

PROCEEDINGS
of the
INTERNATIONAL CONFERENCE
on
CHANGING CITIES VI
Spatial, Design, Landscape, Heritage & Socio-economic Dimensions

**CHANGING
CITIES**



Changing Cities VI, Rhodes, 24 - 28 June 2024

Edited by
Prof. Aspa Gospodini
University of Thessaly, Volos, Greece

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CHANGING CITIES VI
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Rhodes Island, Greece, June 24-28, 2024

Organised by

Research Unit of Urban Morphology and Design,
Department of Planning and Regional Development, Faculty of Engineering,
University of Thessaly, Greece.

in collaboration with

Department of Mediterranean Studies, School of Humanities,
University of The Aegean, Greece

Under the aegis of

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PREFACE

The series of international conferences on *CHANGING CITIES* aspires to bring together urban planners and designers, architects, landscape designers, urban geographers and historians, urban economists, urban sociologists, and urban policy makers, and investigate new challenges concerning cities and their future. The conference aims at becoming an international forum of transaction of ideas on cities' transitions. We have so far organised six conferences, with peer-reviewed Proceedings, taken place always in June, in venues with unique urban and natural landscape, built heritage and place identity.

- *CHANGING CITIES I: Spatial, Morphological, formal, and socioeconomic dimensions, 18-21 June 2013, Skiathos Island, Greece.*
- *CHANGING CITIES II: Spatial, Design, Landscape and socioeconomic dimensions, 22-26 June 2015, Porto Heli, Peloponnese, Greece.*
- *CHANGING CITIES III: Spatial, Design, Landscape and socioeconomic dimensions, 26-30 June 2017, Syros Island, Greece.*
- *CHANGING CITIES IV: Spatial, Design, Landscape and socioeconomic dimensions, 23-28 June 2019, Chania, Crete Island, Greece.*
- *CHANGING CITIES V: Spatial, Design, Landscape, Heritage and socioeconomic dimensions, 20-25 June 2022, Corfu Island, Greece.*
- *CHANGING CITIES VI: Spatial, Design, Landscape, Heritage and socioeconomic dimensions, 24-28 June 2024, Rhodes Island, Greece.*

All Changing Cities conferences have been welcomed by the academic community worldwide, usually attracting about 300 presenters from many countries - Greece and Europe, USA and Canada, Latin America, Middle East and North Africa, Asia, Far East, and Oceania. On this basis, we believe the 6th Changing Cities conference will also be a successful academic event.

The 6th Changing Cities conference puts an emphasis on the transformations of cities related to climate crisis; the main theme is '*Climate Crisis. Cities' transitions towards smart & green development*'. Cities are on the front line of climate change. First, cities are the main contributors to climate change due to concentration of population and various human activities such as industrial activities, people's everyday mobility and transportation of goods, etc. – all of which increase the flow of heat-trapping greenhouse gases into the atmosphere. Second, the impacts of climate crisis on cities are dramatic; Cities need to cope with the unprecedented challenges of climate crisis such as wild wood fires, floods, extreme weather conditions such as heat waves, heavy rainstorms, land drought, etc. Thus, cities as 'guilty' constituents to climate change, must also become vital protagonists in mitigating climate crisis. In this framework, the 6th Changing Cities conference welcomes the academic discussions on specific measures and policies of green and smart development of cities.

This year, about **350 abstracts have been submitted** from universities, research institutes, governmental organisations, and Ministries of environment from all over the world. In the conference, **will finally be presented 265 papers**. Among them, **54% of the papers have been authored by foreign academics** while **46% by Greek academics**- indicating the international character of the conference. For the first time the 6th Changing Cities Conference includes about 60 remote presentations organised in last day of the Conference mainly involving young researchers, PhD candidates, postgraduate students who faced difficulties to cover traveling expenses. The Conference Program includes **20 special sessions** that have been pre-organised by distinguished researchers enriching the academic discussion on portraying the impacts of climate crisis on cities and

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highlighting green and smart urban actions and policies to mitigate the negative effects of climate crisis.

I would like first to thank the Organising Committee, the keynote speakers, and the members of the international scientific board who supported enthusiastically the academic organization of this conference – and especially those colleagues who have also pre-organized special sessions in this conference.

I would like to show our gratitude to all the academic supporters – **University of Thessaly, University of The Aegean**, and **IsoCarp** (International Society of City and Regional Planners).

I would also like to express our gratitude to the sponsors of this conference - namely **The Green Fund** politically supervised by **the Greek Ministry of Environment and Energy; The Secretary General of the Aegean and Island Policy in The Greek Ministry of Maritime Affairs and Insular Policy**; and **the elected Regional Authority of Thessaly**.

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Productive micro-districts. An asset available for adaptive projects?

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Abstract

This reflection deals with the adaptive renewal of productive areas and is supported by the results of the research project *Aree Produttive - Aree Pro-adattive AP+A* (Productive Areas, Pro-Adaptive Areas) (<https://www.areeproadattive.polimi.it>), carried out by the Department of Architecture and Urban Studies of the Politecnico di Milano and funded by the Ministry for Ecological Transition (MiTE). The research project, related to the metropolitan area of Milan, has carried out activities to spread the culture of sustainability and to promote projects and actions to mitigate and adapt to climate change in productive areas. As other urban and metropolitan contexts, productive areas contribute significantly to determining critical phenomena such as heat islands, inefficiency of surface drainage, poor quality of open spaces, public and public-private thresholds, in general, urban liveability. The proposal of the project is to promote productive micro-districts and a model of governance aimed at encouraging stable, direct and organised interaction between private and public bodies to carry out adaptive regeneration projects.

Keywords: *productive areas; adaptive urban planning; adaptive performance; Metropolitan city of Milan*

1. INTRODUCTION

In the ambitious perspective of the sustainable development agenda, this contribution proposes a reflection and the results of pilot cases on the ecological-adaptive renewal and governance solutions of urban industrial areas. The legacy of forms, services, and equipment of production spaces since the Second World is the spatial basis of the operational research developed in the context of the metropolitan city of Milan.

The aim is to answer some questions. How can the design of public spaces and the public-private boundary within established/saturated production areas be treated in an ecologically adaptive way?

How to deal with private interventions through urban planning instruments?

While acknowledging the limits of the experiences carried out, due to the small territorial dimension directly involved and the short time available for the research, the activities carried out in the Living Lab and Co-Design mode [33] have produced results that allow generalisable/exportable reflections on the questions posed.

2. THE CHALLENGE OF ADAPTIVE RENEWAL FOR THE PRODUCTIVE AREAS OF THE TWENTIETH CENTURY

The 2030 Agenda for Sustainable Development and its goals (SDGs) were adopted by United Nations member states in 2015 as a universal call to action. In 2015, the world came together around an ambitious vision for a safer, healthier and more prosperous world by 2030. Implementing the 2030 Agenda and its cultural perspective means improving our fragile natural resources, gender equality and health, eradicating poverty, promoting peace and inclusive societies, reducing inequalities and helping economies thrive. The climate goal is interlinked with all the others, meaning that success in this goal affects success in the others [27, 28, 31].

This multi-scalar and multi-dimensional challenge involve urban planning and intervention at the local level, with a particular focus on strategic areas for coping with the climate crisis. These include

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productive areas. In Italy, they have been planned locally for decades after the Second World War by local authorities guided by the principles of economic advantage (low-cost areas, equipped with only basic infrastructure, located in the urban periphery, close to the main roads).

Over time, no attention has been paid to the spatial and social outcomes of production settlements.

Work and production have been considered as activities unrelated to the concepts of well-being and comfort. In short, the quality of these spaces has not been at the centre of the public agenda in Italian cities and is often not a concern even for small or large real estate operators [1, 3, 17, 22, 39].

The economic mechanisms of low-cost land supply for productive areas also had an impact on their typical location in the suburbs, where lower land costs and the implementation of primary technological networks (water, electricity, gas) at the expense of the public administration ensured higher values of the areas crossed to reach the new productive plots [14, 20, 24, 40].

All this affected the layout of cities and territories, with significant consequences for urban conditions in the following decades. The production zones and the plans for the implementation of production settlements have had a double spatial effect in the urban context: on the one hand, a monofunctional concentration and, on the other, a separation from the consolidated/historical urban fabric (peripheral location). As a result, today we have industrial areas in the urban context, with highly impermeable soils, poor vegetation, buildings of poor construction, which contribute significantly to determining climatic, environmental, social and economic critical phenomena: heat islands, inefficiency of drainage surface, air pollution, poor quality of open spaces, of public and public-private thresholds, poor urban liveability, security problems for the neighbourhoods in which they are located, and ghost town effect in the evening and during holidays [17].

In this framework, the Research Project aimed to spread the culture of sustainability and adaptation to climate change in productive and commercial areas included in urban neighborhood and to implement adaptation strategies and action to rethink places of production of goods and services as pro-adaptive areas [33].

The research methodology promotes and relies heavily on a bottom-up approach. Analysing and listening to the territory and micro-actors is seen as an indispensable starting point for defining, together with the local communities the opportunities and obstacles for the adaptive renewal of productive districts. In addition, economic, social and territorial policies in recent decades has shown a growing interest in the territorial/local context, identifying social and organisational factors as drivers of development and promoting a bottom-up approach with new systems of partnership, negotiation and social consultation [10, 15, 18, 21, 38, 44, 45].

As part of this process, participatory tools and the Living Lab were a strong support in all phases of the research: involvement of the local community, awareness raising and technical training of stakeholders, citizen participation, co-design of effective solutions, implementation of new governance and urban planning tools, evaluation of technical and economic feasibility of interventions, new governance and urban planning tools to increase private and public awareness of sustainable issues and acceptance of interventions.

The project pays attention to the public spaces of the production microdistricts, i.e., streets, car parks and green areas, as well as the open spaces belonging to the production plots. These are mainly the areas that have been created since the 1960s as a result of urbanisation works and facilities, at the same time as the construction of private production areas. For some years now, we have been witnessing the rethinking of some of these areas (green spaces, but also solutions for mobility spaces) in an ecological key, i.e. as ecological-environmental service facilities) [2, 10, 24, 26, 34, 43]. The research promotes this idea of urban resilient spot to mitigate climate hazards, improve human comfort and increase quality of life.

3. ADAPTIVE RE-THEMATISATION OF PRODUCTIVE AREAS IN MILAN METROPOLITAN AREA

The productive context of the metropolitan city of Milan is rich, located at the center of the northern Italian productive system, a catalyst for internationalised Italian medium-sized enterprises. A dynamic scenario, recovering after the 2020 pandemic crisis, both in terms of employment and strategic trends such as exports, but also characterised by some critical issues, perhaps unexpected, such as the failure to fully recover employment to pre-pandemic data and, discouragingly at the social level, the failure to recover female employment and the high rate of youth unemployment. A context in which the strong centrality of the capital emerges in relation to the complex of metropolitan municipalities. Two main production realities can be distinguished: the northern sector, linked to the mechanical and furniture industrial districts, and the southern sector, with less systemic production traditions, facing a widespread agricultural system protected by the South Milan Agricultural Park. The large industrial poles built in the 1950s have been transformed and converted to new functions. In the north-western part of the metropolitan area, the Rho-Pero petrochemical complex saw the establishment of the Milan Trade Fair. In the north-east, the Breda, Pirelli and Falk industries in Sesto San Giovanni and Bicocca have been transformed since the 1980s into university buildings, business and cultural centres and private residences. The transformation of these industrial areas has raised important territorial and environmental issues, such as land reclamation, the relationship between densification and open spaces, and the emergence of new urban realities with repercussions on the overall social, environmental and economic structure of the metropolitan context [4, 7, 11, 30, 35, 36].

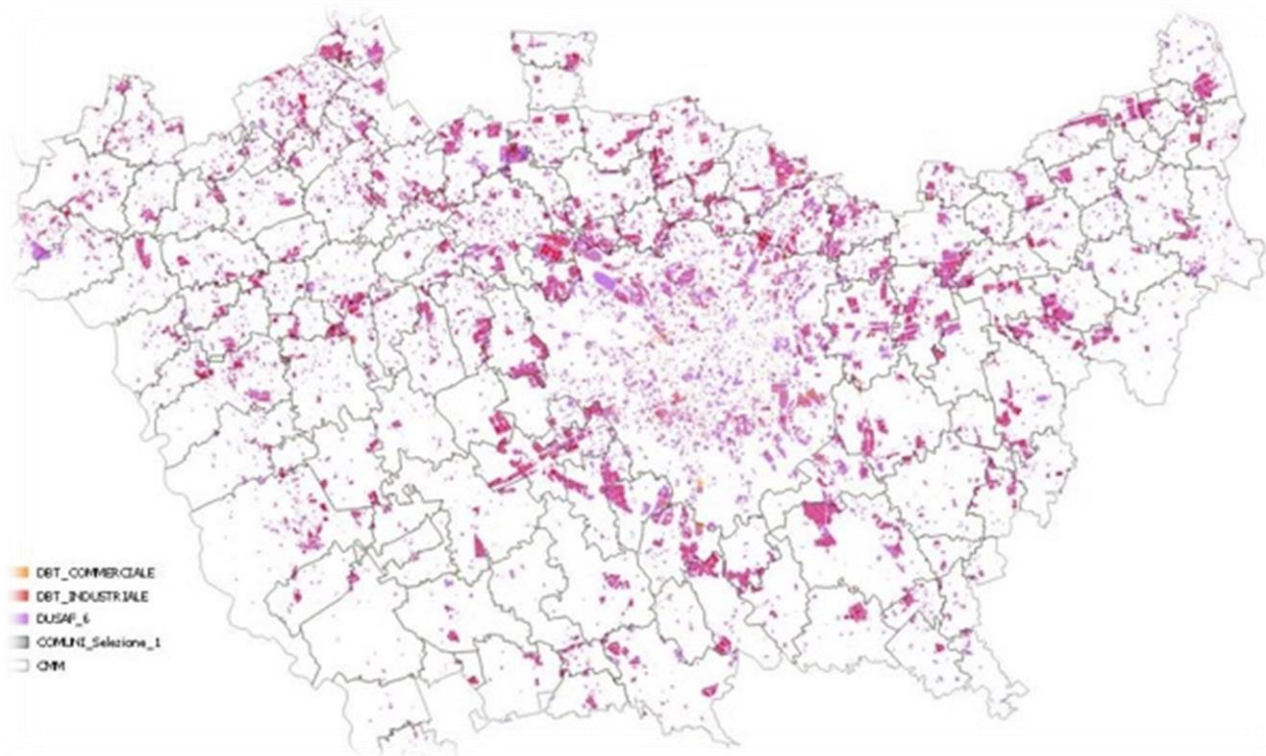


Figure 1. Productive areas in Milan metropolitan city.
Source: AP+A Project elaboration on Regional Geoportal data.

Following the transformation of the major industrial poles, the overall spatial effect of the distribution of the productive areas is now diffuse and fragmented [4, 9], embedded in a continuous urban density. The overall picture is one of a territory dotted with widespread micro-productive areas, now

integrated into the urban landscape. This spatial fragmentation has found natural allies and causes in the urban planning system based on zoning since the Second World War (Fig.1)

In terms of environmental and climatic crisis elements, the Milan metropolitan area suffers, even intensively, from the main pathologies analysed and monitored at different territorial scales: heat islands and widespread thermal anomalies; hydraulic risk; particulate pollution during the winter season; high land consumption, where more than 40% of the territory is already sealed due to the presence of settlements and infrastructures; soil pollution; groundwater vulnerability. The productive areas contribute to a significant extent to determining critical phenomena: heat island, inefficiency of surface drainage, poor quality of open spaces, of public and public-private thresholds, poor urban liveability [9, 13].

3.1 The adaptive co-design experience in the pilot districts

The research focuses on this dynamic and problematic area, with two pilot municipalities located in the first metropolitan belt: the municipality of Trezzano sul Naviglio (about 21500 inhabitants) to the south-west and the municipality of Pero (about 11600 inhabitants) to the north-west. The former is in the vast *Parco Agricolo Sud Milano*, the latter is close to consolidated (Milan Trade Fair) and new polarities at the regional level (MIND-Milano Innovation District on the former Expo site). Despite their very different contexts, the two municipalities share similar internal situations: dense urbanisation (both have a population density of around 2000 inhabitants/km²); a significant percentage of productive areas; productive areas integrated into the residential fabric in a continuous and contiguous manner; the presence of a number of industrial buildings of historical and testimonial importance; the presence of productive enclosures; a substantial absence of derelict sites, which testifies to the dynamism of the metropolitan economy of the first belt.

At the same time as the research was carried out, both the Metropolitan City and the two pilot municipalities developed new tools for territorial governance, the Metropolitan Territorial Plan [9], and the Municipal Urban Plan, respectively. This fortunate circumstance was an important opportunity for further theoretical reflection and to explore and establish real implementation prospects for the proposed solutions.

A dozen or so production areas have been identified in the two municipalities, which are recognisable within the consolidated urban fabric in terms of their spatial specificities, types of firms, employees, age of artefacts and urban morphology (Fig. 2). Although they have been generated as functional enclaves since the 1960s, the identified productive micro-districts have not been interpreted according to a logic of alterity with respect to the urban fabric, but in their connections with the inhabited city, also due to the presence of that phenomenon of misalignment between morphology, use, ownership and functions, highlighted by observers of urban planning research and disciplinary reflection [6].

In the co-design phase, carried out with the Living Lab cycles organised in the production micro-districts, it was possible to raise the awareness of the local communities about some types of adaptive interventions that are still little considered and practised (draining flower beds, green fences, trees, car parking areas with permeable solutions, in general all types of Nature Based Solutions). The possibilities/opportunities of integrated projects have also been better defined, i.e., projects that lead to solutions that simultaneously improve social cohesion and the safety of productive spaces together with their climatic efficiency (shared green roofs, multiple functions of open spaces, energy sharing, inter-company shuttles and car sharing).

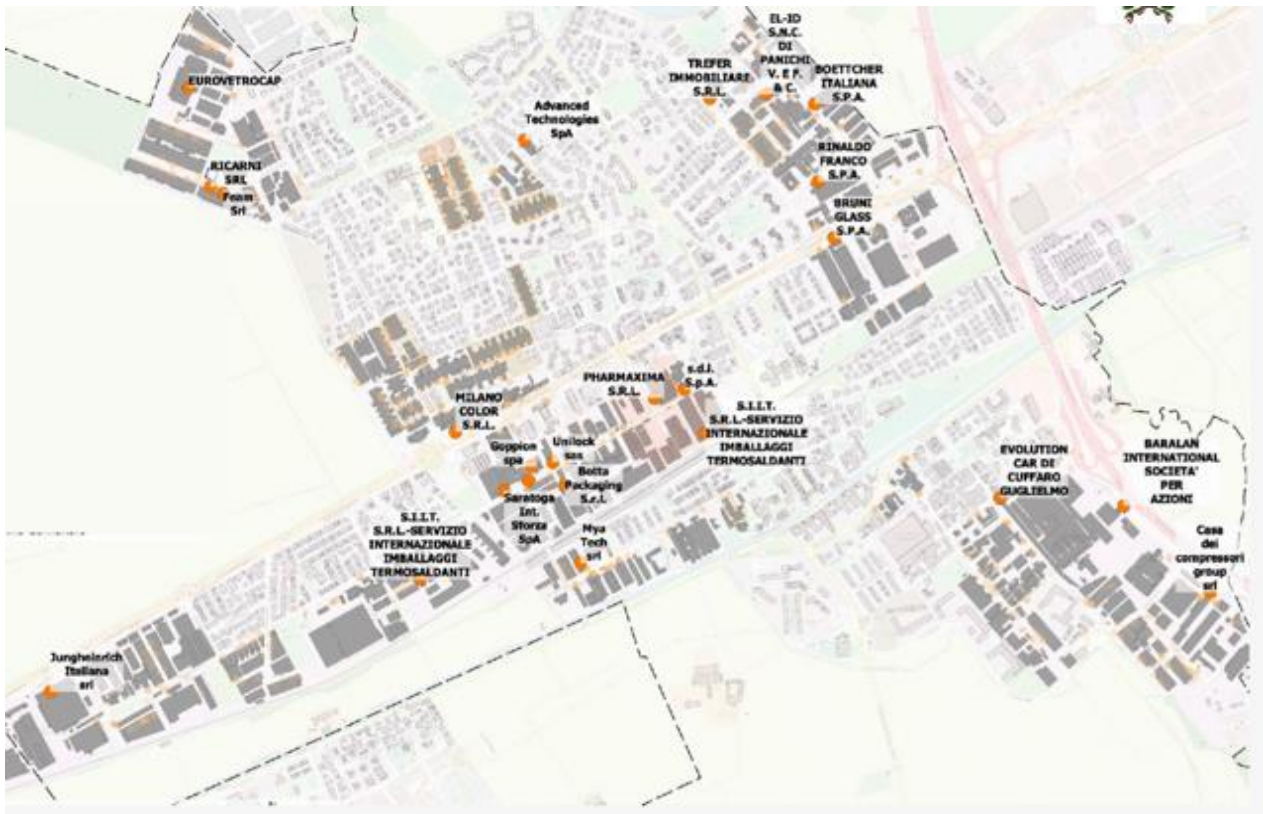


Figure 2. The productive districts in the municipality of Trezzano sul Naviglio. Source AP+A project

In general, the difficulties encountered by businesses and local communities in dealing with adaptive types of intervention were found to be largely due to a lack of familiarity with certain types of intervention and a failure to consider the real benefits induced from the point of view of maintaining the real estate value of production land.



Figure 3. Aerial view of a productive district of AP+A project. Trezzano sul Naviglio municipality.

The micro-districts were the basis for the animation of active and participatory micro-communities, motivated and sharing common knowledge, awareness and capacity on climate-environment issues.

However, during the Living Labs, it became clear that the essential requirement of having a local community of interest trained and active in climate change and adaptation issues requires serious effort, change and new contextual conditions. The perspective explored is that of public-private pacts, also in the case of initiatives on key sectors such as energy communities, local mobility and adaptive redevelopment of private spaces and public-private thresholds.



Figure 4. An urban street in the Trezzano's productive district in need of adaptive renewal

To directly support the public-private relationship in jointly defining and evaluating the performance of individual projects, a tool has been developed that is integrated into the urban plan. It is based on guided calculation tables that can evaluate the weight/performance contribution of the adopted or potential climate solutions (green roofs of different types, building envelope solutions, solutions for green areas and private car parks) for buildings and private plots affected by renovations. The tool supports a collaborative and public-private sharing approach of the ecological-adaptive perspective, declined in the operative implementation of individual urban transformations.



Figure 5. Landscape and the industrial buildings of historical interest (glass processing furnaces)



Figure 6. View of the co-designed adaptive project obtained by applying the abacus of adaptive solutions: Built Environment (B), Climate (C), Energy (E), Mobility (M), Waste (R), Social and Well-being (W). Productive district in the municipality of Trezzano sul Naviglio. Source: AP+A project

4. CONCLUSION

The lessons learnt from the experience in the context of the metropolitan city of Milan have highlighted the potential of a bottom-up approach for the renewal of productive spaces at the urban scale in an eco-adaptive perspective. The direct involvement of local communities and micro-actors in co-design initiatives raises awareness of adaptive interventions and the benefits of interventions that integrate climate and social cohesion solutions.

On the other hand, it has been shown that a participatory and co-design approach requires serious effort, change and new contextual conditions. The creation of a community of operators organised in production micro-districts is considered possible/desirable by the operators if economic advantages can be obtained by sharing services and infrastructures, with public intervention guaranteed in the management and economic aspects, with incentives and individual rewards in the case of initiatives to renovate production sites.

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