opportunities exist to increase nature in cities by enhancing green and blue infrastructure and implementing nature-based solutions. But the impacts of greening strategies depend, among other factors, on the type of interventions that are implemented. For example, green roofs and green facades might be efficient in providing specific benefits but may not entirely compensate for the loss of a small park. Moreover, the location of interventions plays a decisive role in defining the distribution of the benefits across the population. If not well planned, greening interventions might reinforce existing inequalities and contribute to gentrification processes.

This session focuses on densification and greening processes in cities and is aimed at discussing scientific advancements in their monitoring and assessment, with the ultimate goal of supporting urban policies and planning strategies/actions. We invite contributions on methods and indicators to measure greening and/or densification trends, and to assess the related impacts from multiple perspectives, as well as case studies looking at the relationship between urban development and greening in specific contexts.

Keywords:
urban densification; urban greening; monitoring; indicators

S_08 - Innovative Approaches and Methodologies for driving Sustainable and Inclusive Urban Regeneration

ORGANIZERS: *Saganeiti Lucia (University of L'Aquila), Fiorini Lorena (University of L'Aquila) and Pilogallo Angela (Freelance Engineer)*

Session description: Urban regeneration is a complex and integrated process involving several dimensions of citizens' well-being: environmental, social and economic. It is based on interdisciplinarity and aimed at enhancing the overall quality of urban space. Although the topic has been widely explored both in practice and in academic research over the decades, the challenges we face require new approaches and methodologies to guide urban regeneration programs. Climate change and related impacts at the urban scale, social issues including gender inequalities, the availability of green areas related to public health and post-pandemic cities, and the energy crisis are some of the key issues in current and future regeneration programs. To this end, it is necessary to develop new approaches and methodologies to assess and map these specific demands, identify stakeholder groups and define a scale of priorities for regeneration interventions to be planned. The ultimate goal is thus to meet specific needs while increasing the resilience of urban settlements to ongoing crises.
We welcome review papers and case studies that, through the use of methods and indicators useful for the purpose described, contribute to structuring a knowledge framework suitable to support the transfer from academic research to urban planning practice.

Keywords:
urban regeneration; re-development; resilience; urban renewal; indicators engineering; urban sustainability

S_09 - The Innovation of Urban Planning Tools for Energy-Resilient Cities

ORGANIZERS: *Guida Carmen (University of Naples Federico II), Gargiulo Carmela (University of Naples Federico II), Cutini Valerio (University of Pisa), Zazzi Michele (University of Parma), Zucaro Floriana (University of Naples Federico II) and Carpentieri Gerardo (University of Naples Federico II)*

Session description: This session aims at fostering the discussion concerning the role of urban planning and its tools in increasing resilience and limiting vulnerabilities of urban environments towards the current energy crisis.
The greater population density in urban centres can lower some forms of energy consumption, for example, by increasing public transport and promoting the use of smaller, more compact dwellings. Thus, greater density and urbanization also tend to raise productivity, increasing incomes and total demand for energy services, including heating, cooling, lighting, power and transportation. Hence, on the one hand, existing social and economic inequalities seem to have been exacerbated in urban areas; on the other, cities may have the solutions to use this crisis as a historical turning point and be able to develop a green, resilient and affordable energy system.
Urban planning policies are urgently needed in order to, on the one hand, combat energy poverty and, on the other, not lose sight of ecological and energy transition goals, especially in cities with a consolidated (physical, functional and socio-anthropic) fabric and a narrow range of possible urban transformations.

Hence, new methodologies are required to translate the knowledge of energy-inefficient urban areas into operative planning tools to support decision-making processes.
Given these premises, experiences from research, education and practice are welcome to contribute to the discussion on the innovation of urban planning tools supporting the transition of cities to climate change impacts. Particular attention will be given to contributions that, starting from solid ground-based methodologies to assess the risk of urban areas, manage to provide multidisciplinary takeaways for urban planning practice to enhance cities' energy performance.

Keywords:
energy crisis; urban resilience; urban planning tools

S_10 - Spreading Porosity: the Contribution of Planning Tools in Increasing Soil Permeability

ORGANIZERS: *Garda Emanuele (University of Bergamo) and Caselli Barbara (University of Parma)*

Session description: The session investigates the existing, latent or potential link between planning tools, adopted at the local scale, and de-sealing actions together with adequate greening measures, as an approach for improving the quantity and quality of urban soil and green infrastructures and promoting the adaptive capacity of cities. These de-sealing and greening actions are relevant as they can ensure the achievement of various benefits including reducing climate change risks, increasing ecosystem services, combating the urban heat island effect, managing the water cycle and increasing the general well-being of citizens. The aim of the session is to gather contributions investigating the role of planning tools in translating and applying this complex set of actions in a concrete and systematic way, also with interdisciplinary approaches, to promote a different and innovative management of open spaces and built-up spaces.
Contributions could, for example, reflect on the rethinking of public spaces from a multifunctional perspective (social, ecological, hydraulic, thermal, etc.) or on possible rules to be introduced to guide interventions on private spaces, according to a perspective oriented towards increasing "capillary porosity".

Keywords:
de-sealing; soil sealing; planning tools; nature-based solutions; climate change; resilience

S_11 - Research and Standards for Sustainable Spatial Planning (R&S4SP)

ORGANIZERS: *Esposito Dario (Polytechinc University of Bari), Gueze Raffaella Francesca (Cord: Agende 21 locali italiane, Padova), Bretzel Francesca (National Research Council, Pisa), Tundo Antonella (National Agency for new Technology) and Capezzuto Pasquale (UNI international standardization Organization)*

Session description: Increasingly, standardisation and scientific research are exchanging views and discussing issues within their respective practices and in research networks and consortia, thus establishing a constant and mutually supportive collaboration, albeit that structured opportunities for reflection which aim at sharing perspectives and building a coherent common vision are still lacking. The session is a unique opportunity for researchers interested in the topic or already working in both fields to discuss the potential

for scientific advancement and the possibilities to strengthen the connection between standardisation, innovation and research.
In detail, the session aims at enhancing discussion among experts, fostering the spread of scientific research and results, investigating this two-way relationship for the specific purpose of supporting and improving sustainable land management, spatial planning and local governance. The explicit reference is the UNI ISO 371XX series of standards, which adopt an innovative, holistic and integrated approach to establish the requirements of a management system through policies, processes and procedures for the sustainable development of territories. Moreover, it attempts to facilitate the exchange of information between cities, enabling effective and coordinated initiatives within a national strategic framework.
Specifically, the standards provide structured references directed towards:

- proposing operational methods to guide local governments in achieving SDGs, triggering and enabling virtuous governance processes and tracking and monitoring their progress towards sustainable development;
- raising the awareness of the role of local communities for sustainable development and the activation of iterative processes of continuous improvement of their level of maturity, also through the management of decision-making processes with participatory approaches aimed at their empowerment;
- provide cross-cutting and transversal frameworks for the integrated and collaborative functioning of smart and resilient cities through: i) the definition of smart city operational models that integrate physical and digital planning, ii) the creation of action plans, the attribution of responsibilities and the measurement of performance towards sustainable development, iii) the evaluation of spatial transformations through objective qualitative-quantitative indicators and iv) the use of tools for communication and information on the achieved outcomes.

These aspects must be able to develop considerations, integrate requirements and direct choices for: i) climate change mitigation, ii) the promotion of ecosystem services, iii) the identification of sustainable solutions for the energy crisis and iv) a proper ecological transition. To this end, multidisciplinary technical-scientific working groups are already active within the National Technical Commission UNI CT 058: Sustainable Cities, Communities and Infrastructures.

Keywords:
Sustainable land management; spatial planning; local governance; environmental management systems; smart city operational models; indicators for spatial transformations

S_12 - COASTAL PLANNING: DIAGNOSTIC TOOLS TO ADDRESS PHYSICAL, SOCIAL AND ENVIRONMENTAL CONCERNS

ORGANIZERS: *Di Risio Marcello (University of L'Aquila), Pasquali Davide (University of L'Aquila), Celli Daniele (University of L'Aquila), Castellino Myrta (Sapienza University of Rome), Scipione Francesca (Sapienza University of Rome) and Fischione Piera (University of Rome "Tor Vergata")*

Session description: The socio-economic and environmental importance of coastal areas is widely recognized since they host about 40% of the world's global population, a significant part of economic resources (e.g. key infrastructures, tourism activities, and industrial centers), and a variety of environments.

The rising urbanization and the exploitation of coastal resources have altered the natural coastal dynamics and morphology, as well as climate change effects, have speed up morphodynamic coastal evolution. Thus, the need for a robust and sustainable adaptation, planning and management of coastal zones is essential. The development and the use of diagnostic tools support and facilitate the implementation of strategies at local and regional scales. Drivers and pressures detection, monitoring, understanding of the complex interaction among physical, socio-economic and environmental components are a few of the main key priorities to be further analyzed. They aim to represent a guideline for identifying an appropriate policy strategy for coastal zone management, which would promote the development of economic and tourism activities while protecting and highlighting environmental and historical and cultural heritage values.
This session focuses on coastal management and planning to restore, defense, adapt, sustain and maintain coastal areas, with the support of tools dealing with different fields, such as data gathering, pressure identification and mitigation, mapping, resource detection, monitoring, modeling, decision, management, planning.

Keywords:
coastal planning; coastal zone management; coastal diagnostic tools; sustainable development; coastal indicators

S_13 - TERRITORIAL STRATEGIES IN PLACE-BASED AND COMMUNITY-LED ENERGY TRANSITIONS

ORGANIZERS: *Grassini Laura and Bonifazi Alessandro (Polytechnic University of Bari)*

Session description: Renewable energy transition is a key ingredient of sustainable development strategies. Nevertheless, the disproportionate attention devoted to new energy sources and to carbon emission reduction tends to obscure broader socio-political, cultural and ecological implications of transition. Deep innovations are needed in production and consumption models and in the capacity to reconcile climate change mitigation goals (at the macro level) with territorial strategies for place-based and community-led development (at the local scale). Renewable Energy Communities (RECs)—as coalitions of local actors (citizens, SMEs, local authorities, civil society organisations, etc.) engaged in the production, storage and sharing of clean electricity according to the principles of energy self-consumption and self-sufficiency—should provide environmental, economic and social benefits to their members and to local communities. RECs might thus support the promotion of heritage-friendly and equitable development strategies, while tapping into underutilized territorial resources. For the full realization of this potential, several key issues need to be addressed, which encompass:

- Key enabling mechanisms and policy tools for the activation and development of RECs;
- Advancements in energy transition theories in relation to territoriality and spatial differentiation;
- RECs potential and risks for just energy transitions;
- Potential for, and barriers to, scaling-out of good practices in RECs development and their engagement in territorial strategy making;
- Prospects of innovation in planning culture and practices, at the regional and local level, to foster just energy transitions.

This session welcomes theoretical and empirical contributions, tackling one or more of the above issues.

Keywords:
renewable energy communities; sustainable energy planning and policy; just energy transition; community-led local development; place-based strategies

S_14 - INNOVATIVE SIMULATIONS FOR URBAN PLANNING: DECODING CONFIGURATION, MORPHOLOGY AND SPACE

ORGANIZERS: *Cutini Valerio and Altafini Diego (University of Pisa)*

Session description: The session promotes discussions regarding the use of spatial, configurational, and territorial analysis methods for the evaluation of different territorial dimensions within urban and regional spaces.
While papers are expected to converge in the use of data-driven instruments such as Geographic Information Systems, alongside other computational methods and models for urban planning: such as morphological and configurational analysis, the contexts in which those are employed are diverse. Three main thematic sub-themes for the session:

1. Spatial and Configurational Simulations for Urban Planning
   - Data-driven spatial analysis
   - Configurational models - networks and centralities - analysis for urban spaces
   - Analysis for evaluating configuration and movement within a "minute city" concept
   - Territorial analysis and regional disparities - towards sustainable approaches
   - Configurational and spatial planning for urban risks mitigation (seismic, hydro-geological, and crime)
2. Urban Design and Urban Form
   - Methods and models for designing sustainable cities
   - Movement, spaces of production and consumption
   - Urban design for post-disasters
3. Urban Infrastructure and Transport
   - Evaluating mobility and accessibility within urban and regional contexts
   - Routing and optimization of movement within a "minute city" concept

Keywords:
spatial analysis; configurational analysis; urban form; urban design

S_15 - THE ENERGY TRANSITION OF THE BUILT ENVIRONMENT

ORGANIZERS: *Rotilio Marianna (University of L'Aquila) and Marchionni Chiara (Freelance engineer)*

Session description: In recent years, an evolution in thinking in the scientific community when approaching the topic of regeneration and enhancement of the built environment is taking place. In fact, especially following the post-pandemic accelerations, it has been realized that sustainability can only be achieved by means of a broader reflection, applying strategies to create a network of connections between different polarities. It is for this reason that, in relation to the topic of the energy transition of the built environment, the context and the territory cannot be disregard. Sustainability acquires its meaning only if considered as

an organic whole of design and research actions carried out at the various scales of intervention: we go beyond the single intervention, to focus attention on open spaces, energy and service networks, renewable grids. in a vision that connects the different communities spread across the territory. This approach allows, on the one hand, the sharing of resources and, on the other, the rediscovery of the potential of the area. The aim is to create a networked system between the centres, through the strengthening of the network for the transfer of people, information and energy and the introduction of innovative technological solutions, with realistic reuse conditions as a basis.
In view of the above, this session intends to focus on the topic of the energy transition of the built environment in order to contribute to the achievement of the Sustainable Development Goals of the 2030 Agenda and in particular SDG 11 "Make cities and human settlements inclusive, safe, resilient and sustainable" and SDG 7 "Ensure access to affordable, reliable, sustainable and modern energy for all". Therefore, the special session is focused on research advances, case studies, and best practices on the energy transition of the built environment, considered as an urban core, but also as a building aggregate or urban section.

Keywords:
energy management of the built environment; technological innovation and digitalization; renewable energy networks; energy efficiency; re-use and resource conservation

S_16 - Smart Happy Region. Relationship between Planning and Subjective Well-Being

ORGANIZERS: *Garau Chiara (University of Cagliari), Murgante Beniamino (University of Basilicata), Gervasi Osvaldo (University of Perugia), Rossetti Silvia (University of Parma), Campisi Tiziana (University of ENNNA "Kore"), Desogus Giulia (University of Cagliari) and Annunziata Alfonso (University of Cagliari)*

Session description: The rising need for the adaptation of cities to post-pandemic scenarios provides new issues relating to the conceptualisation of quality of life and of the relation between the Built Environment and quality of life, measured in terms of Subjective Well-Being (SWB). SWB is characterised as an individual's inclination to focus on positive stimuli, or as a state, resulting from eudaimonic aspects, related to the realisation of one's potential, and to hedonic aspects related to positive emotions and life satisfaction.
In urban research, scientific literature shows how the built environment affects different parts of SWB through a set of interconnected variables, such as travel, leisure, work, social relationships, residential well-being, emotional reactions, and health.
This workshop aims to get insight into strengths but also the weaknesses of the new paradigm of Happy City in territorial planning and explore the potential of technological developments and their applications for effectively handling human-centred planning tools that combines social, spatial and technological strategies to improve the quality and well-being of regional users.
Focusing on the main strengths and weaknesses of regional territories as well as the current technological developments and their potential for coping with post-pandemic scenario, the concept of "Smart Happy Region" is explored by critically focusing on (but not limited to) the following issues:

1. Exploration of current national and international initiatives, knowledge and practice on the topic of Happy City

2. Consideration of technology at the service of Happy Regions' sustainability, resilience, cultural development, citizens' empowerment and engagement, strengthening of identity and social ties, etc.
3. Identification of indicators, methodologies and tools for measuring, evaluating and monitoring a Happy City
4. Exploration of the vulnerability of regional contexts in terms of digital, social, geographical/territorial, infrastructural and other divides
5. Potential smart applications for serving environmental, societal and sectoral needs and goals of Happy Regions
6. Exploration of Regions 'challenges related to the sustainability of land transformations in a post-pandemic scenario
7. Exploration of smart governance and spatial data management for place-based decision-making and monitoring of spatial dynamics in regional contexts
8. Delineation of practical or theoretical guidelines or strategies for establishing smartness in "fragile" regions spatial contexts, also in terms of mobility and distributive logistics
9. Exploration of the effects of urban regeneration practices on smartness and well-being.

Keywords:
smart happy region; happy city; urban and regional growth; subjective well-being; intelligent region systems; vulnerable regions areas

S_17 - Innovations in the 15 minute-city approaches: conceptual, data-driven, and practical developments towards a sustainable urban planning

ORGANIZERS: *Murgante Beniamino (University of Basilicata), Garau Chiara (University of Cagliari), Cutini Valerio (University of Pisa), Nesi Paolo (University of Florence), Zamperlin Paola (University of Pisa), Altafini Diego (University of Pisa) and Delponte Ilaria (University of Genoa)*

Session description: Cities accessible to great part urban amenities within 15 minutes provide a promising way for redesigning the urban system (temporal, spatial, and activity-related) in terms of liveability and quality of life. This approach is central to addressing contemporary challenges, including the different initiatives related to the evolution of sustainable urban mobility policies. In addition, walking or biking enhances mental and physical health and reduces urban inequities among residents as it is not dependent on social status and affordability. Creating inclusive access for all also demands that cities enable walkability through social-spatial integration and by avoiding segregation. The 15-minute city model integrates several urban approaches and is vital for developing sustainable cities, even if it is not a new concept. The current strategy to remodel cities aligns with the United Nations Sustainable Development Goals (UN SDGs). The main aim is promoting global development towards universal well-being and the move away from the unsustainable way of life in cities. Applying the "15-minute city" principles can improve the quality of urban planning and policies to create a more sustainable and healthy community, addressing the city's efficiency and resilience and contributing to climate change mitigation. Starting from these assumptions, the purpose of this session is to promote discussions regarding the concept and its application in urban planning.
Although contributions are expected to focus on the use of data-driven tools to evaluate the 15-minute city dynamics and design, the session is also open to discussions about forthcoming conceptual and practical developments for the theme, by considering (but is not limited) these three main thematic subthemes:

1. Conceptual development for the minute-city approach
2. Urban design for the 15 minute-city
   - Morphological approaches for identifying the 15 minute-city spaces
   - Pedestrian and Cycling planning and practices towards sustainable mobility
3. Data-driven analysis for the 15 minute-city
   - Spatial analysis and digital twins for replicating the minute-city – time and place
   - Functional analysis for identifying living centres and optimal economic activities distribution within the 15 minute-city
   - Configurational analysis to highlight movement dynamics within the 15-minute city context.

Keywords:
15 minute-city; data-driven analysis; urban growth; digital twins; walkability and cycling; configurational analysis

S_18 - CLIMATE SENSITIVE PLANNING: RE-DEFINING URBAN ENVIRONMENTS FOR SUSTAINABLE CITIES

ORGANIZERS: *La Rosa Daniele (University of Catania), Stanganelli Marialuce (University of Naples) and Gerundo Carlo (University of Naples)*

Session description: Over the past decades, intense urbanization processes generated dramatic changes in urban environments, with a general contraction of green and open spaces. These processes have decreased the potential of cities to mitigate the negative effects of climate changes. Urban heat island and global warming represent hazards for human health and with the increasing urban population, more and more people will be soon exposed to risk of urban heat related illnesses. Urban energy consumption is predicted to raise worldwide, especially in hot climates, with unsustainable snow-ball effect of increasing in outdoor temperatures by final energy dissipation into heat. Increased urbanization and precipitation extremes define changes in hydrological regimes that are challenging the traditional city drainage infrastructure and causing impacts on urban areas, communities, environments and economies. Water-flow regulation represents a crucial ecosystem service in urban contexts, able to regulate urban water run-off after heavy rain events.
Intense rain and extreme temperatures in general lead to broaden the focus of research on natural hazards, mainly focused on catastrophic events, to include risk conditions oh lower potential impacts but with higher probability. In this context, the hazard profile of each city is no longer clear and is still subject to change in the near future.
In the last decade numerous studies have been developed on the climate zoning of cities starting from the study by Stewart and Oke (2012) on Local Climate Zones (LCZ). However, it is still rare to include among the different types of urban analysis features that can affect urban climatology. Urban morphology features (i.e topography, density, uses and prevailing construction age of buildings, street orientation, the amount of undeveloped and vegetated spaces) and their distribution within fabrics are all factors capable of significantly influencing the urban microclimate.
Different planning solutions and choices are available to adapt and mitigate consequences of climate changes must restore and re-activate the potential of urban ecosystems, that differ according to the different socio-ecological system where they have to be implemented. To this end, different forms of urban greenery and

ecosystems play a crucial role in providing services able to respond to such negative consequences, by regulating the local microclimate and urban water run-off.
However, despite the growing efforts made at international level to develop urban policies focusing on climate related issues, their effective mainstreaming into urban policies, spatial planning and actual deployment on the ground is still limited.
This session welcomes inter-disciplinary contributions presenting the state of the art in methods, models, plans and policies' proposals for climate sensitive urban planning, putting on the foreground actions to increase the quality and safety of cities.

Keywords:
climate sustainability; climate changes; urban planning; urban design

S_19 - URBAN AND PERI-URBAN AREAS: BUILDING KNOWLEDGE AND MAPPING TO BETTER PLAN THE SUSTAINABLE GREEN CITY

ORGANIZERS: *Fiorini Lorena (University of L'Aquila), Pierantoni Ilenia (University of Camerino), Di Dato Chiara (University of L'Aquila), Giacomelli Matteo (University of Camerino), Marucci Alessandro (University of L'Aquila) and Sargolini Massimo (University of Camerino)*

Session description: The interest in cities' expansion is vivid because urban population has never stopped growing and previsions from the United Nations confirms the trend. Often, population growth comes with urban growth that generates urban fringes, new settlements, and urban dispersion. Urban dispersion is characterised by highly energy-demanding settlements, fragmented green areas, a lack in use of public transport and services and then low levels of quality of life. Urban studies are approaching such a phenomenon to achieve classifications and schemes useful in land management. In fact, analysis and characterization of urban and peri-urban areas can be fundamental. Planners should be able to use instruments and technologies for building knowledge and reading different scenarios. This should be the first step for implementing appropriate actions to reach Sustainability Goals (United Nations, 2015), green transition and a better quality of life of city inhabitants.
The session's input and framework is the Integrated LIFE IMAGINE UMBRIA programme (2020-2027). The project's aim is to support the development of an integrated, unified, coordinated, and participatory strategy for managing the Natura 2000 network in the Umbria Region (Italy). How can we use knowledge to better plan and manage the relationships between urban and peri-urban areas and the urban and natural environment? For instance, green networks have a fundamental role, in order to meet conservation objectives while increasing the quality, sustainability and resilience of the urban environment. In fact, one focus will be the relationship between the Natura 2000 network and urban dispersion. In this session, the goal is to reflect on urban and peri-urban areas and different methodologies for their analyses and then strategies and research developed for implementing new responses in urban and regional planning.

Keywords:
urban planning; peri-urbanization; Natura 2000 network; sustainable development

S_20 - DENSIFICATION AND URBAN REGENERATION FOR CLIMATE ADAPTATION IN SUSTAINABLE SETTLEMENTS

ORGANIZERS: *Romano Bernardino, Marucci Alessandro, Zullo Francesco, Fiorini Lorena and Saganeiti Lucia (University of L'Aquila)*

Session description: The 2022 United Nations Climate Change Conference (COP27) has re-emphasized the more urgent need to build actions to accelerate the restoration of policies to stop and reverse the loss of natural ecosystems by 2030 and move toward full ecosystem recovery by 2050. Soil consumption is a substantial source of emissions and therefore acting on it by investigating the phenomenon from a quantitative and shape point of view means to contribute to the achievement of the objective.

In this session, we want to focus on the role of urban and regional planning in the government and control of urban growth. Indeed, while in the past urban planning was tasked with managing the expansive dynamics of continuously developing cities, today it is instead asked to work on the existing, with a focus on not encouraging further land consumption.

Extensive urban growth and its effect on environmental degradation are extremely important issues in the current scientific debate. Therefore, it is fundamental to think about urban densification and sustainable regeneration techniques as modes of intervention to be evaluated in order to overcome the phenomena of inequality and degradation of parts of cities. So as to give cities a new cultural, economic, social and environmental impetus.

Recent advances in methodologies based on innovative approaches to the prediction of urban transformations make it possible to structure new protocols and technical tools suitable for reading the territory in support of planning with the aim of orienting territorial governance actions toward the achievement of sustainability development goals (Agenda 2030).

This session will offer the opportunity to propose analysis of spatial shapes of land take and new dynamics of urban expansion (from compact to dispersed models); estimation of strengths, weaknesses, social and economic costs of low-density urban systems; urban regeneration; sustainability; innovative technologies to measure and predict land consumption, demonstrating their applicability.

From a technical point of view, we propose to introduce methodologies to compute these phenomena through simple approaches, construction of ad hoc indicators and through front-end technologies such as global remote sensing data, computer vision processing and numerical modelling. We would also like to capture the interdisciplinary character of the chosen topic by collecting research from different fields (Engineering, urban planning, biology, land sciences and other) or from multidisciplinary teams.

Keywords:
urban growth; low density; urban expansion; urban regeneration; sustainability