



Chair:
Prof. Paola Pucci

DOCTORAL PROGRAM IN URBAN PLANNING, DESIGN AND POLICY

The PhD Programme in Urban Planning, Design and Policy (UPDP) aims at exploring the significance and impact of contemporary urban changes and understanding the way these processes can be governed through planning, design and policy making activities. The programme pays specific attention to the transition towards new, more sustainable and equitable modes of urban development as well as to pro-active advancements in planning practices and to potential innovations in traditional urban studies, urban design and policy approaches.

The integration between different fields and disciplines of urban research on the one hand, and between theory and practice on the other, distinguishes the approach promoted by the PhD programme.

Objectives

The objective of the UPDP Programme is to provide PhD Students with the analytical and interpretative tools and skills together with research/ planning/design methodologies to advance research in the field of urban studies, spatial planning, urban design, urban policy and governance. PhD Students are encouraged to reflect upon traditional and innovative practices in these fields by participating in research activities concerning cities and regions in both Italy and abroad, paying particular attention to international comparison.

By establishing a dialogue with the best European and International schools, this PHD programme is the place for research and innovative approaches to urban studies, spatial planning and urban design dealing, in particular, with the following themes:

- Multi-scalar regional urbanization processes: rethinking and reshaping the city on a regional scale and addressing the challenges for the analytical approaches and descriptions, as well as for institutional and governance processes;
- Advances and challenges in contemporary planning theory and practice: the reshaping of citizenship, boundaries and collective action in urban arenas and their effects in the urban environment;
- Urban transitions towards sustainability: strategies and tools for land and biodiversity preservation, energy conservation, and natural and technological risk prevention and mitigation;
- Social and economic changes and their effects on spatial processes:

social inequalities and urban segregation; economic specialization and diversification in a global context;

- Tools for the evaluation and management of urban projects: feasibility and equity of urban projects, as well as the sustainability and design quality of the physical outcomes;
- European cities, urban policies in Europe, the EU urban policy agenda: exploring distinctiveness, convergences and divergences.

Contents and research training

Based on a multidisciplinary approach, the main objective of both the educational programme and the individual research activities is to offer PhD students a challenging environment with space for international debate, research, experimentation and innovation.

Starting from this perspective, the main teaching activities are fed by the members of the PHD Board organized into three research areas:

- **Urban studies.**
Contemporary cities worldwide are confronted with increasing challenges regarding local democracy, sustainable development, management of environmental resources and landscape, social cohesion and cultural diversity. Looking at recent cross-scalar urban changes, the main issues addressed are the following: social, economic, environmental and territorial transformations; governance problems and technological innovations. The main research topics are: forms and processes of the spatialization of social and economic inequalities; urban segregation; processes and institutions of urban governance; spatial impact of social innovation; forms and processes of regionalization and processes of social, economic and territorial development in local contexts.
- **Planning theories and practices.**
Urban planning is not a unitary or self-contained discipline and planning knowledge and activities can be improved by delving into (and jointly considering) both theoretical and practical issues. First, the cultures, ethics, traditions and paradigms of planning are varied and have been evolving differently according to their geographical, institutional and political context. Similarly, planning practice is multiform and can be understood from several perspectives. Studying the characteristics, the peculiar interpretations and the effects of planning practices constitutes a second relevant research field. Thirdly, the selection and discussion of the crossroads between planning and other disciplines (e.g. architecture, environmental sciences, policy studies, philosophy and others) can dramatically innovate planning theories and practices, going beyond traditional approaches and perspectives.
- **Design topics, forms and tools.**
In a scenario of changing socio-economic, environmental and territorial conditions, theoretical and technical issues for the construction of urban projects and the implementation of governance policies are being experimented with as a way to improve the quality of life. Specific research themes are: the role and form of urban projects in

leading territorial transformations; innovation in the description and representation of urban environments and landscapes; tools for the evaluation and management of urban projects and policies aimed at mastering the feasibility and equity of land development, as well as the sustainability and the design quality of the physical outcomes and strategies for land and biodiversity preservation and energy conservation.

The three research areas reflect the contents and themes of the ongoing research at DASTU and represent the framework of future proposals. They will be the backbone for PhD Students' educational and research activities.

Professional and research profiles

According to its international orientation, the UPDP PhD Programme intends to train highly qualified researchers and professionals and expects them to work in academic institutions, research centers, public administrations and the private sector in the following fields: spatial planning, design and management of urban projects and policy, urban studies and urban governance.

PhD Doctors with such a profile are qualified to be employed by Italian and International academic institutions, public bodies and research centers, as well as public and private development agencies.

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THE CONTRIBUTION OF PLANNING TO THE EMERGENCE OF INFORMAL SETTLEMENTS

Fadaei Arman – Supervisor: Prof. Stefano Moroni

Attention towards informal urbanism in urban studies, research and public debate is growing. This could be due to two facts: first, this type of urbanization is becoming the prevalent mode in many cities of the global South. Second, informal urbanism poses an antithetical nature with traditional ideas of planning that are often prevalent in their hosting contexts. While different approaches trying to describe, theorize and formulate the causes of emergence of such type of urbanization (Burgess, 1978; Hardoy & Satherthwaite 1989; De Soto, 2000; Romero, 2003; Roy & Alsayyad, 2004) cover a wide range, there has been little attention paid to the contribution of local urban planning systems in emergence of informal settlements. Moreover, most theories based on the context of global South tend to homogenize these dissimilar urban agglomerations, considering informal settlement as a similar object instead of basing their arguments on peculiarities of local realities such as neighborhoods, single cities and local dynamics of planning and development. Such tendency manifests repercussions in individuating the causes of formation of such settlements. In my research, I attempt to address such a shortcoming through using a local case study (Tehran and its *Farahzad* informal neighborhood)

and investigate how planning itself may contribute to the exclusion of the low-income segment of the society in city of Tehran and specifically in the neighborhood. By means of this study, I contend that: local urban planning is among significant factors contributing to the emergence and permanence of informal settlements in Tehran and in particular in *Farahzad* neighborhood. My findings, could pose potential similar tendencies for other cities around the globe, where the rate of informal urbanization is high. This research builds on a comprehensive analysis of the theoretical background that can be found in the second chapter, whereby different approaches that have addressed the issue of informal settlements in planning debates have been mentioned in a systematic manner. Various strands of thought in this regard are recognized and categorized as they have sought to individuate the theoretical underpinning for emergence of informal settlements. Policies that have been adopted to tackle the issue since early days of the study of the phenomenon are also analyzed and represented, the latter has implications for policy recommendations argued in the last chapter of the dissertation. After individuating the disproportionate attention towards

the role of planning in emergence and permanency of informal settlements, my research examines a case study. Before scaling down to the neighborhood level, it considers the wider picture of planning in Iranian case which has explicitly contributed to the emergence of informal urbanization in its highest paced urbanizing city, namely Tehran. The housing supply constraints both in private and public sector, are mainly influenced by policies entrenched within the 5 years' national development plans of Iran. Those are individuated and expounded in chapter 3. Direct and indirect factors, mechanisms of exclusion of the low-income within housing and related finance policies are analyzed and brought to the front. Some of these policies are deemed as an integral component of urban planning system in Iranian context. It is supposed that the exclusion of the low-income from formal housing market, prepares the ground for alternative solutions to be found in informal housing sector. According to the local definitions of informal settlement in Iranian planning debates, adherence to building norms/land use regulations and holding legal titles are individuated as two main indicators. Based on this I argue, excessiveness, rigidity and un-relatedness of norms and regulations to preferences of the low-income, concomitant highly

bureaucratic procedures and mal-enforcement of norms; pushes the low-income households out of formally planned city, causing the emergence of informal settlements. In a next step and based on the second indicator, I argue that in case of *Farahzad* informal neighborhood, instead of narrow interpretation of security of tenure (i.e. holding it equivalent to land titles); it is more significant and constructive to dissect this notion along three subsets: legal, de facto and de jure. This is in line with what was suggested by Van Gelder (2009). I suggest that, a reform on planning's regulatory framework coupled with the holistic interpretation of security of tenure could impede the formation of new informal settlements, and disrupt the permanency of the existing ones. Chapters 4 and 5 cover the issues about building codes, land use regulatory framework and security of tenure. They are based on data collected through the field study carried out in *Farahzad* neighborhood. In 6th and last chapter, through a conclusive attempt and based on findings demonstrated in the previous chapters, I argue: any governance attempt to deal with a burgeoning challenge such as high paced growth of informal urbanization, in Iran and possibly in other contexts witnessing similar conditions, (among other factors) needs to examine whether the planning agenda and regulatory framework fit the needs, conditions and preferences of the low-income. In other words, what is to be scrutinized before any policy formulation, is the extent to which planning succeeds in adopting the

conditions of the poor and the level to which it deprives them from formal urbanization. The latter is mainly engendered through supply constraints induced by defective affordable housing schemes and related financial policies as well as a constricting regulatory framework that impedes self-construction practices and denounces the legitimacy of existing informal settlements (such as *Farahzad* neighborhood) by ignoring concepts such as security of tenure. The latter is fundamental for amelioration of the conditions of existing informal neighborhoods and disrupting their perpetuation. To be more precise, this chapter based on analysis of the local planning system, argues the following. Affordable housing policies have significantly failed to accommodate the low-income and their failure could be attributed to the following: weak designed financial models to support the affordable housing that have stimulated inflation and inflationary-stagnation, failure in choosing and setting the target groups for affordable housing, failure in detecting the rising demand, unprofessional design and implementation of massive public housing projects that bore evident signs of misallocation and waste of resources. Moreover, based on the case study of *Farahzad* neighborhood, I conclude how land use regulations and building codes are incongruous with the needs and conditions of the low-income households, discouraging them from building formally. The requirements by this component of planning's regulatory framework are unrealistically high

and excessively bureaucratic, constituting a flawed, cumbersome, excessive, superfluous and pernicious planning system for the lowest-income. This hampers any attempt for self-construction and self-help in an unaffordable housing market. The last findings of this research, regards how planning conditions the informal settlements to remain in their precarious status quo, and how such approach could be rectified. In case of *Farahzad* neighborhood, legalization of the land titles has remained a complex and largely unresolved issue, mainly due to conflictual relationship between the institutional claimers of public land, municipality and the inhabitants. While in Iranian planning system, a fully recognizable land title is a precondition for state backed incentives and amelioration schemes, in such a condition of legal uncertainty, a feasible way to ameliorate the conditions of the neighborhood could be boosting the security of tenure, instead of solving the apparently "unresolvable" situation of freehold titles provision. This research shows that the security of tenure in the neighborhood could be interpreted based on a trifold whose boosting it as a whole, could significantly encourage the households to invest in their housing units and even participate in their neighborhood upgrading. Policy guidelines are draw in this direction. This research represents data collected during a field study in summer of 2015 and uses a mixed methodology to analyze the data. In depth interviews, direct observation, questionnaires and desktop review are among the principal methods used along the study.

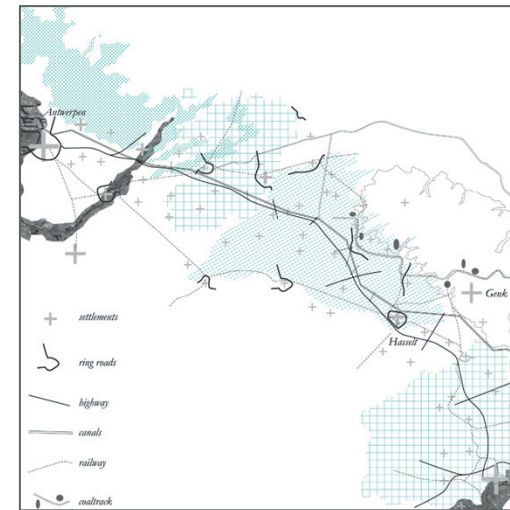
SURPLUS INFRASTRUCTURES: TWO CASES IN WESTERN EUROPE

Motti Matteo – Supervisor: Prof. Marialessandra Secchi

"Surplus Infrastructures" aims to understand present and future roles of infrastructural footprints in the dispersed urbanized territories of Western Europe. The phenomena considered are those territories defined as a "city-territory" (Corboz, 1990) or "archipelago metropolitano" (Indovina, 2003) where infrastructural assets act as "the basic, underlying framework of a system or organization", or, "the fundamental facilities and systems serving a country, city, or area (Harper Etymology Dictionary, 2010). Infrastructures are emblematic of specific historical periods, economies and ideologies [Fig.1]. Due to ongoing economic and ecological crises, we deem it crucial to understand the effect these processes have in shaping the system of relations that infrastructure establishes within both the urban realm and the natural environment (Keil, 2013). The cross-references between the Corbozian interpretation of the territory and the systemic design approach proposed by Alan Berger defines the framework of the thesis. These two perspectives together open up specific analytical, interpretative and design trajectories. If the metaphor of the palimpsest (Corboz, 1983) implies a better

understanding of the territorial complexity and components, systemic thinking (Berger, 2009) creates bridges between them. These trajectories and their cross-references will be fully exposed and explored throughout the case studies. The body of the thesis is therefore defined by the research activities conducted on two parallel case studies and then is deepened in one specific site. The empirical research consists primarily of a set of critical cartographic investigations revealing a hidden geography of wasted, wasteful and disruptive infrastructures on two city-territories in Europe. Doing so the research hypothesis are deepened and reformulated according to the research findings. Subsequently, in order to frame and fulfill the research question one specific site has been explored through a participatory, design oriented workshop with the involvement of young professionals and relevant stakeholders. Looking at wasted and wasteful aspects of the city-territory brings attention to a gradient of infrastructural systems that are either no longer in daily use, operational or those which are expensive and inefficient. The objectives of the research are twofold. First, the research aims to contribute to descriptions of the dispersed

urban patterns in Europe through a specific understanding of the Anthropocene by examining the infrastructural assets critically. Second, the goal is to explore evolving scenarios in which to rethink the systems of relations of infrastructure towards a systemic recycling and up-cycling actions. How can we evolve from a process of urbanization in which we accumulate materials and consume resources towards an alternative condition where infrastructural synergies might activate positive (cyclic) interactions between both the urban realm and the environment? The research hypothesis anchors the interpretation of the territory as the result of the selective accumulation of traces (Corboz, 1983; Secchi, 2000) on one side, and as the emergent geography of dross (Berger 2007) resulting from urban sprawl and economic failures on the other side. Thus the will is to find out the amount (quantitative) and the spatial dimension (qualitative) of infrastructure's surplus. The research hypothesis approaches the infrastructural footprints of city territories as part of the region's complex stratification and as a consequence of inefficiency and obsolescence. The case studies unfold the



hypothesis through specific interpretative mappings able to fully describe the contemporary operative and spatial condition of their infrastructural footprints. Specifically, these interpretative mappings look to the amount of surplus present both in Limburg and Friuli Venezia-Giulia. The case based approach uncovered a geography of inefficiency and a loss of spatial opportunities in both Regions. In fact, one of the principal outputs of this research is considered the revelatory component of the critical cartography [Fig.2]. Secondly, the workshop itself revealed the potential of a

possible re-configuration of the existing infrastructural assets. From one side, the workshop has been an occasion to test the theoretical framework, while on the other hand the workshop itself promoted new knowledge related to territorial re-configuration. The design exploration doesn't promote a fixed and static output but, on the contrary, it promotes a site-specific knowledge able to fulfill and further elaborate the research question. The case of Houthalen-Helchteren (BE) revealed the potential for the systemic approach by enhancing existing conditions through

the involvement of emerging economies present on site. This research builds upon existing infrastructures and stakeholders [Fig.3]. These aspects made it possible to disclose hidden potentials and instigate new synergies amongst previously separated spheres of territorial management practices. In my view, possible alliances between the environment and the city remain unexplored precisely because the challenges of the systemic design are so new. In this sense, the phenomenon of the city-territory appears relevant due to its hybrid status between the urban and the rural and is to be immersed in both industrial (production/manufacturing/man-made) and natural landscapes, crisscrossed by all kinds of infrastructure. The research leads as well to the exploration of new design tools capable of supporting the systemic approach.



ECOSYSTEM SERVICES FOR SPATIAL PLANNING. A PROPOSAL FOR PRACTICAL APPLICATION: RDS | RESTART FROM ECOSYSTEM SERVICES

Ronchi Silvia – Supervisor and tutor: Prof. Paolo Pileri

Changes in Land Use and Land Cover (LULC) are among the most significant drivers of Ecosystem Services (ES) alteration. Their depletion affects Human Well-being, biodiversity conservation and the health of other species. Changes in the extent of agricultural, forest, grass and wetland impact on provisioning of ES, among others; climate regulation, the carbon cycle, landscape ecology, water quality and Soil formation, rather than the biodiversity, at global, national and local scales.

In many regions of the world, Spatial planning aims to provide a prescriptive distribution of land uses and their functions, also allowing urban transformations or other kinds of land use conversion/substitution within a jurisdiction. Therefore, Spatial planning affects a wide range of ES, especially considering the possible scenario options. As stated, Spatial planning may influence ES provision, but could also promote their conservation, protection and enhancement. Hence, assessing the state and flows of ES is crucial in supporting the planning processes.

The thesis aims to investigate the relationship between Ecosystem services and Spatial planning questioning possible ways of integrating the two concepts and approaches.

The implementation of ES in Planning

requires a precise method of obtaining significant evidence to aid the decision making process because the provision of ES depends on the importance this is given in Spatial planning. In recent years, knowledge on ES mainstream approaches to Spatial planning has increased through research and includes existing mind-sets and technical procedures. Many of these proposals often remain limited to specific aspects of Spatial planning or, in many cases, focused on only a few components of an existing tool. These modalities, are surely essential in improving the knowledge system but without impacting the planning process, only acting as tools used in the planning process. The integration of ES demands operational frameworks in the Planning process that today is still in its infancy and has precluded its full inclusion. The research thesis acts within this framework, investigating the reasons behind this gap and advancing proposals to bridge Ecosystem services into the planning process to support decision makers.

The research questions that have guided the dissertation are:

- How can ES influence the decision making process?
- In which steps of the Planning process should ES be integrated?
- Which operational contents

could improve the bond between ES and Planning?

The thesis provides a proposal for ensuring the inclusion of ES in Planning process using the incremental measures of limiting, mitigating and compensating soil sealing and land take process promoting operational strategies in applying it. The proposal is supported by a practical application to demonstrate the results, the limits, the opportunities and further new developments.

The ES implementation will be supported by a case study (the Landscape units of the Metropolitan area of Milano) which considers the relationship between land use changes and ES as a governance perspective. This allows an evaluation of potential impact in ES provision (Ecosystem Service Capacity – ESC) **fig. 1** due to Land use management involving decisions that lead LULC changes.

The impact of the decision that determines LULC changes is evaluated considering the European approach to limit, mitigate and compensate soil sealing and land take processes promoting operative strategies that apply to it. For this purpose, it was defined a methodology called “RĒS – Restart from Ecosystem Services”, **fig. 2** designed by the Ph.D. student, to evaluate the alteration of ES capacity

due to LULC changes using an ecological balance, and promoting the adoption of new Planning parameters for the transformation areas.

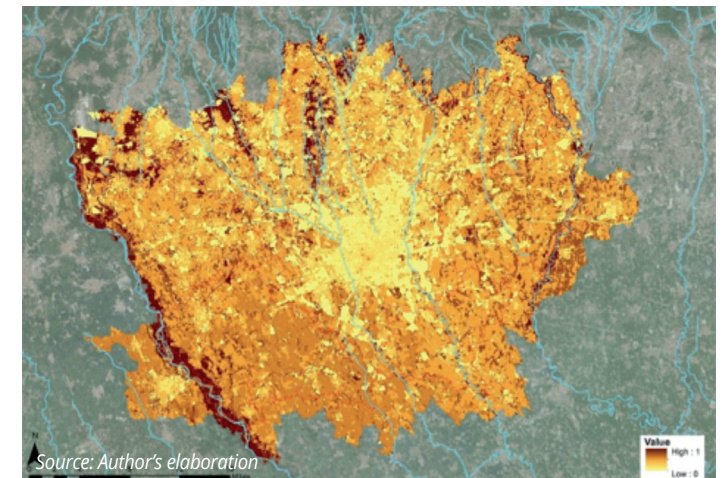
The RĒS implementation in the Planning process is associated with the Strategic Environmental Assessment (SEA) providing valid support for the definition of the planning strategies across the entire process, especially for the evaluation of alternative scenarios.

The thesis outlines how SEA should incorporate and guarantee ES assessment adopting RĒS methodology for the definition of sustainable solutions that avoid impacts on ES provision.

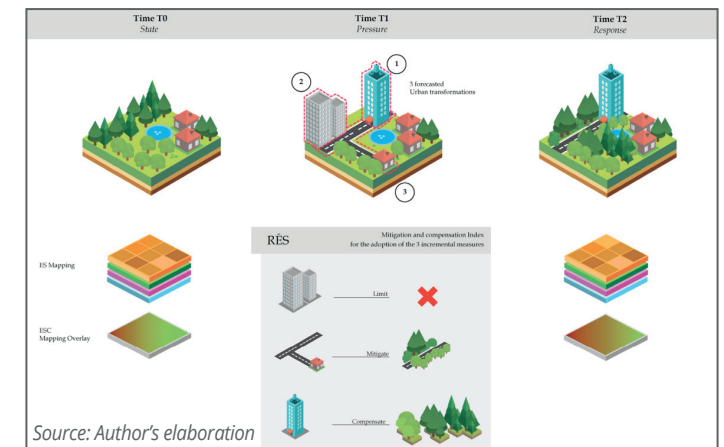
The thesis is articulated in three parts:

the *first part* introduces the main notions of the thesis: ES and Planning giving such preliminary assumptions on their necessary integration as a starting point for further discussion.

The *second part* of the thesis is dedicated to presenting important issues that must be considered when dealing with ES in terms of methodology, approaches and practical experiences. The issues explored concern the scale, the assessment methods, and the management of ES. Each topic is investigated always considering the Planning perspective, hence having as a framework that of Planning and territorial governance. This part ends presenting experiences on assessment and mapping ES with two modalities: the first collects the practical case study elaborated by the Ph.D. student in order to test and verify directly opportunities, criticisms and possible



1. Ecosystem Services Capacity: weighted sum output



2. Conceptual scheme of the State-Pressure-Response model

improvements in ES assessment/ mapping for Planning support; the second presents such innovative aspects that affect the integration of ES in Planning.

The *last section* is the RĒS operative proposal. In this part all the contents learnt in the previous phases converge to try to solve such critical aspects and to improve others (e.g. the scale issues, the methods for ES assessment, the tools for ES integration) by defining a

methodology (step by step) of adopting ES for Planning support. The steps of the methodology are explained in a theoretical section and an operative application in order to give more essence to all the processes and to validate RES. As a conclusion, the student provides critical reflection on the actual behaviour of the topics in ES and Planning focusing on the social recognition of ES based essentially on their proper acknowledgement and increased awareness.