



ISOCARP



60th ISOCARP WORLD PLANNING CONGRESS

REINVENTING THE (IN)VISIBLE CITIES

8-12 OCTOBER 2024 | SIENA | ITALY

International Society of City and Regional Planners

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60th ISOCARP World Planning Congress

60th ISOCARP World Planning Congress
Reinventing The (In)visible Cities
Siena, Italy, 8-12 October 2024

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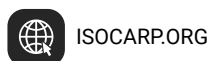
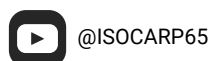
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Introduction

Reinventing the (In)Visible Cities: From Heritage to Innovation, Forging Pathways to Resilience marked a defining milestone in the evolving discourse on urban and regional planning.

Held in Siena from 8 to 12 October 2024, the congress was far more than a commemoration of sixty years of ISOCARP's legacy, it was a profound reflection on the contemporary challenges reshaping cities and regions and on the shifting role of planners in an age defined by uncertainty, complexity, and transformation. It brought together a global community, offering a vital platform for the exchange of ideas on how heritage, innovation, and resilience can be interwoven into the fabric of sustainable urban futures. For me, as President of ISOCARP from 2021 to 2024, the Siena Congress represented the culmination of a journey devoted to expanding the society's international reach and deepening **its commitment to inclusivity and innovation**. Over these three years, ISOCARP has reinforced its standing as a leading platform for interdisciplinary collaboration, one that embraces a holistic vision integrating urban morphology, socio-economic dynamics, cultural and environmental imperatives. The Congress itself embodied this ambition, convening **more than 500 participants from over 70 countries, showcasing over 430 research papers, 20 Urban Conversations and Special Sessions, and keynote lectures delivered by some of the most distinguished voices in the field**

This congress also underscored my strong commitment to ensuring that ISOCARP operates as a truly global society—one that fosters



Pietro Elisei
President,
ISOCARP
(2021-2024)

equitable representation and knowledge-sharing across diverse geographical, cultural, and socio-economic contexts, particularly **by empowering regions and communities that have historically been less visible within global planning narratives**. Despite the presence of dissonant voices within the organisation—advocating for an internationalism often shaped by particular interests rather than emerging from bottom-up inclusivity—I have remained resolute in promoting a more balanced and just planning discourse. **Inspired by Italo Calvino's Invisible Cities**, the congress explored the hidden dimensions of urban and territorial life, transcending conventional urbanist frameworks to incorporate spatial, environmental, and socio-economic perspectives. Such a multi-dimensional approach has never been more vital, as the very foundations of globalisation are being redefined and cities worldwide grapple with overlapping crises: climate change, socio-political instability, and widening economic disparities.

In line with ISOCARP's enduring commitment to advancing both theoretical and applied research, the congress placed particular emphasis on the relationships between local identities, spatial interdependencies, and planning

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methodologies. It highlighted the importance of territorial cohesion and responsible resource management, calling for innovative and adaptive governance models capable of addressing the deepening challenges of sustainability, equity, and resilience. The five thematic tracks of the congress framed a coherent and ambitious agenda, offering a roadmap for regenerative urban development and the enhancement of quality of life in cities, metropolitan areas, and regions:

- **Cultural Heritage for Sustainable and Climate-Resilient Futures**
- **Innovation, Creativity, and Legacy: Cities of/ for Tomorrow**
- **Urban Memories and Inclusive Regeneration**
- **Sustainable Urban Density**
- **Circular Urbanity**

Each track illuminated urgent contemporary issues, demonstrating how a comprehensive and inclusive vision can serve as a foundation for more sustainable, just, and forward-looking urban transformations. Together, they reaffirmed the critical need to:

- Integrate cultural heritage conservation within sustainability and climate resilience strategies;
- Promote innovation at the heart of governance structures;
- Support economic and environmental models rooted in long-term sustainability.

Among the most powerful takeaways from the congress were:

- The imperative to weave cultural heritage into the fabric of climate adaptation and sustainability policies;

- The transformative potential of digital tools, geospatial technologies, and participatory planning in shaping more adaptive, equitable urban futures;
- The need to strengthen multi-level, transnational, and cross-disciplinary cooperation to bridge widening territorial disparities;
- The importance of embedding circular economy principles within urban and regional development frameworks to optimise resource management and resilience.

The proceedings of the congress now stand as a comprehensive resource—a compendium of academic inquiry and practical wisdom that will guide scientists, scholars, and practitioners seeking to construct a more balanced, inclusive, and responsible, sustainable model of urban development. They challenge conventional paradigms, urging us to rethink the economic and governance structures needed to ensure that every citizen, irrespective of geography, can live free from the existential threats posed by climate change, conflict, and economic volatility.

Above all, the Siena Congress reaffirmed ISOCARP's role as a dynamic, forward-looking society. A society that not only responds to the emerging urban challenges of our time but actively shapes the future of the discipline. A society capable of producing original contributions, positioning itself as a leader in global urban and regional discourse, not merely an echo chamber of ideas forged elsewhere.

The ideas, research, and visions exchanged in Siena will continue to inspire the collective effort to create more inclusive, resilient, and sustainable urban environments across the globe.

Introduction

The **60th World Planning Congress** was **unique in the history of ISOCARP**. It was an extraordinary experience due to the creativity and innovation of Isocarp members and the City of Siena. The Congress was prepared by more than 50 members and a core team of the Municipality of Siena fully involved in the intellectual and organization components to provide high platforms of dialogue and exchange of experience between members. The originality of the Congress was based on the magic of the historic city, full of mindset for planners: the City of Italo Calvino, the author of the Invisible cities, the location of the fresco of the good government with the meaningful fresco representing the relation between urban and rural areas, the city who invented the pedestrian street. It is also the format of the Congress who not only delivered **430 papers** discussed within **5 tracks** and create **3 new awards (films, sketches and short texts)**, but also offered **Urban conversations** for real dialogues between members on key challenges of the contemporary world.

The Congress was rooted in the City of Siena with meetings and cocktails disseminated in the City, a dinner in a local community (contrada) that represent the contemporary tradition, sites visits, and by the production of projects (**mini UPAT and YPP**) for the City of Siena.

The high level of keynote speakers put the debate at the level of the contemporary challenges: how to connect heritage and innovation with **Jyoti Hosagrahar from the World Heritage Center of UNESCO**; how to adopt the new international paradigm of planners with



Eric Huybrechts
WPC60
Congress Director

Carlos Moreno from Sorbonne University, how the architecture can change city life with **Massimiliano Fuksas one of the most famous Italian architect**, how heritage adopt the integrated planning concept and methodology with **Jad Tabet** who **participated to** the preparation of the **Historical Urban Landscape Recommendation of UNESCO**, with **Orna Rosenfeld** from the **European Commission**, and how the narrative on cities drive city developments with **Chris Elisara funder of "A Story can change a city"**. Climate change, AI, social integration, resilience among other subjects were discussed.

More than **500 participants** coming from **70 countries** shows the vitality of ISOCARP able to mobilize all generations, renew its format, and deliver a **Congress Declaration** based on the debates to deliver key messages to the world.

Infinite thanks to the City of Siena, the large Congress team and all the participants that make the Diamond anniversary Congress of ISOCARP a fi ework.



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Introduction

It is an honor to contribute my personal perspective to the final proceedings of this remarkable event. Siena, with its rich history, is not only a jewel of Italy but a symbol of our shared civilization. Tuscany, the birthplace of the humanistic Renaissance, is also where many branches of natural science and creativity as a movement began.

For me, Siena represents a renaissance moment for ISOCARP, both as a nonprofit organization and as a network of professionals, educators, and friends. Historically, ISOCARP was predominantly European, but this event marked a shift. The statistics speak for themselves: two-thirds of the registered participants came from countries outside high-income regions - countries outside the EU and industrialized nations, many of whom had to apply for visas to attend the event. What's even more inspiring is that half of them were under **35, representing a new generation of Young Planners and Young Professionals**. ISOCARP is no longer just an institution attracting senior professionals; we have truly become global and inclusive.

ISOCARP now has the potential **to be a platform for underrepresented researchers and professionals from key regions outside Europe**—particularly the younger generations, who bear the responsibility of addressing the challenges that our generation has yet to resolve.

Reflecting on my takeaways from Siena: the discussions highlighted the ongoing tensions between global political forces, market interests, and our collective responsibility to apply evidence-based planning. **Key themes**



Rolf Schuett
WPC60
Programme Chair,
Director Young
Professionals
Programme,
ISOCARP Board
(2022-2025)

such as inclusivity, heritage, identity, and accessibility emerged time and again. As planners, we are tasked with advising on the best possible solutions, with our abilities limited only by our experience, our technical tools, and our creativity. Individually, we may not be able to offer complete solutions, nor can we expect to develop standardized tools and methods. However, as international, multicultural, and multigenerational teams, we are increasingly able to refine approaches that respond to the challenges facing global communities.

Most importantly, because every case is unique, and each city holds its own identity that requires tailored solutions, the diverse mix of disciplines, generations, and perspectives reaffirm that we must act locally but think globally. And now, as we connect, we should also embrace that global expertise.

I would like to express my deepest gratitude to all those who worked tirelessly to make this event a reality. The **WPC60 in Siena was a once-in-a-lifetime experience for all** of us, and the success of the event stands as the best reward.



About the Congress

Congress Team



Pietro Elisei
President, ISOCARP
(2021-2024)

Town and regional planner, senior researcher, and policymaker. He collaborated, as consultant, with ministries, cities and towns all over Europe, holding important positions in international organizations dedicated to urban planning (PLANUM SG, ISOCARP VP).

International expert in urban regeneration policies, integrated planning for small-medium sized cities and topics related to smart cities and strategic planning. A collaborator with EU universities and research centers, he works as international expert with international institutions (European Commission: URBACT and UIA Secretariats, UN-Habitat, UNECE) for important urban and territorial planning research/planning tasks. Dr. Elisei also routinely holds keynote speeches in international conferences and publishes a number of scientific articles on topics related to urban planning. Founder and Director of URBASOFIA (www.urbasofia.eu)



Eric Huybrechts
WPC60
Congress Director

Eric Huybrechts is a **senior Architect and Urban/Regional Planner**, co-chair of Habitat Professional Forum of UN-Habitat, Secretary General of the Metropolitan and Territorial

Planning Agencies global network (MTPA-gn), ex-Board member of ISOCARP, member of ICOMOS (CIVVIH expert), and Office of the Royal Order of Sahametrey (Cambodia). He is Canadian, French and Belgian.

He is the Head of the International affairs of the Institut Paris Region (www.institutparis-region.fr), one of the largest spatial planning institutes in the World. He has developed a considerable experience in the field of Urban and regional planning as an expert and team leader at all scales from public space, and historical urban center, to megacity, region and country in more than 20 countries. He has an academic experience as a scientific researcher in France and Middle East countries and as a lecturer in several universities in France and abroad (Paris universities, MIT...) mainly on Spatial planning in the Global South.



Rolf Schuett
Programme Chair,
Director YPP,
ISOCARP Board
(2022-2025)

Rolf Schuett was born in Bolivia. After finishing high-school in Hamburg he studied architecture and urban planning in Konstanz. He holds a masters degree in heritage studies from the Cottbus University of Technology. Rolf has worked in Bolivia, UK, Poland and Germany. He is a member of Isocarp since 2008 and has participated in several UPATs and YPP activities in the Middle East, Europe and Asia.

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Rolf is also vice chair of the International Association of World Heritage Professionals, based in Bamberg, Germany. His **expertise includes architectural design** (air transport, oil industry, commercial, culture, residential), **urban conservation, community development, resilience planning for informal settlements, urban revitalisation, GIS and digitalization**. His current projects include the design of sustainable local development schemes for the Stuttgart metropolitan region, development of strategies for healthy neighbourhoods and international research projects linked to heritage conservation.



Darinka Golubovic
Board Member,
Treasurer
(2021-2024)

Darinka Golubovic Matic is a full professor in the Faculty of Construction Management (Architecture and Urbanism; Civil Engineering) at the University of Union Nikola Tesla in Belgrade (Serbia). She is a **consultant, researcher and academic with experience in the field of civil engineering, urban and regional planning and environmental assessments** in different European countries. She has been a project manager and team member of different technical and advisory development projects. She is the author or co-author of more than 10 papers in international journals and has more than 20 conference contributions. Since 2003 she is a member of ISOCARP and The Serbian Chamber of Engineers. Her research interest is focusing on land use management, environmental as-

essment, civil engineering, transportation, urban mobility and GIS methods.



Sabina Reichert
Board Member
Communications
(2021-2024)

Executive Committee and Board director for Communications of the International Society of City and Regional Planners (ISOCARP), deputy director of URBASOFIA and former president of the Romanian Professional Planners Association. As an **urban and regional planner**, she is a **consultant and portfolio manager experienced in strategic planning, participatory processes, planning for nature-based solutions, decarbonization and new forms of urban governance**. With a PhD in instruments for integrated and sustainable planning in multi-level metropolitan contexts, her focus is on bridging development and policy gaps, more recently pertaining to support for the twin transition and net-zero land take objectives. She has also been involved in writing, implementing, and supporting city access to international research & innovation and cooperation projects, mostly under flagship European Commission programs. As a planner, she has worked on several national and regional studies, integrated urban development strategies for middle-sized cities and metropolitan areas in the EU, Sustainable Urban Mobility Plans, and sectoral strategies.

About the Congress

Congress Team



Ali A. Alraouf
Deputy

Ali A. Alraouf is an **architect, urban designer and planner interested in research and practice related to comprehensive sustainable design and urban planning**. He was a Visiting Scholar at the University of California at Berkeley-USA. Alraouf has held permanent and visiting teaching and research positions at regional and international universities. Alraouf is a registered architect and urban planner in Egypt, Bahrain and Qatar. He is an associate member of the American Institute of Architects, Middle East and Gulf Chapter. Alraouf published more than 105 journal refereed papers, critical reviews, essays, in addition to books and book chapters. Alraouf's current research interests are: Knowledge-based Urban Development, Post-Carbon Contemporary Gulf Cities, Museums in the Gulf, Urban vitalisation of historical districts, Knowledge and Creative cities. He serves on editorial boards and acts as a reviewer for international journals and conferences. He provides consultancy in numerous projects regionally and internationally and acts as a consultant for international organisations including UN-Habitat, UNESCO, ESCOWA, ICOMOS among others. He serves on editorial boards and acts as a reviewer for international journals and conferences.

He delivered lectures and presentations in over 25 countries and has been invited to present his research work at international institutions such as University of Oregon, Illinois

Institute of Technology, Drury University, Cambridge University, University of Seoul, Malaysia International University, University of Belgrade, and American Universities in Beirut, Sharjah, Kuwait and Cairo. Alraouf is the recipient of number of awards including the innovation award in environmental and sustainable planning from Ministry of scientific research in Egypt 2000, Modern Science and Arts University (MSA) Teaching Excellence Award 2004, Best Research Paper in Sharjah International Conference for Urban Planning 2008 and Research Publication Achievement Award from University of Bahrain 2009. Alraouf was selected as a member of 2012 Excel campaign at Qatar University and the distinguished speaker of the Arab Future Cities Summit 2016.

His book "Knowledge-based Urban Development in the Middle East" was awarded by ISOCARP in 2018. Alraouf's research paper was also awarded as the best research paper by a scholar at the UC- Berkeley biannual conference in 2018. Alraouf currently acts as Head of capacity building, training, research and development unit at Ministry of Municipality and Environment (MME) in Qatar. He is also a visiting professor at HBK University in Qatar-Education City, and the leader of Green Urbanism and Planning Group at Qatar Green Building Council (QGBC).



Wafa Al-Daily
Deputy

Dr. Wafa Al-Daily is a **senior urban planner, a researcher, a lecturer, and an international development expert** with a demonstrated working history for about two decades in academia, government agencies, NGOs, CBOs, local communities, and the private sector in the USA and the MENA region. She is experienced in urbanization, metropolitan planning, management and governance, urban recovery, smart/sustainable development, e/governance, DRRM, and informal settlements. She also has extensive management experience in international education and program administration and partnership development, global initiatives, capacity building, grants writing and implementation, and strategic planning. She is passionate about inclusive planning and has dedicated part of her professional career journey to supporting underserved and marginalized populations. Her experience spans a variety of groups, including women, youth, immigrants, people with disabilities, and indigenous peoples in both the USA and the MENA region.

Dr. Al-Daily is the Co-Founder and Executive Director of EHAAR International, LLC. She is the Lead of the International Metropolitan Fellowship Arabia Chapter and a member of the Board of Directors of the International Metropolitan Fellowship. She is an affiliate member, fellow and researcher of a number of centers and institutes, including the for Cooperative Problem Solving and Institute for

Policy and Governance at Virginia Tech University in the USA, International Metropolitan Fellowship in Spain, American Planning Association in the USA, International Society of City and Regional Planners in the Netherlands, Arab-German Young Academy of Sciences and Humanities in Germany, Gulf International Forum in the USA, and NAFSA Academy for International Education) in the USA. She has worked in a consulting capacity with a number of organizations, including the United Nations Children's Fund, URBAConsulting/World Bank Group, Social Fund for Development, and Qatar National Research Fund.

Dr. Al-Daily was a recipient of prestigious awards and fellowships including the American Association of University Women International Fellowship and Who's Who Among Students in the American Universities and Colleges. She was nominated for the President's Award for Excellence and the Alumni Award for International Outreach at Virginia Tech University in 2020.

Dr. Al-Daily is a certified practitioner of Kirton Adoption-Innovation Inventory Problem Solving and Cognitive Style, and a facilitator of intergroup dialogue and human relations. She earned a Ph.D. in Planning, Governance and Globalization from Virginia Tech (USA), a Master of City and Regional Studies from Rutgers University (USA), a Non-degree Diploma in Urban Planning and Community Development from Rutgers University (USA), and a Bachelor of Science in Architectural Engineering from Sana'a University (Yemen).

About the Congress

Local Organizing Committee



Paolo Bonari

Head of the Tourism Bureau of the Municipality of Siena, the first City of Art in Italy to be certified as a sustainable tourist destination based on GSTC standards. "Our daily commitment is to transform Siena into a modern tourist destination with well-organized services focused on environmental, cultural, and socio-economic sustainability."



Niccolò Fiorini

Postdoctoral Researcher in the Department of Business and Law at the University of Siena. He holds a PhD in Economics, Markets, and Institutions from the IMT School for Advanced Studies Lucca. His international academic background includes periods at the University of Cambridge, Fraunhofer Institute for Industrial Engineering IAO, WHU – Otto Beisheim School of Management, and University of Applied Management Studies (HdWM). Dr Fiorini is an accomplished lecturer at several Italian universities, where he also supervises theses and serves on multiple scientific committees. His research expertise lies in entrepreneurship, business, marketing, and innovation management. He is the Editor of Progress in Industrial Ecology, An International Journal, and has an extensive

record of publications in peer-reviewed journals. Additionally, he has been actively involved in a broad range of research projects and consultancy engagements.



Daniele Vettorato

Daniele leads a research team in urban and regional energy systems in the institute for Renewable Energy at EURAC Research, based in Bolzano, Italy. He holds a PhD from the University of Trento, focused on sustainable energy in cities and regions. Daniele has co-authored over 50 and has been invited as lecturer and speaker in more than 50 events.



Mariapiera Forgione

Communication and events consultant for the Municipality of Siena. Degree in Communication Sciences. Marketing and communication consultant, project planning and fundraising specialist, she works with public administration, also for European projects, and non profit organizations.

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Daniela Occhionero

Founder of FINE LIFE, a DMC and Tour Operator that provides tailor-made travel design and MICE services. After graduating in Law, she spent 8 years in China working in Communication and Hospitality. Once back in Siena, 12 years ago, she decided to establish FINE LIFE with a local partner to combine an international approach to a deep knowledge of the Region.



Mattia Barana

Communication and event consultant for the Municipality of Siena.

Degree and specialization in Art History; co-founder of belong.in, a start-up within the Department of Excellence in Political, Cognitive, and Social Sciences at the University of Siena, recognized as a university spin-off.

The start-up manages the communication for numerous prestigious cultural institutions in Siena and Florence. These include Teatri di Siena (up to 2924), Fondazione Musei Senesi, the “Pietro Farulli” Music Center, the international event “Saranno famosi nel vino,” several medical and clinical centers and various University Master’s Programs.



Fernando Nardi

Hydraulic engineer and hydrologist, is associate professor at the Department of Civil Engineering and Computer Science of University of Rome Tor Vergata. He is visiting professor at the Institute of Environment of Florida International University (FIU) and member of the FIU UNESCO Chair on Sustainable Water Security in Miami. Dr. Nardi is a water engineering expert with relevant experience in the coordination and execution of EU and international research and innovation programs fostering climate change adaptation, disaster risk reduction and resilient urban planning. His major academic publishing and technology transfer achievements relate to hydro-meteo risk, floods and droughts, numerical data and models, geospatial and earth observation intelligence, nature based solutions, NATCAT models for insurance and real estate risk mitigation. Prof. Nardi most recent efforts focus on transdisciplinary projects fostering synergies of engineering and earth sciences with social sciences and humanities.



Luri Bruni

Head of the Culture and Tourism Directorate of the Municipality of Siena.

About the Congress

The 60th ISOCARP World Planning Congress - “Reinventing the (In)Visible Cities: From Heritage to Innovation, Forging Pathways to Resilience” was held in the historic Italian city of Siena, from the 8th to 12th October 2024. The congress represented the highlight event of this special year and a part of the **ISOCARP’s 60th World Planning Congress Diamond Anniversary Series, celebrating 60 years of congresses**. Inspired by Italo Calvino’s visionary work in “Invisible Cities”, the comprehensive program encouraged all participants to imagine the unseen and strive for urban utopia(s) in a setting which stands both as a shining example of good governance and the symbol of the strong relationships between the city and the hinterland, depicted in Lorenzetti’s frescoes.

Prepared by ISOCARP with **50 volunteers**, the Congress attracted **500+ participants**, coming from **70+ countries** to discuss on **430 papers**, participate to **20 Urban conversations and Special sessions**, **9 high-level Keynotes** in plenary sessions, attend to **6 awards**, and mobilise **16 young planners** and **13 high-level professionals** on **placemaking charette** for the City of Siena. The Congress was rooted in the city through urban spaces which hosted sessions (famous Teatro dei Rinovati, Santa Maria de la Scala museum, University) and various events - from site visits and projects with local partners to gala dinners and gatherings in both historical sites and neighbourhood centres.

Siena, with its rich tapestry of history, commitment to innovation, and dedication to heritage preservation, was selected as a living embodiment of the main theme. Its pioneering spirit

is evident in its historic contributions to walkability and banking, showcasing a legacy of urban inventiveness that continues to shape its identity. As a vital stop along the historic Via Francigena pilgrimage route and the home of the vibrant Palio horse race, **Siena exemplifies the power of connection, tradition and progress, where culture and planning are embedded in communities**. Consequently, the UNESCO-listed centre, anchored by the iconic Piazza del Campo, provided a scenic canvas for envisioning the cities of tomorrow, while the treasures housed within the Duomo continuously showcased the city’s enduring excellence. Symbolising transformation, Santa Maria della Scala reflected the ISOCARP’s mission to bridge past and future, providing a fitting venue for discussions on urban resilience and innovation.

By reimagining city planning and design to accommodate innovation in all fields, the congress delegates honoured Siena’s unique historical significance **focusing on topics such as urban regeneration, leveraging cultural heritage for sustainable development, and combating climate change**. Gathering within city’s timeless embrace we were charting a course toward the future based in revitalised cities with sustainable urban legacy, healed and liberated from systemic inequalities. Through collective vision and shared commitment we were able to face the challenge of reinventing our cities - to meet the needs of the present, while preserving the essence of our past.

Congress Team



About the Congress

General Rapporteurs



**Aleksandra
Stupar**

Dr. Aleksandra Stupar is full professor at the University of Belgrade – Faculty of Architecture, where she graduated and obtained her magister and PhD degree. **The head of the Department of Urbanism (2017-2024)**. She has participated in numerous research projects and workshops, published articles and chapters in national and international journals and monographs focusing on the problems of contemporary cities. She is the author of two awarded books – ‘Grad globalizacije – izazovi, transformacije, simboli’ (‘The City of Globalisation – Challenges, Transformations, Symbols’, 2009) and ‘Grad – forme i procesi’ (‘The City – Forms and Processes’, 2016/2019/2024).

Her professional experience (research, education, practice) is related to the areas of urban studies, urban planning and urban history. Due to her focus on the themes of urban transition and urban innovations, especially their spatial, environmental and social implications, she conducted her work in a number of multidisciplinary teams gathering experts from various complementary fields (cultural studies, history, STS studies, sociology, anthropology, future studies etc.). Through the organisation and moderation of sessions, workshops and roundtables Dr. Stupar has addressed the occurring urban phenomena, the challenges of urban continuity and the emerging realities which

influence the sustainability and resilience of our habitats.

She has been a **visiting researcher** at the Institute for Advanced Studies on Science, Technology and Society (IAS-STs) in Graz (2007, 2011), the University of Tampere – School of Humanities and Social Sciences (2010-2013), as well as a guest lecturer at the Sapienza Università di Roma – Facoltà di architettura Valle Giulia (2006,2008-9), Urban Design Group, London (2014), University of Helsinki – Faculty of Social Sciences (2019) and Yildiz Technical University, Istanbul (2021).

Dr. Stupar has been a member of ISOCARP since 2003, served as the BM of the National Delegation of Serbia (2006-2015) and a member of Scientific Committee (2013-2016). **She is also a member of EAUH and was a national representative in AESOP (2018-22)**. **She received the 2007 Honorary Mention of the Gerd Albers Award, and the 2008 Gerd Albers Award for her publications.**



**Rajendra
Kumar**

Rajendra Kumar is architect, urbanist, author based in New Delhi, India and **Director of School of Architecture and Design**, Lovely Professional University, India. He is awarded as 'Most Admired Education Influencers in India 2022' and 'Global Educational Influencer 2020', 'Indian Young Achievers Award 2009'. He graduated from Chandigarh College of Architecture, India and Post-graduation from Politecnico Di Milano, Italy. He was listed as 12 notable alumni of Politecnico di Milano in 2022. He is Local Ambassador of Royal Institute of British Architects (RIBA), UK.

He is **member of International Society of City and Regional Planners (ISOCARP), Netherlands, Council of Tall Buildings and Urban Habitat (CTBUH), USA**. Received fellowship by Congress for New Urbanism, USA. He is actively involved in academia and research. Advisory member of various think tanks of national and international importance, invited members for various projects with global leaders including Prime Ministers, Governors, Ambassadors, Mayors, Policy makers, United Nation, WHO, UN Habitat etc. He has been Jury member of many prestigious awards including 'World Architecture Festival', advisor to Pritzker etc. During G20 Summit in India, he served as task force member for 'Y20 (Young 20) and invited expert member in 'Urban20' engagement groups of G20 Summit'.

He is **equipped with mixed experiences of varied scale projects, ranging from urban scale to buildings and interiors**. Appeared in TV Channels, Radio, Print and Online Media in India and abroad. 100+ publications and invited lectures, in national and international conferences. He lectured on many national and international forums on various issues related to cities, social issues, sustainable environment etc. at national and international forums in India, Spain, USA, UK, Poland, Portugal, Hong Kong, South Africa, Slovenia, Italy, Germany, Thailand, Malaysia, Russia, South Korea, Taiwan, including Columbia University, New York, Cambridge University, AA London, UK, FUAP Porto, University of Ljubljana, Slovenia, Gdansk University, Poland, and many more.

Introduction by General Rapporteurs

Marking a significant jubilee of the **International Society of City and Regional Planners** and the **60th** edition of world planning congresses, the 2024 WPC organised in Siena represented the culmination of the Diamond series which, once again, **celebrated an incredible amount of professional dedication, academic excellence and human interconnectedness**, generated by the members of our Society. This year, under the title 'Reinventing the (In)Visible Cities: From Heritage to Innovation, Forging Pathways to Resilience', our attention was directed toward the issues which influence the contemporary urban reality exposed to climate extremes, hyper-urbanisation, technological acceleration and growing instability. Within this scope, a variety of emerging topics was tackled by delegates, targeting a synergy between cities, urban society and development trajectories, while confirming both the complexity of recent theories and the contradictions of ongoing practice.

The program of the congress was multidimensional and immersive, structured around five main tracks. They were complemented by **mind-provoking keynote speeches (Carlos Moreno, Massimiliano Fuksas, Jad Tabet, Orna Rosenfeld, Chris Elisara), intriguing Urban Conversations, globally and locally alluring Special Sessions and creatively conceived mini-UPATs**. Highlighting the upcoming challenges, their causes and effects, the main tracks presented an opportunity to identify, study and resolve accumulating urban issues under diverse thematic frameworks - 1) **Cultural Heritage for Sustainable and Climate-Resilient Futures**,

2) **Innovation, creativity, legacy: Cities of/for Tomorrow**, 3) **Urban Memories and Inclusive Regeneration**, 4) **Sustainable Urban Density**, 5) **Circular Urbanity**. Focusing on both the historical and the emerging cities around discussing the methods and tools for the world, their different levels and scales, the sensitive condition of our cities was explored across **23 sub-themes**.

The **first track** addressed the possible roles of preservation and utilisation of cultural heritage within sustainable imperatives. It also considered the benefits of traditional knowledge, technological innovations and community-driven actions in achieving climate resilience and overcoming environmental risks. The **second track** was focused on innovative solutions which would support urban systems (mobility, accessibility, efficiency), upgrade planning process, and facilitate sustainable transition. The ideas related to governance (i.e. community engagement, collaboration, participation), inclusive urban design and digital advancement were also shared, along with the possibilities of restorative urbanism. The **third track** was dealing with a subtle relationship between urban memories, regeneration and community, emphasising several aspects and levels of its influence on planning methodologies and spatial/urban development - from culture and identity to health, general wellbeing and inclusivity.

The **fourth track** examined the problems related to sustainable urban density, climate adaptation and resilience while considering the elements of morphology, everyday life,

urban environment, data and normative frameworks. The promotion of mixed-use development, integrated green infrastructure and sustainable building practices and transportation systems were also elaborated, tracing the future development and further studies. The **fifth track** represented a stage for circular urbanity - its applicability, multidisciplinary, strategic possibilities, but it also revealed numerous challenges - due to complexity of circular processes and their fragmentation.

The intensive congress program encouraged dynamic debates, as well as local and global cooperation. Balancing between tradition and innovation, nature and technology, potentials and setbacks, all tracks explored a fragile structure of human settlements affected by the increasing uncertainty, multiplying global fears and anxieties. While confronting the ecology of fear with the ecology of hope some new horizons were outlined - based on sustainable transition, resilience, and benevolent socio-technical and ecological transformations.

Through merging, upgrading and refining of both the academic knowledge and professional achievements our intention was to identify the accurate condition of built environment and urban society, as well as the implications of ongoing and upcoming global processes. While searching for innovative responses, methods and tools, which could facilitate the inevitable urban shift to preferred development paradigms, the presented contributions also introduced new modes of comprehension and action.

All these outcomes might ease the rising tensions caused by the combustible reality around us. They could also support the anticipated sustainable transition or even increase urban resilience. However, additional steps are needed on our way to materialise wishful thinking or resonant global agendas. Each track turned the spotlight on many augmenting dilemmas of contemporary planning, development and transformations, encouraging open discussions and a dynamic transfer of information and experiences. The outcomes influenced and shaped key findings and recommendations within the tracks, but some overlapping issues were identified and they should be underlined as the imminent features of forthcoming planning actions and cross-disciplinary considerations:

- The holistic, future oriented approach in planning as a response to the anticipated dynamism, flexibility and adaptability of urban environment;
- The application of multifaceted methodologies based on the emerging trends/innovative tools which would incorporate the imperatives of sustainability, resilience, inclusivity, fairness;
- Civic engagement and inclusive decision-making;
- The synchronisation of the material and the digital realm leading to the synergy of natural, built and digital performances;
- The coordination and co-action between long-term perspectives and short-term plans;
- The sustainable and productive balance of international collaboration/programs/frameworks and bottom-up initiatives;
- The synchronisation of adopted strategies

and available/adequate toolkits, guidelines and recommendations;

- The re-utilization of resources and the management;
- The upgrading and intensification of circularity.

The contributions presented during the congress sessions also defined signposts for professionals involved in the future of environmental, territorial and urban transformations. Highlighting the importance of education, awareness, innovativeness and promotion, the imperatives of co-creation, co-production and co-benefits were frequently distinguished. Additionally, the necessity of multi-sectoral collaboration was stressed, including the intrinsic one - between architecture, urban design and urban planning, emanating beyond the elusive and often self-imposed professional margins.

The 60th ISOCARP World Planning Congress was a tremendous achievement and an incredible group effort. The selected team of track rapporteurs had a challenging task, which lasted several months, occasionally testing their physical endurance due to a high number of submitted proposals and participants, as well as the dense schedule of sessions. However, their dedication and professionalism have successfully and efficiently overcome all organisational challenges imposed by spatial limitations or technical obstacles. Therefore, we would like to express our gratitude to this amazing group of accomplished professionals who ensured the highest scientific level of the congress and these proceedings.

An omnipresent protagonist of the Diamond ISOCARP WPC should also be acknowledged - the City of Siena, representing a living embodiment of the congress topic due to its inherent urban sustainability and the legacy of community wellbeing, justice and wisdom depicted by Simone Martini and Ambrogio Lorenzetti. While its principal meeting node - Campo - continuously radiates its centrality and collective dynamism, the iconic event Palio could be seen as a metaphor for multiple global turbulences, completely in line with the famous poem of the Italian Nobel Prize winner Eugenio Montale (Palio, 1939). Considering this thematic and substantial overlapping, maybe the best guidelines for our future actions - IN and FOR our cities, as well as the built and the natural environment - could be found in the work of Guido Piovene, who described Siena as a place in which the past and the present, the near and the astral, seem to be a part of the same time (Viaggio in Italia, 1957).

And indeed, this transcendental quality of our host city represented a unique secret ingredient and a catalyst of all congress activities - able to annul the negative effects of colliding global forces, while ensuring a more sustainable, equitable and just urban future for all.

Grazie Siena, un laboratorio senza tempo di visibili ed invisibili città!

General Rapporteurs



Congress Tracks

Track 1. Cultural Heritage for Sustainable and Climate-Resilient Futures

Explore how preservation and utilization of cultural heritage can serve as a catalyst and/or powerful driver for sustainable urban development of resilient cities and regions.

- **Integrating Traditional Knowledge into Contemporary Planning:** Utilize indigenous and historical building techniques that emphasize sustainability and climate resilience in contemporary urban design.
- **Cultural Heritage Tourism:** Develop sustainable tourism strategies that leverage cultural heritage sites, boosting local economies while ensuring conservation.
- **Adaptive Reuse of Historical Structures:** Transform heritage buildings for modern uses, maintaining historical integrity and reducing the carbon footprint of new construction.
- **Energy-Efficient Restoration:** Retrofit heritage buildings with modern, energy-efficient technologies to reduce carbon emissions and enhance climate resilience.

Track 2. Innovation, creativity, legacy: Cities of/for Tomorrow

Discover innovative solutions for revitalizing cities and metropolitan regions, improving their mobility and efficiency, shaping their dynamic future and directing their evolution. Investigate creative and inventive technological, social and spatial solutions and planning approaches which support equity, inclusiveness, cooperation and collaboration, as well as digital upgrading, urban management and the efficiency and modernisation of urban systems.

- **Smart Infrastructure:** Implement advanced technologies like IoT and AI to optimize urban infrastructure, enhancing mobility, energy efficiency, and public services.
- **Inclusive Urban Design:** Create spaces and systems that promote accessibility and equity, ensuring all community members benefit from urban improvements.
- **Collaborative Governance:** Foster partnerships between government, private sector, and citizens to co-create solutions that address urban challenges.
- **Digital Urban Management:** Upgrade city management with digital tools for real-time monitoring, data analysis, and efficient resource allocation.

Track 3. Urban Memories and Inclusive Regeneration

Explore the preservation of intangible urban memories and inclusive regeneration practices, empowering communities and fostering social inclusion.

- **Community-Driven Preservation:** Engage local communities in documenting and preserving their intangible cultural heritage, ensuring their stories and traditions are honored in urban regeneration projects.
- **Inclusive Public Spaces:** Design and revitalize public spaces that reflect the diverse cultural histories and memories of all community members, promoting social cohesion.
- **Participatory Planning:** Involve residents in the planning and decision-making processes, ensuring regeneration efforts meet the needs and aspirations of all

groups, particularly marginalized populations.

- Cultural Programs and Events: Develop programs and events that celebrate and revive local traditions, enhancing community pride and connection to place

Track 4. Sustainable Urban Density

Examine approaches to sustainable urban density, balancing population growth with green spaces and sustainable design principles to create livable and resilient urban environments.

- Mixed-Use Development: Promote mixed-use developments that combine residential, commercial, and recreational spaces to reduce the need for extensive transportation and enhance community interaction.
- Green Infrastructure: Integrate green spaces, parks, and vertical gardens into urban design to improve air quality, manage stormwater, and provide recreational areas.
- Car lite strategies: Develop and expand efficient public/private transportation systems to reduce reliance on cars, lower emissions, and support higher density living.
- Sustainable Building Practices: Implement sustainable building techniques and materials that minimize environmental impact and enhance the energy efficiency of urban structures.

Track 5. Circular Urbanity

Discover strategies for implementing closed-loop systems and zero-waste planning in

cities, fostering resilience and sustainability while minimizing environmental impact.

- Zero-Waste Initiatives: Promote policies and practices that reduce waste generation, encourage recycling, and support composting, aiming for a circular economy.
- Resource Recovery: Develop systems for reclaiming and reusing materials from construction, industry, and consumer goods to minimize landfill use and resource depletion.
- Sustainable Urban Agriculture: Implement urban farming projects that utilize organic waste for compost and reduce food transportation emissions, creating local, sustainable food sources.
- Water Recycling Systems: Integrate advanced water recycling and rainwater harvesting technologies in urban planning to reduce water waste and ensure sustainable water management.

Urban Conversations and Special Sessions

by Judith Ryser

Curator and team leader of the Special Sessions and the Urban Conversations, with the contribution of the facilitating and mentoring team: Hadeel Abuzaid, Monica Bonu, Elena Batunova, Ronit Davidovici-Marton, Mani Dhingra, Serin Geambazu, Nasim Iranmanesh, Hanna Obracht-Prondzyńska, Holly Pearson, Jonila Prifti, Shinjini Saha, Priyanka Sawant-Purohit, Rolf Schuett, Abimbola Tofowomo, Eunice Yorgri

The ambition of Pietro Elisei was to make the congress in his home country a very special event during the last year of his ISOCARP presidency. He conceived Urban Conversations and Special Sessions to provide informal opportunities for the participants of the ISOCARP 60th anniversary congress to share their wealth of practical and tacit knowledge. The aim of Pietro Elisei's initiative was to offer individual and corporate members of ISOCARP opportunities to exchange experiences, projects and research of their choice, face to face, in the exquisite historical spaces the host city had made available, and to develop ideas together at informal discussions towards a more sustainable urban future.

These innovative gatherings formed an integral part of the deliberately multivariate congress programme Pietro Elisei had developed with the host city Siena. This included the innovative Urban Conversations and Special Sessions held in historical settings of the city centre, at universities and other public buildings. Globally reputed as a unique jewel of urbanity, honoured by a UNESCO Cities of Culture Award, venerated worldwide by many professional and cultural



Judith Ryser
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Conversations

organisations, Siena was the perfect place to reflect on the essence of 'The City': complex beyond grasp, ambiguously formless, in constant flux, inviting to get a feel for Siena rather than to merely appreciate its unique architecture and urbanism; in Italo Cavino's words: "You take delight not in a city's seven or seventy wonders, but in the answer it gives to a question of yours".

The complexity confronting planners when seeking meaningful solutions to the pressing challenges cities are facing was reflected in the wide variety of topics selected by the initiators of Urban Conversations and Special Sessions. Thanks to the competent assistance of the dedicated team of ISOCARP volunteer mentors and facilitators the eight Special Sessions and ten Urban Conversations stimulated new encounters and constructive exchanges at these face to face events.

[Read More About the Congress](#)





Special Sessions by Institutional ISOCARP Members

“Reinventing the (In)visible City”

UNESCO took up this theme at its Special Session on ***“UNESCO World Heritage Sites: Between Overtourism and Everyday Life”***, exploring how heritage issues affecting real cities could be made visible. [allocated mentor/facilitator Ronit Davidovici-Marton].

Post-pandemic dynamics and climate change triggered profoundly new social dynamics which calls for innovative forms of spatial planning and territorial development for all heritage sites, ranging from big cities to small towns, in urban and rural settings. It became a matter of balancing the difficult equilibrium between globalisation and local identities, tourism dynamics and local economies, stereotypes and everyday life of “invisible” citizens. This necessitates the participation of civil society at all levels: from collaborative regional planning and design to urban co-design in neighbourhoods. Six different stakeholders were unravelling the relation between management plans for the UNESCO sites, local policies and strategies and “statutory” planning: Carlos Francini on Florence, Iago Lestergas Tizon on Santiago De Compostela, Galicia Spain, Katia Basili on Venice, Li Fan on China, Manana Tevzadze on Georgia, Chiara Ronchini on Spa Towns in Europe and the participation of hosts.

“Sustainable Heritage Preservation and Regeneration”

The City of Siena selected this theme to focus on its own specific challenges of cultural heritage: ***“Santa Maria della Scala SM Scotte: Past, Present and Future of the Connection between the Hospital, the Museum Complex***

and the City”. [allocated mentor/facilitator Elena Batunova].

Leone Chiara Valdambri provided an in-depth overview of the evolution of Santa Maria della Scala, a vast architectural complex in Siena. Founded in the late 12th century as a medieval hospital, it expanded significantly by the mid-15th century to serve pilgrims, the sick, and the poor, including abandoned children. After ceasing to function as a hospital by the end of the last century, it became the focus of an extensive restoration project starting in the 1980s, enabling it to maintain its historical legacy of hospitality. Today, Santa Maria della Scala functions as a museum, and is aiming to become an inspiring cultural and creative centre by repurposing unused areas to foster artistic and cultural activities as complement to the existing museum, and to expand its role as a hub for diverse forms of cultural expression. Antonio Davide Barretta presented the evolution of healthcare in Siena, focusing on the transformation from Santa Maria della Scala to the modern complex at Santa Maria alle Scotte. Initially a medieval refuge for pilgrims SM Scotte gradually merged with the university in the 19th century, laying the groundwork for today’s hospital, which integrates research, education and medical care and is evolving into a state-of-the-art facility. The hospital’s new masterplan will significantly reshape its infrastructure and connection with the city, thereby benefitting both the local population and its broader, national audience. This transformation reflects the hospital’s continuous commitment to innovation, preserving the historical legacy while modernising to meet contemporary healthcare needs.

The city of Siena elaborated further on the connection between the city and its universities at its Special Session on **“Territories and University Cities”**.

The China Urban Planning Society presented a number of sustainable heritage cases to explore **“Sustainable heritage, Innovating for Tomorrow while Honouring the Past: the State of the Art in China”**. [allocated mentors/facilitators Eunice Yorgri, Hadeel Abuzaid, Pryanika Sawant-Purohit].

Senior planners presented impressive regeneration projects and realisations of China’s most prominent heritage sites: the Forbidden City of Beijing; the Grand Canal National Park with its 13 port cities; the Ming Dynasty tombs area; the innovative reuse of a national heritage park. In a more theoretical paper an author explored the co-occurrence of virtuality and reality, by using digital technology for urban conservation and regeneration. This session was transmitted to China with simultaneous transcripts in English and Chinese, arguably the most impressive application of AI at the congress.

“Climate Resilience”

UN HABITAT and IFLA chose this topic to deliberate on **“Landscape Architecture and Planning for Climate-Resilient Cities: From Vision to Implementation”**. [allocated mentor/facilitator Elena Batunova].

Maria Gabriella Trovato presented “Cities, Landscapes and Planning for socio-environmental justice”, discussing how landscape architects are playing a critical role in addressing climate impacts and fostering resilient communities. Nature-based design was contributing to reduce risks for communities facing severe climate threats. By focusing on

resilience, safety and long-term well-being, landscape architects create sustainable solutions that improve overall community health. The Kounkuey Design Initiative undertook work in under-resourced communities, aiming to advance equity and activate the untapped potential of neighbourhoods through collaborative design efforts. “Addressing Climate Resilience from Regional to Neighbourhood Planning: The Case of Conakry, Guinea” Irene Solà Comalada focused on strategies for climate resilience at different scales, using Conakry, Guinea as a case study to illustrate the challenges and solutions for adapting urban and regional planning to climate impacts.

A lively discussion unfolded with contributions from notable experts: Pietro Elisei, President of ISOCARP; Sabina Reichert, José-Luis Cortés Delgado and Mona Rady. The conversation focused on the future of urban and regional planning, underscoring the need for collaborative strategies to enhance resilience and tackle environmental challenges. A shared conclusion emerged: the necessity to unite efforts and embrace transdisciplinary approaches to effectively address the complex issues facing contemporary urban development.

The European Union reported on **“100 Climate City Contracts: What Urban Design for Climate Neutral Smart Cities?”** organised by ASSURB. [allocated mentor/facilitator Elena Batunova].

The session focused on sharing the outcomes of policy implementations by Italian cities to achieve climate neutrality under the EU Mission for Climate-Neutral and Smart Cities. This initiative aims to guide 100 cities to climate neutrality by 2030, positioning them

as innovation hubs to inspire broader European change by 2050. These cities created Climate City Contracts, detailing action plans with local stakeholders, thereby receiving an EU Mission Label to aid funding and implementation. The mission drives green and digital transformation supporting the emission reduction targets of the European Green Deal. Adriano Bisello and Niccolò Fiorini introduced the session, followed by Elena Ricci on “Net Zero Cities”. Part of the Horizon 2020 Research and Innovation Programme. The project aims to support cities in achieving climate neutrality by addressing structural, institutional, and cultural barriers. In Italy 11 cities are involved in the project: Bergamo, Bologna, Florence, Genoa, L’Aquila, Milan, Padua, Parma, Prato, Rome, Turin. The cities are also pilot cities of “Let’s Gov!” (Governing the Transition through Pilot Actions), financed by the EU. The main focus was on differences of the objectives and actions of these cities towards climate neutrality depending on their current situations (industrial and infrastructural development, economic specialisation, etc.). Parma, Florence and Padua presented their practical experiences in implementing policies to achieve tangible results by 2030.

Participants of the ensuing discussion included Pietro Elisei, President of ISOCARP, Markus Hedorfer, Chiara Panigatta, Maria Beatrice Andreucci, and Israa H. Mahmoud. The discussion highlighted the challenges affecting the adaptability of urban planning and the need for flexibility in regulatory frameworks. It also emphasised effective communication between public and private sectors and a well-defined role for urban planning, especially in rural areas. Engaging citizens and translating technical language into more

accessible terms were deemed essential, along with involving social sciences to collaborate better with stakeholders. The discussions stressed the importance of understanding the role of urban planning professionals and fostering cooperation with universities to improve methodologies and outcomes.



Urban Conversations Initiated by Individual ISOCARP Members and the ISOCARP Institute

The topics varied widely. Urban regeneration was considered from both the planners' and the users' point of view, including minority groups like people with visual impairments. Others focused on how to alleviate adverse climate change by focusing planning on energy and environmental issues and accelerating green transition by resorting, inter alia, to nature base solutions. Most Urban Conversations were concentrating on community engagement, participation and co-creation, by applying different planning tools, including AI and gaming. There were also experiments with story-telling and other qualitative innovative approaches for community development and the preservation of social values during the regeneration process.

More specifically, the Urban Conversations concentrated on the latest technical planning tools: the use of generative artificial intelligence in planning; action-positive energy districts; integrated urban investment; nature-based solutions; techniques to plan for blind and partially-sighted city users; co-creation methods to stimulate active travel; the use of the storytelling method in participatory planning; and purpose-designed participatory games for more equitable community involvement. At the strategic level, they explored new policies adjusted to sustainable regeneration and better integration between cultural and physical heritage, as well as explicit measures to preserve social values. The sessions held in a round without technical props were the most conducive to generating inclusive participation of all those present,

and thus to harness the collective knowledge of both practising planners and academics.

Urban regeneration

Yoann Clouet of the ISOCARP Institute used four case studies of its extensive work on ***“Regeneration of our Urban Environment, Rethinking How and Where we Live”*** to identify common planning challenges. [allocated mentors/facilitators Eunice Yorgri, Abimbola Tofowowo]. Anneloes Van Noordt commented on the "Climate Neighbourhoods" project in Belgium Flanders, with pilot sites in Kortrijk, Leuven, and Mechelen. Clotilde Havard discussed how the French programme ***“Small Cities of Tomorrow”*** supports smaller municipalities in the regeneration of their urban centres by allocating funds and capacities. James White and Gareth James highlighted the UK perspective of addressing ***“Large-Scale Retrofitting”*** efforts through a coordinated approach by bringing together government bodies, private sector stakeholders, and local communities to drive impactful change. Nur Muhammad Gito Wibowo reflected on the efforts to retrofit Jakarta's built environment, resorting to the relocation of the Indonesian capital to the ***“New capital City of Nusantara”***. Niccolo Fiorino added the perspective of the host city Siena.

Common planning challenges included the need of ***“Capacity Building”*** to improve mixed governance; better coordination across sectors and scales; tackling gentrification, lack of inclusion and power imbalance between the developers and local communities. All these issues required improved governance frameworks but, most of all, better communication and engagement with local communities to include their aspirations. This could be achieved practically by early and continuous

community involvement and trust building; innovative approaches, such as allocating dedicated spaces for continuous interaction between the planners and the planned; and dealing with obstacles which are slowing down the implementation process.

Regeneration also raises the issue of ***“Balancing between Preservation and new Development”***. The preference went to reusing older buildings better, instead of demolition and reconstruction driven by speculative developers who produce unused surplus - “ruins of the future” in some viewpoints. ***“Principles of Degrowth”*** were evoked, as well as prioritising quality of life. Scaling up of such local initiatives was a future aspirations and remains to be realised.

Manfred Schrenk and his team of researchers addressed ***“Really Invisible Cities, a Reality for Blind and Visually Impaired Persons”***, researched in the CE-Spaces4All project, supported by the European Disability Forum, the European Network for Sustainable Tourism which researched ***“Invisible Cities for Travelling and Tourism”***, and ONCE an internationally campaigning Spanish organisation for the blind. [allocated mentors/facilitators Hadeel Abuzaid, Jonila Prifti].

The purpose of discussing ***“Inclusive Invisible Cities, how to deal with blindness and visual impairments in urban and regional planning”*** was to bring ‘real invisible cities’ into the visibility spectrum of the global planning community. Blaz Barboric elaborated ***“The Purpose of Planning is to create Accessible Places for All”*** with focus on impaired tourists. Rachele Paolucci informed on latest work of Siena towards the European Network for Accessible Tourism. When talking about ***“Invisible Cities in Everyday Life”*** Daniele Ma-

rano passed round ‘glasses’ for the audience to experience partial visual impairment and its impact on the need to use the urban environment by resorting to their other basic senses. The EU initiative for “AccessibleEU” is corroborating the rights of persons with disabilities. The discussion concluded that there was a pressing need for planning to dedicate more attention to the special needs of all minority groups in cities when elaborating urban regeneration strategies.

Ulrich Graute from the ISOCARP Scientific Committee initiated the debate on ***“AI applications as Tools and Co-Pilot to make Cities more Inclusive, Prosperous and Sustainable – AI Ethics”***, together with the UNSW Cities Institute, Sydney. [allocated mentors/facilitators Hanna Obracht-Prondzynska, Mani Dhingra].

The growth and demands of cities are rapidly changing and are adopting new planning systems and tools. Artificial Intelligence (AI) can provide a transformative potential in managing and planning cities. It can support, analyse and predict the impact of policy changes, demographic shifts and development plans. It can facilitate a valuable foundation for productive dialogue and constructive debate between the key stakeholders of city planning, including municipal authorities, citizens, and both the public and the private sector generally. Nevertheless, the rapidly evolving technology landscape requires awareness of the risks and pitfalls of planning professionals and key decision-makers. The discussion on the use of AI cannot be left solely to engineering experts and requires planners, architects and city managers to adopt AI to their professional benefit. For that reason the urban conversation had brought together planning practitioners and

experts from city-making to discuss the use and potential impact of AI on urban planning and management and the related leadership of ISOCARP in the global dialogue on AI governance and capacity building of planners. Sarah Hill gave a highly informative keynote on Aerotropolis, the new city of Bradfield in Western Sydney Australia to illustrate **“21st Century City Making through community, creativity and innovation”**. Sunil Dubey, showed examples of how the UNSW Cities Institute Sydney, as well as well Saudi cities were employing data and AI to manage daily urban operations.

The panel discussion between ISOCARP president elect Elisabeth Belpaire and the congress director Eric Huybrecht, moderated by Ulrich Graute, highlighted the use of AI in stakeholder collaboration, public consultation and management of widely available big urban data. As the machine-readable AI language is evolving rapidly, the time and context of AI applications are extremely critical. The session advocated a necessary balance between the responsible use of data for building people’s trust in AI and digital technologies and its mindful adoption for urban decisions.

Climate change alleviation

The purpose of the session on **“COST Action Positive Energy Districts European Network (PED-EU-NET)”** was to mobilise researchers and stakeholders to drive and deploy Action Positive Energy Districts more widely. [allocated mentor/facilitator Serin Geambazu, Monica Bonu]. Maria Beatrice Andreucci and Ghasal Etmnan of Working Group 4 in charge of dissemination explained the holistic evaluation approach and organisation of **COST**. Adriano Bisello, Marco Volpatti, Elena Mazzola and

Matthias Haase presented the EURAC research of COST’s scientific Working Group 3 on the success factors of PED Labs towards the transition to green energy. They showed how their work also advanced the ESG criteria of resource circularity, fairness and governance co-creation. The longer term objective of COST is to scale up PED by introducing new practices in urban construction and regeneration activities.

The ISOCARP Institute promoted sustainable practices in the urban regeneration process by implementing the EU funded JUSTNature and VARCITIES projects on **“Nature Based Solutions for Urban Regeneration”**. [allocated mentors/facilitators Nasim Iranmanesh, Shinjini Saha]. Tanya Pico presented the transformative potential of nature-based solutions (NbS) in addressing urban challenges such as climate resilience, biodiversity loss, and sustainable urban development. Examples provided insights into diverse applications of NbS. Dundalk (Ireland) focused on mitigating urban heat islands and enhancing stormwater management through green roofs and other vegetation-based infrastructure. Surat (India) combined green mobility (NMT and PBS) with coastal resilience, emphasising integration with local biodiversity conservation and stakeholder capacity-building. Bolzano (Italy) prioritised stream restoration projects to improve water quality and create multifunctional public spaces that encourage community interaction and ecological benefits. Quito (Ecuador) highlighted biodiversity preservation within the urban landscape, integrating sustainable urban planning with ecological conservation to strengthen resilience. These projects showcased the versatility of NbS in fostering ecological balance,



improving public health, and promoting social inclusion by integrating nature into the fabric of urban areas.

The presentations identified key enablers that drive the success of these projects, such as strong policy frameworks, financial support from entities like the European Union, collaboration between public and private sectors, and inclusive stakeholder engagement. They also outlined the barriers to implementation, including financial constraints, geopolitical uncertainties, lengthy timelines due to differing stakeholder priorities, and the lack of a shared understanding of what NbS entails. They argued that these challenges underscored the necessity for adaptive governance structures, robust funding models, and participatory approaches to navigate complexities and maximise the impact of NbS initiatives. Critical success factors of NbS were effective institutional frameworks, availability of financial resources (e.g. EU funds), and strong multi-stakeholder collaboration in ensuring the design, implementation, and long-term maintenance of NbS projects. The importance of community engagement was highlighted, ensuring that solutions are contextually relevant and widely supported. They also identified common challenges and barriers of NbS despite their potential, such as limited financial resources, lack of technical knowledge, and delays caused by conflicting stakeholder priorities. A significant challenge was the lack of a clear and unified understanding of NbS among stakeholders, which hinders effective implementation. These barriers were seen to be particularly pronounced in cities with limited policy and financial support structures. The examples showed that NbS projects were able to provide a wide array of benefits,

including ecological restoration, improved public health, climate resilience, and social inclusion. Surat and Dundalk demonstrated how locally tailored approaches could be replicated or scaled up to similar environmental and socio-economic contexts. The comparison of successful NbS implementation across cities with varied socio-economic and climatic contexts was promising for scalability. However, the replicability of NbS as a strategic approach to urban sustainability depended on the adoption of integrated planning, aligning environmental goals with social and economic development objectives. Overall, the examples highlighted that co-creating solutions with communities to enhance ownership and long-term sustainability were reinforcing NbS as a critical tool for building resilient, inclusive, and liveable urban environments.

Another innovative topic initiated by the ISOCARP President Pietro Elisei and his team was ***“Integrated Urban Investment, Planning, Monitoring and Green Transition”***. [allocated mentor/facilitator Serin Geambazu, Pryanika Sawant-Purohit].

The aim was to explore the complexities of coordinating urban investments in today’s rapidly changing environment, with focus on how to integrate various funding streams—national, regional, and EU programmes such as NextGenerationEU, while addressing sustainability and social equity in urban planning.

The specific issues addressed were: the need for better coordination between national, regional, and EU funding sources to ensure alignment across different levels of governance and thereby promoting place-based approaches that balance regional development

and reduce urban-rural disparities; methods to optimise the relationship between funding for territorial and social cohesion policies; national and urban strategies to ensure that these investments accelerate the green transition and, in particular, the effectiveness of existing EU policies (UIA, URBACT, ESPON etc) in achieving the goal of resilience and recovery while maintaining social and territorial cohesion.

Community Engagement and Participatory Planning

Involved in the “i3.0 Partnership”, the EURAC researchers Alice Borsari, Elisa Elena Basiliu, Irene Bertolami and Adriano Bisello, organised a highly interactive participatory game to explore the use of **“Innovative Approaches for Local Community Development: the Dive-Into-Springfield Game”**. [allocated mentors/facilitators Mani Dhingra, Holly Pearson].

Applied to a fictitious place the game was based on small isolated Croatian communities presented by Federica Maino, Cvjetana Plavša, Lidija Žganjer Gržetić and Đurđa Vrljević Šarić. Approximately 60% of the European population lives in small towns, suburbs, and rural areas and deals with consistent local challenges, such as ageing demographics, economic issues, population decline, and digital and social divide.

The participatory experiment carried out by three groups with six participants in each group focused on sustainable development of culture, digital knowledge and philanthropy for a five year timespan, by impersonating citizen types provided for the game on cards to advance innovative strategies of community engagement and, in particular, stimulate collaboration between diverse social groups. The aim was to identify local strengths and

reduce existing weaknesses through innovative local strategies. The participants deliberated these problems and challenges by using a map of this imagined community. They proposed solutions together, based on the identified needs and types of community members attributed by drawing cards. It was a very hands-on exercise for the participants who enjoyed playful brainstorming, sketching, and pasting stickers to present the outcome of their discussions to each other during the communal final discussion. The outcomes represented a series of diverse innovative proposals by each group to channel local knowledge and skills transfer between elderly and youth, build social connections, harness local economic opportunities and leverage existing conditions for preserving community values of social cohesion, environmental sustainability and cultural vitality. What united all the groups was giving high priority to local identity and character of rural and small-scale communities.

The debate on **“Social Value in Regeneration”** organised by ARU, Homes England, and the Quality of Life Foundation aimed to challenge the status quo of built environment practitioners worldwide which attracted a lot of interest. [allocated mentors/facilitators Holly Pearson, Shinjini Saha].

Ioana Ghergel and Riccardo Bobisse noted that in the built environment industry social values were often tokenistic and addressed only at the late project stages. Their research aimed to understand social needs of the community better and to develop a method to measure social impacts of urban regeneration to enable inclusion of genuinely meaningful, place-specific responses early into the implementation of projects. Aware of this

politically sensitive, and resource and time intensive process, they expected the participants to contribute ideas and practical solutions to their approach. They aimed to facilitate knowledge sharing by exploring locally specific social outputs, barriers to social value implementation. They introduced Place-Based Indicators and post-occupancy evaluation methods developed by the Quality of Life Foundation, to examine health and wellbeing outcomes after regeneration.

The discussion explored the social regeneration processes in urban planning across diverse global cities by adopting the “fish-bowl” format. In Brazil, social value was a contentious topic, often dominated by powerful enterprises, leaving local residents with limited access to planning processes. This imbalance demonstrated the need for more inclusive decision-making to ensure that social value reflected the interests of broader communities. In Paris, a transportation resettlement project highlighted similar tensions, with challenges arising from the need to quantify social value—a concept distinct from social capital and difficult to measure. The complexities of political influence also shaped these dynamics, as specific groups maintained control over decision-making processes. In Mumbai, India, the Mumbai Climate Action Plan became the first to include a dedicated gender chapter, highlighting the importance of integrated planning while ensuring active participation of women in urban development processes. Oakland, USA, faced issues related to new housing developments near transit areas, where rising housing costs and the displacement of long-time residents generated fear and resistance, while clear quantitative success metrics were lacking. Eastern European cities dea-

ling with urban regeneration faced mistrust from local populations when initiatives were led by government bodies, signalling a need for community engagement and transparency. In China, the “cold construction” approach involved collaboration between political, planning, and civil society entities, balancing social and economic needs in development. Meanwhile, Doha, Qatar contended with the social needs of both local and transient populations, requiring sensitivity to cultural and religious customs. Governance challenges, such as aligning urban planning with administration across different levels, highlighted the complexity of meeting the needs of an international city. Incorporating disaggregated data on gender and minority groups was essential to understand and address these shifting social dynamics.

Key takeaways from the discussion emphasised that urban regeneration was not ‘one-size-fits-all’ but demanded context-sensitive and inclusive approaches. This meant addressing issues like housing affordability and displacement while fostering community trust. Effective planning had to strike a balance between quantitative and qualitative measures, especially when dealing with societal values that vary across cities. Ultimately, achieving social value in urban planning required involving diverse stakeholders, addressing political biases, and ensuring that community needs were met equitably. Planning had to go beyond mere political motives, and embrace educational and bottom-up initiatives to foster sustainable and resilient communities. Those present concluded that for urban planning to be successful it had to balance quantitative and qualitative data and include diverse stakeholders to achieve inclusive, sustainable development.



The aim of *“Urban Storytelling for Participatory Exchange: How our Experiences of the City can be Used to Build Inclusive and Resilient Futures”* was to demonstrate both the power and value of storytelling as an urban participatory process. Samir Amin and Taliah Dommerholt of the ISOCARP Institute presented a complete Urban Storytelling methodology. [allocated mentors/facilitators Ronit Davidovici-Marton, Abimbola Tofowowo, Monica Bonu]. A story is one of the oldest tools for communication between humans. Storytelling is a fundamental process of sharing learning and experiences through the creation of a collective space, be it physical, digital or imagined. Over the years, a variety of tools have been developed enabling the public to participate in planning processes through a story. As a tool, storytelling provides a basis to promote spaces that facilitate the co-exchange of knowledge, ideas, and experiences between stakeholders, acting as meeting points within complex interactions. The premise is that through telling stories, both cognitive and affective domains of learning are engaged, resulting in modes of communication based on lived experiences as productive and intersectional points of co-learning. The significant challenge in such a process is the ‘translation’ of the story into planning inputs. The session was designed to introduce the participants to a broad and central issue in the world of planning: whether and how AI can be integrated into public participation processes based on storytelling, Drawing on collaborative work from multiple applied research and development projects (e.g. the Horizon Europe projects *“Democratising Just Sustainability Transitions -DUST”* and *“Urban Planning and Design ready for 2030-UP2030”*) the researchers demonstrated both the pow

er and value of storytelling as an urban participatory process, in the form of a complete urban storytelling methodology for its deployment in complex settings. Examination of typical pitfalls in participatory processes informed the design of a methodology that dealt with participatory fatigue, complex stakeholder dynamics, and communicative barriers. Demonstrations and discussions on the methodology aimed to explore how inhabitants could be guided through storytelling processes, and how their outputs could be connected to different societal sectors: policymaking, activism, the arts, and academia, to create momentum towards shared goals in urban planning and development. The participants were invited to play with an AI-driven storytelling tool. However, storytelling by participants was constrained by guiding questions, which contradicted the essential spontaneous nature of storytelling based on free speech from memory. All the responses were fed into an AI platform, which generated images and narratives. It was fascinating to see AI translate such thoughts into visual scenes. However, this exercise also showed when AI missed the mark, especially in human imagination. For instance, AI interpreted the idea that a tree could bring life to the community into a tree-shape glowing with stars and colourful lights. The psychedelic images produced by this process highlighting that the visualisation capabilities of AI still have a long way to go. All this illustrated AI’s current limitations and its tendency to deviate occasionally from realistic interpretations. These experiences reinforced the belief that, while AI may be able to enhance urban storytelling through visualisation, it should be carefully contextualised to prevent it from creating false impressions.

AI, like any powerful tool, has the potential to reshape urban planning but as a complement, not to replace real-life examples and vigorous analyses. Some organisations using AI-generated images were used to showcase things like green roofs or heritage sites, even when real examples were available. While AI-generated visuals can inspire ideas, real images can communicate achievable outcomes better. The session provoked a lively debate, and raised some key issues about the usual fear of new technologies, the interface between a private story and the 'anonymous' AI; intercultural differences in the use and interpretation of AI; whether from a methodological point of view AI was suitable to replace qualitative interviews; whether AI was able to shorten the participation process in practice and whether this was useful and/or desirable. The session concluded that planners and urban professionals should not let AI replace planning work. AI should be used as a support tool and not for decision making. In storytelling for participatory planning, AI should be used with caution to prevent misinterpretation and unrealistic expectations of the stakeholders. Thus, AI may be more suitable for testing questionnaires and structured processes and less as personal social tools that requires free discourse without structured guidance. An AI image will never replace a field photo, but it can inspire further outside-the-box thinking. When introducing new technologies into planning it is important to develop new management methodologies and new tools to manage and plan with the new technology. This may mean that change would not only affect technology but planners and planning as well, if planners want to ensure that they manage the technology in

stead of the technology managing them.

Jack Lehane, Many Dhingra and Aphra Kerr presented their research on active travel carried out at the University College Dublin as the “*Trojan Bicycle, a Co-creation Workshop for (Latent) Active Travel Policy Pathways*”. [mentors/facilitators Nasim Iranmanesh, Jonila Prifti]. Multiple international actors such as the World Health Organisation (WHO), United Nations (UN) and the World Economic Forum (WEF) have increasingly recognised the importance of urban planning in population health, inclusive of social, economic, environmental, structural and cultural drivers. However, while challenges may be shared between cities and regions, bureaucratic remit at the local level can often limit the formal engagement of local authorities with interconnected urban health determinants, necessitating different solutions at the local level. This restricts the inclusion of local knowledge and perspectives within tech-driven urbanism, understanding of associated health disparities, and the identification of patterns in city planning and urban governance that could otherwise scale population health impacts. Active travel – whereby citizens make journeys in physically active ways like walking, wheeling and cycling – is an example of a practice that cuts across multiple sectors and bureaucratic jurisdictions such as transport and mobility, climate and environment, community development, enterprise and commerce, and tourism. As a shared urban practice at the local authority level, it can serve as a ‘proxy’ to enable different organisations to exchange learning outcomes for latent and un(der)represented, yet interdependent, best practices for urban determinants of health.

This inclusive workshop, structured into orientation, co-creation and evaluation, invited also those without prior knowledge or experience in active travel. The workshop adopted established co-creation methodologies to map, mediate and mobilise policy challenges and opportunities for regional and local digital transformation via active travel practices. Guided by the quadruple helix innovation model for digital transformation, the workshop adopted a holistic perspective for healthy urbanism. The aim was to engage a diversity of stakeholders from local, regional and national levels across sectors (public sector, industry, academia, civil society) to learn from alternative approaches to intermediating public sector practice.

The presentation of active travel practices and the public sector landscape in Ireland was based on the research expertise of the ADAPT SFI Research Centre for AI-Driven Digital Content Technology, in partnership with Dublin City Council, Ireland's largest local authority, which provided two industry-embedded researchers to support digital twin and population health ecosystems. Related existing projects included "*Data Insights for Active Travel*" of the Partnership for Healthy Cities (PHC), a network supported by Bloomberg Philanthropies, in partnership with the World Health Organisation (WHO) and the global health organisation Vital Strategies.

For the interactive co-creation phase of the workshop the participants self-organised into groups, ensuring a balance, in particular across cities, sectors, active travel experience and, in general, a degree of involvement in policy regulation and mediation. The groups identified and discussed drivers and barriers of approaches to active travel accor-

ding to different citizen engagement frameworks, governance models, and regulations, and presented them to the other groups. The groups then co-reviewed the existing mechanisms and indicators, assessed the interconnections between them, and synthesised their evaluation to compare and contrast it with international policy and planning expectations of relevance to urban health. The outcome of the workshop was to develop and document core competencies required for diverse approaches to active travel. It comparatively mapped methods through which local and regional actors mediated policy challenges and opportunities. The outcome is expected to support the development of an active travel toolkit. Its aim is to facilitate formal and informal approaches to address health and wellbeing needs of local communities better, as well as to contribute to a wider, healthier urbanism planning for policymakers and practitioners.



Reflections and Suggestions

The congress team in charge of mentoring and facilitating Urban Conversations and Special Sessions reflected more generally on the content of all these face-to-face events and how such experiments, innovative methods and creative approaches to essentially participatory urban planning could contribute to ISOCARP's avant-garde heritage. Reflections by Ronit Davidovici-Marton and Judith Ryser on the most challenging issues identified at these informal interactive discussions are evoked here, together with suggestions of how to incorporate this body of new knowledge usefully into future ISOCARP activities.

Interface Between Urban Planning and Artificial Intelligence

Artificial Intelligence is on the agenda of every profession at present, including urban planning. It can be conceived as a tool to shift traditional plan making to risk-mitigation planning by integrating AI into planning practice. However, the informal discussions highlighted the difficulty of a general open debate about an emerging technology which evokes considerable uncertainty. Illustrated as a novel planning tool applied to real time storytelling and analysis was a promising way to sharing the diverse attitudes of planners towards the role of AI, whether it would provide added value and how it would change the planning profession. This meant a need for urban planners to engage deeply with the ethical implications of AI and to strike a balance between innovation and mitigating potential risks of AI for cities.

Regionalism

Regionalism and its ambiguities have chal-

lenged planning for a long time. Technicalities of regional planning were reflected again in the unresolved questions of defining an area, the use of an area as a cluster, the purpose of clusters of cities and villages, the relation between planning at national, local and regional scale, the dichotomy between urban and rural regions, as well as cross-border issues. ISOCARP was a pioneer in addressing regionalism as a planning issue and to relate it to governance. During accelerating urbanisation, regionalism was practically abandoned as planning moved almost entirely to the urban space, with cities becoming the basic planning unit. The changing reality in non-urban areas led to changes in both the urban and the rural systems all over the world. Migration to cities was emptying the countryside, turning agriculture, food security, and open space into a leading planning challenge. This should give rise of a new discussion on how to plan the non-urban, semi-rural and rural space, by learning about contemporary town-village relations and their interface.

Public Participation

Driven by rapid urbanisation the development industry has become the main producer of the built environment and resisted fiercely to community engagement in planning. Nevertheless, the involvement of communities in their built environment and its inevitable transformation increased and gained agency in many planning processes. Many experiments illustrating this evolution were presented at the Siena congress and discussed at the informal urban conversations. Well-rehearsed objections by those who (re-) build the city are the delay to the planning process thereby inhibiting financial reward.

Research showed though that developments which engaged community participation were less contested and more durable than those produced in conflict with the local population. The congress revealed how public participation started to become an integral part of the development process also in China, India, as well as other countries with liberal planning systems, also in the developing world. The informal discussions showed that the planning debate had shifted from combating public participation to developing methodologies to improve the participation process to the benefit of all stakeholders, more recently by adopting and adapting new digital tools including AI. This process includes revisiting values, and in particular the role and obligation of all the stakeholders in a more transparent and open planning process.

Inclusive Cities and Raising Extremism

Inclusion is increasingly presented as a value leader in planning. This raises complex and critical questions about fundamental values of known planning methodologies. Cities tend to develop physical spatial patterns which reflect society as a whole with little input by planners while urbanisation trends seem to produce increasing spatial social segregation and polarisation. This division also reflects the effect of migration, displacement and de facto exclusion. Adding climate change to it means that planning methodologies devised during a more stable and predictable world may no longer be feasible for the current dynamic, uncertain and conflictual situations in rapidly growing urban concentrations. This requires to include values in the debate about the future role of planning in the development, regeneration, maintenance and preservation of cities.

Future Informal Planning Debates

The participants of the Special Sessions and the Urban Conversations at the Siena congress felt that these open discussions among planners were so beneficial that they could be integrated into future congresses. The voluntary team of facilitators and mentors developed a sense of social belonging at these explorations and experimentations in common enabling it to garner useful lessons for future informal, properly resourced and managed events framed by clear guidelines. Distinct from formal presentations but well-coordinated, successful urban conversations are initiated by individual participants or groups on pressing as well as emerging planning challenges. Small in size, seated in the round, without props, these face to face events are bringing together young and mature planners to engage for a short time in mutually enriching exchanges on their planning experiences, projects, ideas, even dreams. Such interaction is conducive for their future cooperation, creation and sharing knowledge.

Judith Ryser, London 23 January 2025



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1. Introduction

Siena, the 60th ISOCARP World Planning Congress venue with its rich tapestry of history and dedication to heritage preservation, serves as a living embodiment of the theme “Reinventing the (In)Visible Cities: From Heritage to Innovation, Forging Pathways to Resilience”. The congress sought to chart a course towards sustainable urban development, reimagine city planning and design to accommodate innovation, honor Siena’s unique historical significance and focus on topics such as urban revitalization, leveraging cultural heritage for sustainable development and combating climate change. The challenge for reinventing cities lies in meeting

the needs of the present and future while preserving the essence of the past.

The “Heritage for a Sustainable Future” theme explores how preservation and utilization of cultural heritage can serve as a catalyst and/or a powerful driver for sustainable urban redevelopment of resilient cities and regions. This report synthesizes insights from Track 1 with six sub-themes in which key challenges, findings, and recommendations for the revitalization of protected rural and urban areas and the refurbishment of listed buildings and landmarks were identified. The presented abstracts, research contributions, and global experiences provided a comprehensive overview of present and future rural and urban development strategies while addressing issues of heritage preservation and sustainability.

2. Core Objectives

Track 1 focused on exploring how preservation and utilization of cultural heritage can serve as a catalyst and/or powerful driver for sustainable urban development of resilient

cities and regions, with following broad objectives. These five primary objectives are crucial to increasing the resilience and the safeguarding of heritage sites while still allowing for the future redevelopment of these spaces:

1. **Integrating Traditional Knowledge into Contemporary Planning**, supporting community-driven approaches for resilience and highlighting their stories
2. **Exploring Technological Innovation Solutions for Climate Resilience**
3. **Integrating Cultural Heritage and Tourism**, balancing the goals for revitalization, regeneration with sustainable redevelopment
4. **Fostering the Preservation and Utilization of Cultural Heritage - Preserving Cultural Heritage through Adaptive Reuse of Historical Structures**, while allowing for future development
5. **Energy-Efficient Restoration**

3. Sub-Themes

Track 1 focused on exploring how to better manage these objectives and contextualise research papers and case-studies, five sub-themes have been defined:

1. **Conservation and Development of Cultural Heritage**: This sub-theme emphasizes the importance of preserving endangered sites or listed buildings. The preservation and utilization of Cultural heritage also depends on improving the connectivity for the sites and finding appropriate uses.
2. **Technological Innovations for Climate Resilience**: new methods to chart current situations, connect results of different analytical results help to better forecast risks

and develop strategies for protection.

3. **Climate Resiliency / Risks and Future Measures**: Resilience is a key aspect of sustainable urban redevelopment, especially when focusing on heritage sites' adaptability to changing environmental conditions. This sub-theme highlights strategies for resilient urban planning, including adaptive reuse of buildings.
4. **Revitalization, Regeneration & Sustainable Redevelopment**: This sub-theme addresses the balance between redevelopment and heritage preservation, exploring how the areas around cultural and landmark sites can experience redevelopment while retaining their unique identity and historical character. In rural areas heritage sites offer an opportunity to stimulate economic activities, e.g. attract visitors and create attractive work and living environments.
5. **Community-driven Approaches for Resilience**: strengthen the support for heritage appreciation, foster social inclusiveness and community cohesion. The inclusion of the community connects to local knowledge and appropriate urban design strategies for liveable environments for all citizens.

4. Data Summary

Total number of sessions: 11, organized into 6 sub-tracks. From 105 submitted abstracts 100 were accepted—68 research paper, 29 case studies and 6 posters. A total of 57 participants registered, with 40 presenting research contributions and 17 case studies across eleven sessions under six sub-themes. The accepted presentations represented 21 countries, including Australia, Austria, Brazil, China, Cyprus, Egypt,

Germany, India, Indonesia, Iran, Italy, Philippines, Poland, Russia, South Africa, South Korea, Sweden, Switzerland, Thailand, Turkey, United Kingdom, highlighting diverse perspectives on challenges for heritage sites.

5. Key findings (new methods, insights, approaches, etc...)

- Heritage as a contribution to resilience
- Heritage as an identification for revitalization
- Learning from rediscovered traditional knowledge
- Application of up-to-date technologies
- Responsibility & international collaboration
- Governance & Policy: develop heritage policy
- Access to local knowledge from the community through new methods of engagement, e.g. social media
- Fully realizing the multiple challenges that the digital age brings to cultural heritage
- In the process of the evolution of the times, the technical and social conditions that cultural heritage protection relies on are constantly being eroded

6. Identified Challenges

- Climate hazards affecting heritage & health
- Lack of responsibility & coordination between stakeholders, community and government
- Loss of traditional knowledge on resilient urban planning
- Ownership conflicts, fragmentation
- Lack of resilience governance policies
- Development pressures on protected areas due to housing needs
- Lack of awareness & knowledge

- Heritage connotation differences between virtual reality and real life
- The inheritance and utilization of cultural heritage conflict with the maintenance of authenticity

Identified issues include the marginalization of rural areas, population shrinkage, the loss of heritage sites to speculation and overdevelopment and the impacts of climate change particularly endangering heritage. In particular, the following key findings emerged from the presentations:

7. Recommendations (practice and research)

- The leverage of the impact of climate threats is especially important for sensitive environments around heritage sites.
- The development of sound and applicable heritage policy is the basis for preservation.
- The learning from traditional planning knowledge has to be held in high esteem.
- The application of modern digital technology merged with traditional sustainable methods may lead to innovative and yet proven strategies.
- Tourism interests offer an opportunity to safeguard heritage and create economic stimulus, yet over-tourism has to be prevented.
- The promotion and support of bottom-up initiatives leads to sustainable and long-lasting solutions.
- The use of research shall help to prepare the ground-work for strong legislation on safeguarding heritage and strengthening its resiliency.
- The use of existing vacant structures has to be promoted before new construction and soil sealing are allowed, e.g. through

tax breaks, financial support, etc.

- The value of cultural heritage needs to be deeply integrated with the history and context of the region.
- Urban planning itself is part of the cultural heritage. It is necessary to focus on the mechanism of its evolution and its relationship with the context.
- It is necessary to not only focus on the protection of the heritage itself, but also pay attention to the relationship between heritage clusters and maintain the environment in which the heritage is located.

8. Conclusion

Track 1 outlines a comprehensive framework for the safeguarding of heritage sites, supporting their revitalization and sensitive redevelopment in the future, emphasizing sustainability, inclusivity, and resilience. The use of technological innovations, as the digital transformation, helps to address the challenges of climate change and environmental hazards more effectively. Using cultural heritage as a key attractor and driver for revitalization supports rural areas to address shrinkage and marginalization. Implementing these insights and recommendations can support cities and rural areas in evolving into environments that are equitable, efficient, and responsive to both human and environmental needs.

Green Infrastructures, Monumental and State-Owned Assets: The Role of Tratturi in the Southern Italian Landscape

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Abstract

The ancient Tratturi, once crucial for southern Italy's transhumance economy, saw their role diminish by the early 20th century. Today these routes have become important cultural heritage and laid the basis for economic initiatives in slow tourism, especially in lowly developed Apennine regions of Italy. The Tratturi may also serve as green infrastructures, however, the knowledge about their ecological roles and the present condition of these protected lands is minimal. This research deals with the aspects of the ecological dimensions of the main Tratturi network, especially with the importance of the green linkages to the protected areas and the network of the Natura 2000 along the Apennines. Through indicators of anthropogenic disturbance, ecological integrity, habitat quality, and proximity to protected sites, the study evaluates each route's ecological contribution. One of the findings of this study shows that the successful implementation and improvement of Tratturi can become the basis of sustainable development only if eco-tourism and local economies are properly supported. Treating Tratturi as strategic eco-tourism infrastructure can maintain biodiversity and the linking of ecosystems. The present study identifies the activities of conservation and tourism as those which bring to the fore the cultural and natural heritage of the areas, whereas the advised methodology is capable of being a mode of taking care of and running other ecological networks sustainably.

Keywords

Tratturi, Cultural heritage, Sustainable development

1. Introduction

For centuries, the Tratturi (from the medieval Latin *tracturus*, meaning “path” or “ditch”)—ancient transhumance routes—have been essential in the economy of southern Italy. These routes served not only transhumance but also as critical connectors for the movement of herds and goods [Zullo, 2023]. Transhumance was a pastoral practice based on the traditional use of natural resources and ecosystem services, marked by seasonal migrations of herds between mountain pastures in summer and plains in winter. This practice shaped and maintained the landscape over centuries [Mastronardi et al., 2021], and it continues to impact the urban structure of the towns it passes through. In Italy, the Tratturi consist of grassy paths that mark the routes used by herds during these seasonal movements [Mastronardi et al.,

2023; Petrocelli, 2011]. These routes formed a network (Figure 1) of main and secondary paths, stretching about 3,000 km through Abruzzo, Molise, and Puglia, with parts in Campania and Basilicata [Mastronardi, 2000; Zullo, 2023]. The main routes had a length of 236 km (*L'Aquila-Foggia*), 207 km (*Pescasseroli-Candela*), 189 km (*Celano-Foggia*), and 35 km (*Lanciano-Cupello*), with a maximum width of about 110 m. The main tracks extended from north to south, while the smaller ones (the so-called *tratturelli* and *bracci*) from east to west, creating a dense network [Cialdea, 2007; Mastronardi et al., 2023]. Today, most of these have disappeared throughout Europe. Many paths have been lost due to agricultural abandonment, natural reforestation, and urbanization. This decline began in XX century, when transhumance began to disappear. For this, the Italian state introduced protective decrees to preserve and reintegrate the Tratturi. Currently, Tratturi lands are protected as monuments under Legislative Decree 42/2004. They are also state-owned, which creates complex management challenges. To date, the lands of the Tratturi are protected by Legislative Decree 42/2004. However, there are some that are also state-owned, creating difficult land management. Various regulations and regional initiatives were amended to relaunch economic and tourist development by enhancing the archaeological, cultural, environmental, and landscape value of the Tratturi. However, the landscapes linked to these routes have changed significantly [Mastronardi et al., 2023]. In 2019, UNESCO recognized transhumance as an intangible cultural heritage [UNESCO, 2019]. This recognition underlines the importance of these routes for both local culture and global heritage. Recently, initiatives have been intended at restoring and promoting the Tratturi for local economic growth, for example through slow tourism. Although national regulations recognize the cultural and historical value of the Tratturi, their ecological importance remains little studied. This study introduces a methodology to evaluate whether the Tratturi, given the current anthropogenic pressures and their geographical conformation, can function as ecological connectors. The analysis includes their link to protected areas, current land cover and levels of surrounding land degradation, using indicator engineering techniques developed for this purpose.

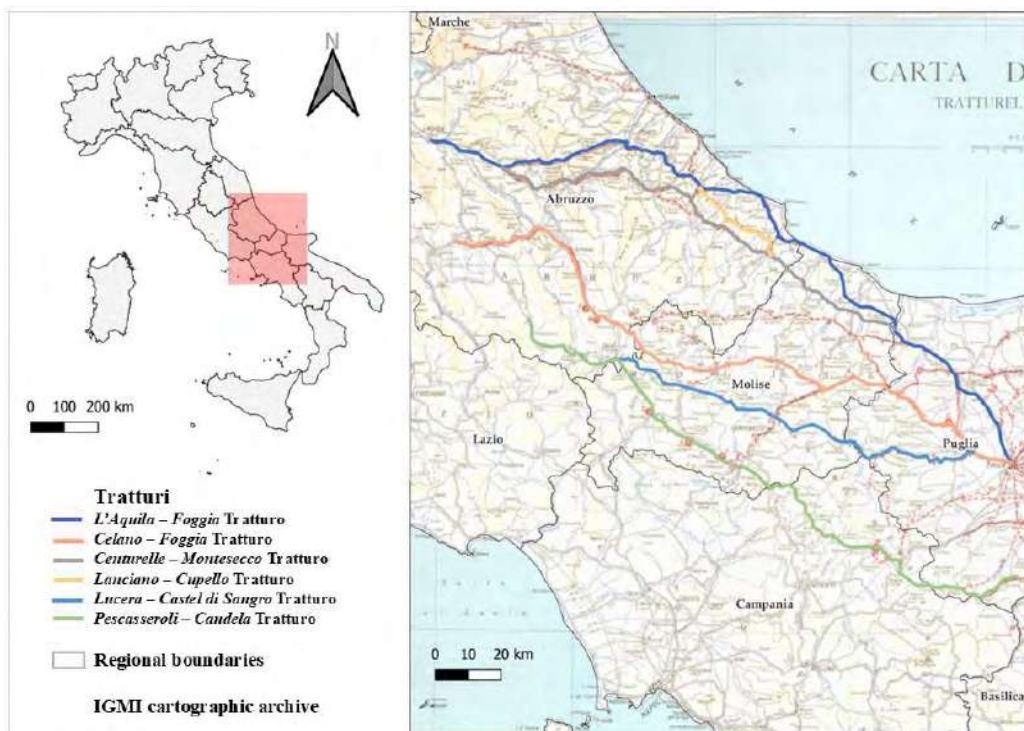


Figure 1. Map of the Tratturi. Source: IGMI cartographic archive and authors' elaboration.

2. Study background

2.1 Historical Evolution and Current State of the Tratturi

The Tratturi have been important for the culture of local communities and for the landscapes that have characterized the regions of southern Italy for centuries, in particular Abruzzo [Staffa, 2020; Violante, 2016]. When transhumance declined in the early 1800s, people began to use these lands for agriculture, and later urbanization began near populated areas. This trend was strong in regions like Abruzzo, where development pressures starting in the 1950s significantly changed the Tratturi landscape [Zullo et. al., 2024]. Figure 2 shows the historical evolution of the Tratturi.

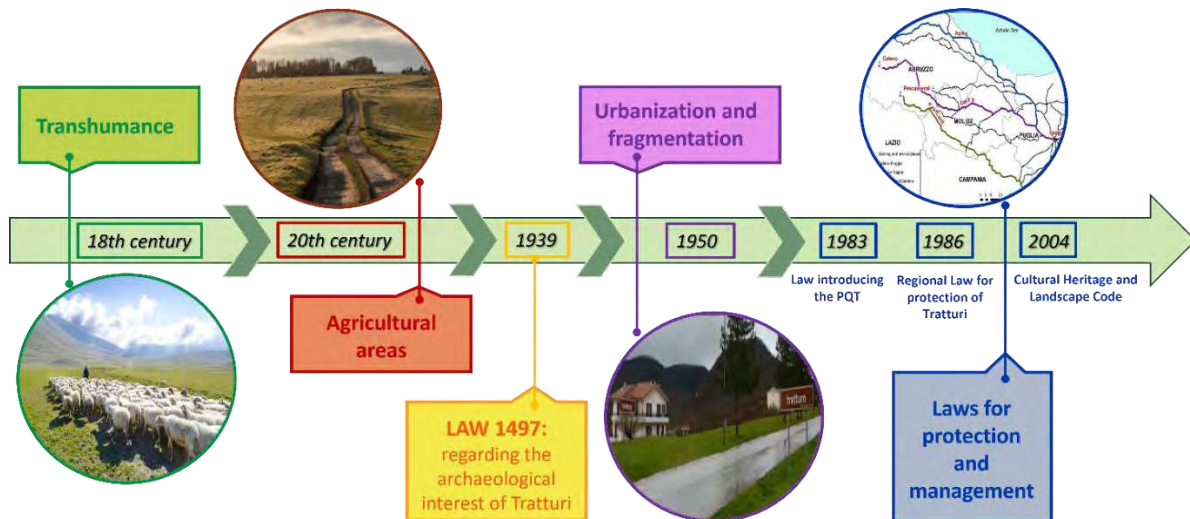


Figure 2. Historical evolution of the Tratturi. Source: Authors' elaboration.

Until the 18th century, laws protected transit and grazing rights to support the economic importance of sheep farming. However, by the end of the century, regulations allowed for different uses, such as agriculture, leading many minor Tratturi to be converted into roads in response to increasing demand for land [Mastronardi et al., 2021]. As a result, significant portions of Tratturi were sold, especially in Abruzzo and Puglia. In the early 20th century, only the main Tratturi (L'Aquila-Foggia, Celano-Foggia, Pescasseroli-Candela) remained available for herding and grazing, while others were sold or converted to agricultural use. To protect the routes from uncontrolled urbanization, Italy approved the Bottai Law (Law 1089/39) in 1939, recognizing the Tratturi as archaeological assets, declaring them inalienable for their cultural value [Meini et al., 2014; Minotti et al., 2018; Pellicano et al., 2008; Pierucci, 1988; Zullo, 2023]. Since then, the Tratturi have had a dual role as both state-owned and archaeological assets, which creates difficulties to their management and protection [Cazzani et al., 2021; Centofanti et al., 2008]. In the 1970s, the responsibility for managing these state-owned assets was passed to the regions, while the Ministry for Cultural Heritage and local Superintendencies retained authority over preservation and acceptable uses. The building boom throughout Italy was also reflected on the land of the Tratturi, causing a considerable loss of soil and impact on the surrounding landscape. To protect the Tratturi, Molise (in 1976) and Abruzzo (with the Ministerial Decree of March 1980) have introduced a new planning tool, the Tratturi Framework Plan (PQT). This tool is mandatory for municipalities crossed by Tratturi, yet about 50% of Abruzzo's municipalities have not yet implemented it. The creation of the knowledge framework necessary for the FPT is complex: this creates technical and administrative challenges in verifying building titles and prior land sales. Over time, various regional laws and broader projects have leveraged the identity that Tratturi create for local communities and landscapes, aiming to revitalize these areas and bring renewed economic activity to the regions they cross. Walking routes and slow tourism are some of the main themes

promoted by these initiatives. Recently, however, projects like the one in Molise have also highlighted the ecological role Tratturi could play as potential connectors between areas with different levels of natural preservation. While the historical, cultural, and archaeological value of Tratturi is widely recognized and supported by various national and regional laws, the idea of their role as ecological corridors still requires extensive evidence and scientific support.

2.2. The Ecological and Cultural Role of the Tratturi

The cultural role is clear. Ecosystems, ecosystem services, and ecological networks are key aspects to be assessed, requiring specific data and verifications. The ecological role of the Tratturi depends on different factors such as their proximity to protected areas, the degree of soil sealing and the ecosystem services they provide. Each Tratturo has unique characteristics that vary from region to region but also from municipality to municipality and therefore must be evaluated individually. The morphology of the territory and the proximity to the various urban centers has played an important role to define the future of these lands. Often, areas adjacent to major urban centers or settlements encouraged urban expansion over Tratturi, while segments passing through the internal Apennine areas experienced a return to nature, with landscapes transformed by natural vegetation development. Recent studies [D'Ottavio et al., 2016; Mastronardi et al., 2021; Plieninger et al., 2016; Riviaccio et al., 2017; Sallustio et al., 2018] on the ecological potential of these paths show that while some cross areas with ecological value, others are heavily urbanized, with disturbance levels making ecological connectivity challenging. In Abruzzo, for example, only a limited portion of the Tratturi crosses protected areas or Natura 2000 sites, and human disturbance levels vary significantly (Figure 3).

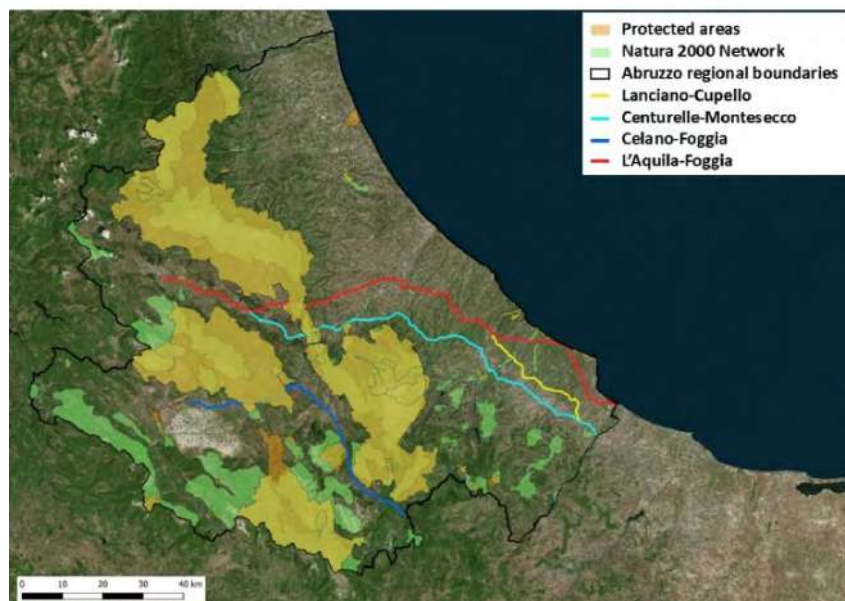


Figure 3. Map of Protected areas, Natura 2000 Network and the Tratturi in Abruzzo. Source: Zullo, 2023.

Infrastructure and urbanization have compromised much of their ecological integrity, making policies and interventions on these issues more difficult [Zullo et al., 2022; Zullo et al., 2024]. Urban sprawl [Romano et al., 2017] and intensive agriculture [Van Vliet et al., 2015] were the main factors that transformed the landscape, also influenced by demographic dynamics [Dupras et al., 2015]. In addition, political, institutional and cultural factors, together with agricultural policies, have had a strong impact on changes in land use [Mastronardi et al., 2021; Plieninger et al., 2016]. In Italy, recent phenomena include the abandonment of agricultural areas, with consequent forest expansion and natural regrowth in marginal

areas, and the urbanization of plains, coasts and easily accessible areas [Mastronardi et al., 2021; Sallustio et al., 2018]. Intensive agriculture, with the conversion of pastures to intensive crops such as cereals, has reduced natural habitats. Hedgerows were eliminated and the use of fertilizers and pesticides increased. This has led to a decline in the cultural ecosystem services needed to improve the Tratturi [Schirpke et al., 2013], especially in favorable agricultural areas [Pinto-Correia and Kristensen, 2013]. This intensification has led to strong land use [Rivieccio et al., 2017] and the homogenization of landscapes, with the loss and fragmentation of natural areas [Pinto-Correia et al., 2006]. Meanwhile, urbanization has damaged ecosystems and landscape sustainability [Brunori et al., 2016], creating landscapes with simplified forms and functions [Romano et al., 2017]. Today, the condition of Tratturi lands is highly complex and varied. Assigning them an ecological role, as mentioned, requires consideration of multiple significant aspects. Promoting slow tourism and connecting these routes to the paths requires a good knowledge of the territories crossed. Elements such as road crossings, the presence and arrangement of accommodation facilities, integration with other historical-cultural assets, or significant species along the route are essential to establishing such pathways. The same approach applies to their potential as ecological corridors, which necessitates thorough technical evaluations.

3. Methodology

In order to understand the potential of the Tratturi as ecological corridors, it is necessary to analyze a wide range of variables that must be interpreted through different keys and different territorial scales. The first output is the number of municipalities crossed by the Tratturi (Table 1). In Molise, 50% of the municipalities are crossed by these, whereas the final destinations of transhumance activities, Campania and Puglia, have increasingly less Tratturi. The knowledge of Tratturi and protected areas (National Parks, Natura 2000 Network), and the status of land transformation on their trajectories is essential to characterize the current states of Tratturi [Zullo, 2023].

Regions	No. Of Municipalities with Tratturi	Total Municipalities	(%) of municipalities with Tratturi compared to the total number of regional municipalities
Abruzzo	93	305	30,5%
Campania	15	550	2,7%
Molise	57	136	41,9%
Puglia	23	257	8,9%

Table 1. Number of municipalities crossed by the Tratturi. Source: Authors' elaboration.

As visible in Figure 4, the traces of the Tratturi overlap with the system of protected regional areas. These findings highlight how many protected areas and Natura 2000 sites are crossed by the Tratturi, as well as the ecological role of these historic routes as important ecological corridors, albeit varied across the regions of southern Italy. Redirecting now to Abruzzo, the Tratturi cross very significant portions of National Parks and Special Protection Areas, amounting to roughly 73% and 70% of the areas involved, respectively. This makes the value of the Tratturi for the protection of biodiversity in Abruzzo clear. Tratturi are mainly proposed in the Special Areas of Conservation (SCI) areas, a protected status which covers more than 70% of the areas of Molise planned for planting, whereas they are running through the rest of the SACs/SPAs. The role of the Tratturi as ecological corridors is emphasized, given their importance for the conservation of biodiversity and as viable protected areas in an area with limited protected areas such as Puglia and

Campania. This fact shows that these ancient paths are only weakly associated with the protected territories of Puglia and Campania region. The data referring to Abruzzo and Molise presents quite the opposite situation that characterizes The Tratturi, not only cultural and historical roads, but also important green belts for biodiversity and ecological linking of natural spaces. These similarities of interests are strongly expressed in the regions and interest in the prospects of the continuity of the well-known Apennine ecosystems.

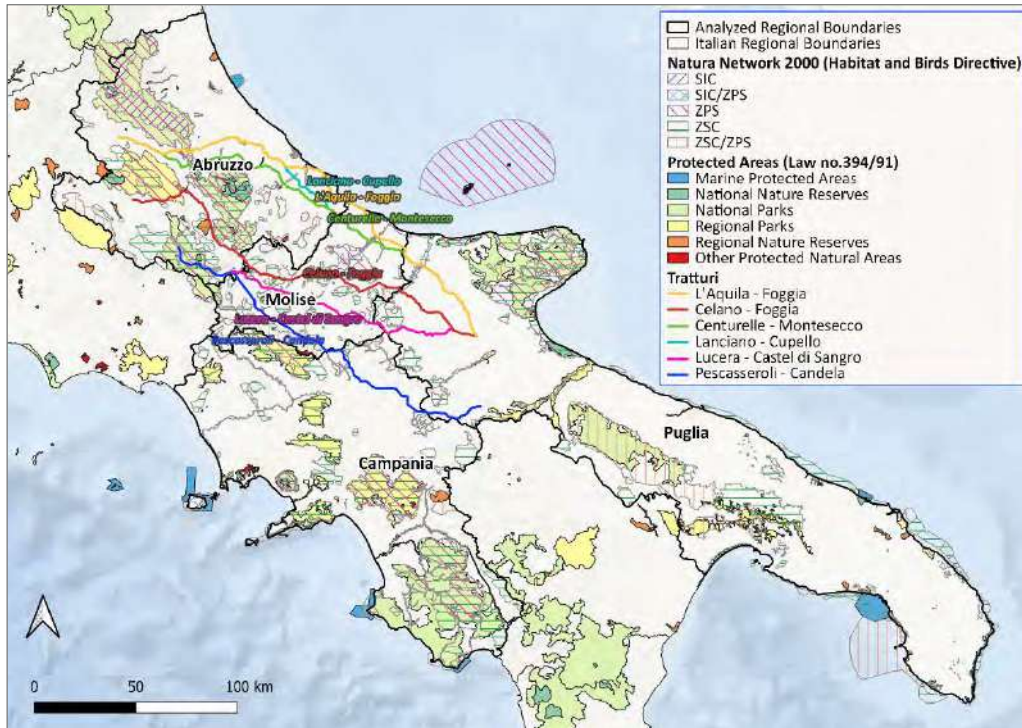


Figure 4. Map of Protected areas, Natura 2000 Network, and the Tratturi in Abruzzo, Campania, Molise, and Puglia. Source: Authors' elaboration.

The analysis can be done using Geographic Information Systems (GIS) based mapping of the areas involved, by sectoring the Tratturi, through defining measures of urban pressure, and by defining the areas of ecological value and connectivity. From 1956 up to 1997 urbanized areas were evaluated using IGMI and regional maps and comparisons were made with current data from the Civil Protection pertaining to building aggregates. The DU (Urbanization Density) indicator indicates the extent to which the urban pattern has compromised or fragmented the original path, deterring the restoration and ecological function of the original path. As illustrated in Fig. 5, the percentage of land use (% DU) adopted along sections of six main Tratturi in southern Italy has been attributed on a regional basis (Abruzzo, Molise, Campania and Puglia) and two reference years, 1950 and 2000. There are substantial divergences between the regions which also shows diverse pressure on the land and might influence the ecological and cultural richness of the Tratturi. The DU 50 graph indicates that the distribution of Abruzzo and Molise is fairly similar in terms of land uses in almost all Tratturi, with spikes of approximately 1.5–2%. On the contrary, Campania records lower values, except for the Regio Tratturo Pescasseroli-Candela that wins around 1%. Puglia maintains low percentages in this period, with the exception of the Regio Tratturo Pescasseroli-Candela where it exceeds 2%, which is already an index of growing pressure. What did change was the DU 2000 desk and other sources what also brought large land use percentage numbers especially

in Puglia. Specifically, in Puglia, the contents of the Aquila-Foggia, Celano-Foggia, Lanciano-Cupello, and Pescasseroli-Candela Tratturi are greater than those of DU 50, exceeding even 10%. Notably, Abruzzo and Molise maintain their high percentages, especially for the Aquila-Foggia, Celano-Foggia and Centurelle-Montesecco Tratturi, while Campania is marginal, excepted for a few routes such as the Pescasseroli-Candela Tratturo. At the same time, these data also show a significant increase in land use along the Tratturi in the regions of Abruzzo, Molise, and Puglia, with more than 4% increase of DU 2000 along the Tratturi axis. This trend might suggest more anthropogenic and urban pressure that might impact the ecological function and historical value of these ancient routes. Indeed, with reference to Puglia, such growth data from DU 2000 may reveal important variations in territory-dynamics, of significance with respect to conservation of the Tratturi and development of soft tourism, ecological connectivity and sustainability. In summary, the analysis of the land use along the Tratturi in the studied areas highlights the different levels of the territorial pressure between the three regions, where Abruzzo, Molise and Puglia find the highest values of pressure. This trend emphasizes the need for specific planning interventions aimed at the conservation of the ecological and historical-genetic sensibility of the Tratturi, with particular regard to the heaviest territorial pressure regions.

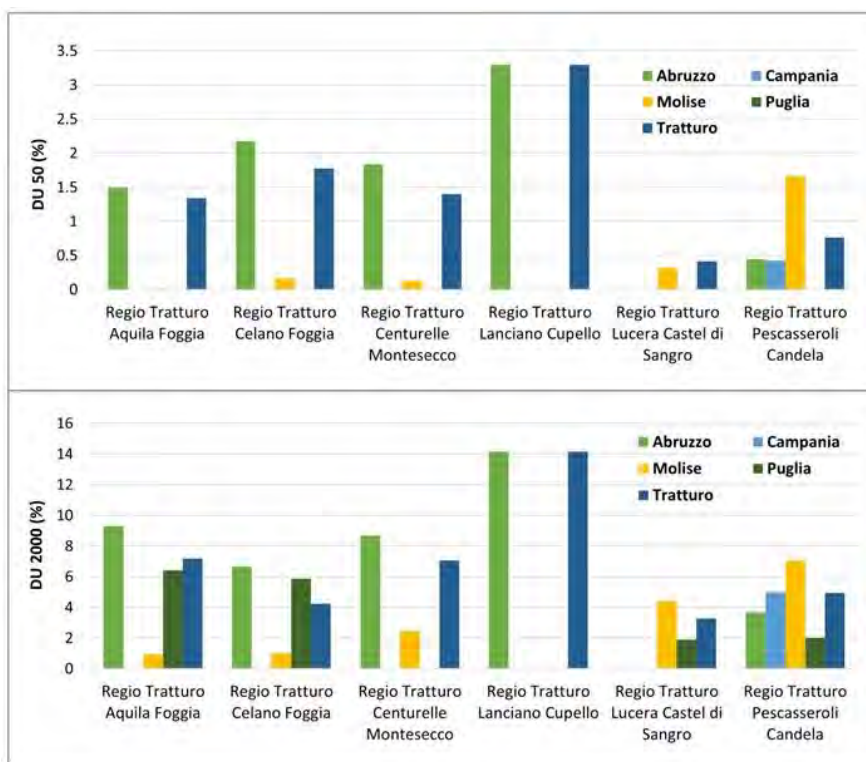


Figure 5. Urbanization Density (%) in 1950 and 2000. Source: Authors’ elaboration.

The system density (DIn) gives an idea of how much infrastructure in relation to the reference area [Zullo, 2023]. For the calculation, Open Street Map (OSM) serves as the database, as it delivers more complete data compared to aggregates of regional sources, including service roads and agricultural access roads. DIn is therefore an useful metric for quantifying the fragmentation in an ecological graph and to locate those novelties to tackle measures for connectivity improvement. Recent infrastructures have cut to pieces the Tratturi, limiting their efficiency as biodiversity corridors or tourist routes. Figure 6 presents the kilometers of different infrastructure types along six major Tratturi in southern Italy,

offering understandings about the level and nature of development across the regions.

	Infrastructures (km)									
	Highway	State road	Railways	Roads in residential areas	Regional and provincial roads	Service roads	Municipal roads	Roads for agricultural areas	Unclassified roads	Total
Regio Tratturo Aquila-Foggia	9.02	48.39	11.13	25.97	27.47	35.81	67.81	60.69	31.86	318.15
Regio Tratturo Celano-Foggia	6.09	19.86	4.61	10.84	18.27	19.24	20.30	68.20	25.84	193.24
Regio Tratturo Centurelle-Montesecco	0.48	7.31	0.44	14.68	5.41	10.31	30.88	38.81	23.77	132.09
Regio Tratturo Lanciano-Cupello	0.10	0.00	0.15	5.66	2.42	4.57	14.49	8.63	7.03	43.05
Regio Tratturo Lucera-Castel di Sangro	2.77	7.41	0.34	6.16	5.15	3.90	10.86	52.75	7.44	96.78
Regio Tratturo Pescasseroli-Candela	3.38	11.55	1.60	7.31	2.32	9.64	13.16	26.87	21.24	97.06

Figure 6. Infrastructure Endowment Index in the Tratturi. Source: Authors' elaboration.

The Regio Tratturo Aquila-Foggia, Celano-Foggia, Centurelle-Montesecco, Lanciano-Cupello, Lucera-Castel di Sangro and Pescasseroli-Candela are among the Tratturi listed. The Aquila-Foggia and Celano-Foggia sheep tracks have a higher infrastructural diversification than the others, with abundant presence of state, municipal and agricultural roads. This structure shows a higher level of urbanization and good integration with regional networks promoting access locally and in rural zones. The latter, however, are mainly composed of agricultural and unclassified roads, with a low degree of urbanization. That configurational preservation might reflect a preservation of the historical and rural character of these areas. Lastly, the Lanciano-Cupello Tratturo, the one having the least infrastructural development overall, widespread municipal and agricultural roads, due to the few regional interconnections. Contrasting with this, less completed tratto, as Lucera-Castel di Sangro, Pescasseroli-Candela and Lanciano-Cupello, have retained a mostly rural function that to preserve in the territory cultural and environmental backgrounds. This analysis reveals significant variations in the distribution of infrastructure across the Tratturi which correspond to their differing functions. Tratturi where this percentage is higher (e.g., Aquila-Foggia and Celano-Foggia) could thus be important arteries for local communities, as well as for agricultural carrying on, thus more easily in sight of urban development pressures. Dotted around the Tratturi with its vast stretch of roads or minor unclassified roads like the Lanciano-Cupello that benefit from a conservation standpoint has remained a better choice from an ecological and historical point of view. As-related information provides the bases of developing sustainable development and conservation strategies for the respective regions. This implies that for lesser developed tracts of Tratturi, focus would lie with each regional planner ensuring ecological continuities and protection of culture, should any development be allowed while the opposite would apply to highly developed areas. Urban proximity and degree of urbanization will need to be analyzed and factored into determining ecological quality of these lands. Land of finale: Since Tratturi enters into a buffer zone here, the description can help spatial analyse when compared with adjoining urban settlements. Upon this foundation, it becomes possible to consider some parameters intended to imposed as regards whether Tratturo continues to practice ecological asset in its primary function, that being the reduction of pollution, increase of biodiversity and so on and so forth. This provides an analysis that helps identify what sections still provide these and what is impacted by built environments and urban planning. Abounding ecological sustainability of Tratturi regions, the methodology contributes to decision making processes for Tratturi protection, protection and enhancement. This is still a nascent process, but it will be crucial in grasping the spatial and ecological significance of the routes.

4. Revitalizing Tratturi: Challenges and Opportunities

The lack of resources and infrastructure along the Tratturi does not allow these paths to be simply transformed into green infrastructures for tourism and ecosystems. Many of these paths cross economically and demographically disadvantaged areas in the Italian Apennines, where local administrations often lack the funding to invest in tourism infrastructure or ecological restoration. Slow tourism, however, offers a good approach to encourage the rediscovery of these places, creating local economies by initiating positive cycles [Fistola et. al., 2018; Gaeta et. al., 2019]. The "La via del Tratturo" project in Abruzzo and Molise [La Via del Tratturo, 2020], which spans 112 kilometers across six stages, shows how Tratturi can support trekking and experiential tourism. With this route, people can renew their bond with the land and its cultural and natural heritage, making the most out of the ecosystem services. A master plan for the restoration of the Molise Tratturi was introduced in Molise in March of 2024. This plan focuses on revitalizing historical transhumance routes by integrating them with the cultural and tourism landscape of Molise's historic villages. The main goal is to bring these paths back to life, increasing their accessibility, but also, by coiling history into a spiral, showing village connections, and turning the Tratturi into biodiverse and ecologically competitive corridors. This approach creates local synergies that are important for the regional economy and the infrastructure that declines each year. The policies that are in line with the necessities of the region are the key to success in implementing projects like the Special Territorial Plans. These ancient itineraries require a comprehensive network of strenuous trails, as well as basic services, such as parking, the latter of which is vital to the tourism industry and the local economy in general. In the aftermath of these consequences, it is evident that the current initiatives reach only the local level which in turn leads to the non-fulfillment of the projects. The communities concerning the local Superintendencies are more secure and can render appropriate infrastructure for the implementation of projects because they have a good history and a detailed survey of the routes. One of the most apparent goals of these projects is to have an up-to-date mapping of the paths to make the project planning phase easier and already a map [Ulisse et.al., 2024].

5. Conclusions

The Tratturi in Southern Italy at the moment are on the crucial cusp of a turning point. These ancient roads, whose past existence was of great importance for the transhumant movement and the local economy, are now being transformed into green infrastructures with the ability to accelerate long-term sustainability in these rural areas. Though, to maximize their role as important ecological corridors, as well as the resources which can be derived from them as objects of cultural and tourism, a few major issues need to be resolved: information voids, infrastructure deficiencies, unproductive territorial management, and lack of attention from the local planning authorities. The work presented here indicates that the identification of an ecological function for the Tratturi and the development of slow tourism require targeted action laid down at the regional or Tratturi-wide scale, complemented by science-based and numerical data. The survey reveals that biodiversity conservation and the economic potential go hand in hand with the proper use of technology. Their ability to protect biodiversity and bring about sustainable economic growth depends on integrated planning and using new tools and techniques for effective monitoring and control activities. Adding the Tratturi to slow channels of mobility provides one avenue to conserve and develop cultural and natural heritage but entails a full understanding of their present state and related problems. Accurate and up-to-date data are the key components of sustainable interventions that retain the intrinsic value of these landscapes. In short, Tratturi conservation is an emerging sector but still affected by social (especially economic) processes and policies, requiring tailored interventions according to land use and the morphological nature of routes (Fig. 1; Table 4). Without a corridor through degraded areas they will be lost to the urban environment, so this is critically important. Intensive farming [where the same product is

grown in cycles, or multiple crops are grown on the same piece of land] is exacerbated by the regular hype of economies to re-encourage the farm owners, more than is required, further stressing them, while to help the case of the same will be more than businesses often resetting for growing crops and joining the local tourism sector. The good policies should be in the spirit of their initial intent, that is, the rehabilitation of old unspoiled tracks and the viability of compatible uses. The first step to take is an action plan established jointly with a local authority, a number of volunteers, farmers and a land management program. Through joint management mode of the reclaimed lands apprenticeships of the workers, identification with local cultural environment, the promotion of local tradition and sustainable development of the rural localities is as follows. On the other hand, the recognition of Transhumance as a World Intangible Cultural Heritage by UNESCO makes it not only historically relevant, and significant, but also from the point of view of local and international development. Only in this way, it will be possible to ensure a sustainable recovery of the economy of the entire area, involving local authorities, tour operators, and environmental institutions as a key element of the synergistic and multidisciplinary approach adopted. The Tratturi are state-managed archaeological assets of primary and extraordinary importance. However, the situation is difficult since many Municipalities in the area do not have the specific master plans of their Tratturi networks (PQT) while many of them have not organized their GIS rooms for relative access. The 1983 decree was approved which added the obligation of drafting PQT but did not specify any deadline, so many towns and cities, however continuous their demands for these plans, have been and remain behind. The delay originated from this and also from the transparent procedure that does not respect the regulation and created in this way many administrative problems and consequently it did not allow the proper evaluation of the condition of the land of the Tratturi. To improve management, it should be made an integrated SIT with the Territorial Information System to make the processing of permits and planning clearer and efficiency of the management and many of these processes should be online. The PQTs will have to be digitized, and all the municipalities will have to have the software to do that.

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