

An aerial photograph of a city grid where the blocks are hexagonal in shape. The streets are light-colored, and the blocks are a darker, reddish-brown color. The perspective is from a high angle, looking down at the city layout.

Selected, peer reviewed papers from the  
2nd International Conference on  
Urban Planning and Sustainable Development  
(UPSD 2013)

# CITY AND COUNTRYSIDE

Edited by  
Alessandra Lai Ming Lu



HARBIN INSTITUTE OF TECHNOLOGY PRESS

# **CITY AND COUNTRYSIDE**

**Selected, peer reviewed papers from the  
2nd International Conference on  
Urban Planning and Sustainable Development  
(UPSD 2013)**

**May 15, 2013, Harbin, China**

**Nov. 9, 2013, Alghero, Italy**

*Edited by*  
**Alessandra Lai Ming Lu**

## 图书在版编目(CIP)数据

城市与乡村=City and countryside:英文/(意)

赖(Lai, A.), 陆明主编. —哈尔滨:哈尔滨工业大学出版社, 2015. 2

ISBN 978-7-5603-5069-1

I. ①城… II. ①赖… ②陆… III. ①城乡规划-可持续性发展-国际学术会议-文集-英文  
IV. ①TU98-53

中国版本图书馆 CIP 数据核字(2014)第 292851 号

责任编辑 王桂芝 任莹莹

出版发行 哈尔滨工业大学出版社

社 址 哈尔滨市南岗区复华四道街 10 号 邮编 150006

传 真 0451-86414749

网 址 <http://hitpress.hit.edu.cn>

印 刷 哈尔滨市工大节能印刷厂

开 本 787mm×1092mm 1/16 印张 16 字数 370 千字

版 次 2015 年 2 月第 1 版 2015 年 2 月第 1 次印刷

书 号 ISBN 978-7-5603-5069-1

定 价 78.00 元

---

(如因印装质量问题影响阅读,我社负责调换)

## Preface

The master's degree program "Advanced Methods and Tools for Sustainable Planning": an educational research laboratory on sustainability at the service of the territory.

In 2010, the definition of the Memorandum of Understanding among the Italian Ministry of Education, University and Research (MIUR), the Autonomous Region of Sardinia (ARS) and the Sardinian Universities for the implementation and the enhancement of the university system and research in Sardinia, offered the opportunity to encourage dialogue and cooperation among universities, institutions and enterprises, by putting in place tools addressed to strengthen the system of research and scientific and technological innovation in strategic sectors for the regional economy, according to the recommendations of the Lisbon Strategy, the National Research Program, the EU's Seventh Framework Programme for Research (FP7). The year after, the Memorandum of Understanding for Higher Education was signed among the ARS Department of Employment, Vocational training, Cooperation and Social Security and the Sardinian Universities to design an innovative project with the aim to increase the postgraduate training offer, focusing on the enhancement of skills and expertise in strategic sectors, with a view of integration in the economic and cultural European and international context.

November 2012 saw the start of the 2nd level University master's degree program "Advanced tools for sustainable planning", designed by the Department of Architecture, Design and Urban Planning of Alghero (DADU) and carried out together with the academic Chinese partner Harbin Institute of Technology (HIT), with the support of the Department of Employment, Vocational training, Cooperation and Social Security of the RAS. It represents an important opportunity for the exchange of views about planning methodologies, current regulations and, above all, the different modalities for a sustainable design and the future management of the city, the environment and the landscape. The idea which inspired the master's degree program is to offer a critical reading of initiatives and processes of implementation, at international level, in order to deal with issues related to different aspects of sustainable planning and management of the landscape in Sardinia and to raise awareness of the current critical situation. In this sense, the Master program offers multiple and interdisciplinary interpretations and points of view, both the technical issues and the opportunities and risks in relation to the strategic dimension of the policies, for example, those which deal, in particular, with the definition of sustainable systems adaptable to different territorial needs, the cooperation between researchers and experts and the training, including the technical structures of lo-



cal administrations.

Today we cannot think of dealing with issue like the sustainable development without the cooperation with emerging Countries through the exchange of knowledge, appropriate experience and technology to study strategies for future oriented to improve the quality of life, without distinction between urban metropolis and rural village. Beyond the old friendship of our institutions, the implementation of exemplary interventions at different scales, on the one hand, and the cultural and environmental distance of China from Sardinia, on the other hand, leaded us to choose the city of Harbin, in the Heilongjiang Province, being the seat to one of the most prestigious Chinese academic institutions, as the destination for the internship required by the training Master's program. This experience was not confined to the mere knowledge of theories and relevant case studies in Chinese territory, but it served as an input device for the construction of a new vision of the territories, with particular attention to the relationships that govern the urban and the rural dimension of the landscapes. Moreover, the great vitality of this nation with respect to the design of its future shows itself not only in the fast growth of the recent years, along with rapid and simultaneous upheavals both of the society and the environment, which has made China the second largest economy in the world, but also in the care the Country puts today on the issue of "green" economy: in fact, it invests more, in absolute and percentage terms, for the development of environmentally sustainable technologies.

However, this opportunity meets the necessary requirement to build several instrumental in-depth operations involving technological and normative innovation, the reform of the operating modes of public administrations and the effectiveness of protection compared to the models of development, as well as qualified skills related to new ways of understanding the sustainable planning, like the whole project strives for. Specifically it was arranged as an opportunity to rethink the specific field of higher education, meeting the most heartfelt demand to compose shared in-depth analyses, that give a new sense to the instrumental action of the learners in the training project, specialists in architectural and engineering field in particular, but including also specialists in of other fields ( agronomists, political scientists, naturalists, etc. ), all engaged as members of interdisciplinary teams to deal with procedures and tools oriented to sustainability, declined according to different points of view ( not only environmental, but also social, institutional, and, ultimately, economic sustainability) and according to the different perspectives offered by the comparison between Europe and China. These perspectives direct the

framework of the future strategic planning and allow to select tools and procedures needed to innovate the design and the sustainable management of landscapes.

Nevertheless the educational project that guides all the activities aims to up-grade the skills of the participants, to the highest degree allowed by state of the art, with regard to the design and the sustainable management of territorial transformations. These have as a natural consequence the landscapes, both in terms of conservation and in terms of transformation. Furthermore traditional models of education, including those who present themselves with a qualifying image, often prove to be unsatisfactory for the learners, due to the lack of an educational reference model. The risk is a contemplative attitude of learners with reference to the knowledge transmitted almost exclusively through conventional forms of training and often in unsuitable spaces to host innovative ways of learning.

Today technical and conceptual structures have not to be trained with an activity made only by frontal lectures, but rather through real designing and planning workshops, which create environments of mutual learning and study, addressed to develop together awareness and testing forms through a common project, without which any interaction is possible. Consequently, if we want to accelerate the EU's transition towards an economy and a society based on knowledge, crucial goal of the Lisbon strategy, the education and training should aim at the construction of interactive environments to build, to maintain, to renew the human and social capital and to promote research excellence in the field of sustainability.

Therefore, the main task of the master is to support the construction of a permanent space of interaction among the people who operate and work in the field of sustainability at different levels and at different scales: institutions, experts, territorial entities and subjects which deal with the territorial management. Specifically, the goal is to put high value and allow researchers and local and international experts to interact, through an efficient network, exchanging their views on experiences and common problems and strategies to cope with them, starting the discussion on the development of new sustainable systems, adaptable to different local needs, identifying lines of action and shared rules to rethink the ways and tools for designing and planning.

Finally, the definition of these tools and methodologies and their possible application is the topic of the Conference "Urban Planning and Sustainable Development" (UPSD

2013). It is an important international meeting point within the master course organized to consolidate a stable and fruitful relationship of scientific collaboration between the two institutions—the University of Sassari and the Harbin Institute of Technology, with a leading role played by the Embassy of Italy in Beijing.

*Alessandro Plaisant*

*Department of Architecture, Planning & Design-University of Sassari (Italy)*

## Preface

The contributions presented in this book deepen the reflections exchanged during the two conferences organized as part of the International Master's Degree "Advanced methods and tools for sustainable planning", which has consolidated, as just said, the academic partnership between the Department of Architecture, Design and Urban Planning of the University of Sassari (Italy) and the School of Architecture Institute of Technology, Harbin (China).

The first conference was hosted in Harbin May 15, 2013 and the second in Alghero November 11 of the same year.

The two initiatives are also placed in the round of Sino-Italian biennial meetings dedicated to sustainable urban planning (UPSD) and have been encouraged and supported by the Autonomous Region of Sardinia and the Italian Embassy in Beijing in the belief that, despite the profound differences, the constant review of the research and the methodological approach, through the sharing of the results obtained, represents a necessary step for those who pursuing excellence goals.

The first major issue that emerges from these experiences is that the two schools of architecture have proved to be sensitive to the most emblematic transformations that are investing their respective territories and have made of it the object of study. This is not surprising, given that the architecture is influenced not only by the techniques which are its own, but also by external forces that challenge its practice.

In the case of China, the massive movement "migration" of the rural population to the cities offers an unprecedented challenge that forces us to question the traditional techniques of construction of urban space and to establish new priorities: first and foremost, maximum energy efficiency and minimum emissions pollutants.

The European context also calls for a more efficient and sustainable cities with a focus on the territories of the margin, the peri-urban agricultural land threatened by misuse and degraded areas; the fate of these hybrids fields can play a decisive role on energy consumption and pollutant emissions management, but most are likely to affect resources critical to the autonomy of the city.

There are several occasions of overlap, but for an easier reading the contributions have



been divided into four sessions. The first consists of the keynote' speeches. They introduce the main topics addressed in the following chapters, calling the suggestions from other cultural fields like in Cecchini one, or with D'Eramo contribution, stretching the concept of margin til reaching the ports as emblematic case where due to the container's revolution the city has broken its millennial relationship with its harbour.

The second session presents two study cases, placed in two very different context: an archipelago of hamlets in the North East of Sardinia (Italy) and a rural village in Ghana. In both situation the researcher explain the strategies adopted or planned to enhance the life quality of rural communities through actions that support their autonomy and through people empowerment, reinforcing the link between the communities and the agricultural field around the villages.

The third sessions addresses the future of peri-urban areas and relevant empty spaces spread into the consolidated city framework exploring the different planning strategies and tools to drive the development of those hybrids towards a more sustainable use.

The fourth and final session is devoted to strategies to reduce carbon emissions in a very challenging context such as China and particularly the regions of the North East. Here the conditions that affect pollutant emissions, already beyond the critical threshold, are subject to a surge in winter season, the climate exceptionally severe and prolonged that requires extraordinary energy resources to heat their homes and work spaces. Finally the Director of the EC2—Europe China Clean Energy Centre, presents the formalization of a partnership between the European Union and China aimed at promoting the use of alternative energy sources with operations in the territory of China that can model and to flying future programs as virtuous.

*Alessandra Lai*

*Department of Architecture, Planning & Design-University of Sassari (Italy)*

Contents

**Part 1 Keynote Speech** ..... 1

**The City and the Country: How to Reconstruct a Relationship** ..... 3  
*Arnaldo Cecchini, Maria Rita Schirru*

**The Knowledge Cities: How the Universities and Science Parks are Shaping the Chinese Urban Environment** ..... 21  
*Plinio Innocenzi, Maurizio Minchilli*

**Ports and Cities in the Age of Box Capitalism** ..... 31  
*Marco d’ Eramo*

**Low Carbon City Planning Strategies Based on Severe Cold Climate Regions** ...  
..... 47  
*Hong Leng, Cunyan Jiang*

**Part 2 Enhancing the Life Quality of Rural Villages through People Empowerment** ..... 59

**Promoting Rural Development to Combat Desertification: An Integrated Approach for Restoring Degraded Rangelands in Morocco** ..... 61  
*Laura Altea, Marcello Lubino*

**Digital Hamlets: Innovative Methods and E-Participation Tools Supporting Self-Sustaining Policymaking at the Local Level** ..... 70  
*Alessandro Plaisant, Maria Teresa Pinna, Valentina Talu*

**Part 3 Managing the Relationship between City and Countryside** ..... 95

**Non-Urbanized Areas, Urban Sprawl and Landscape Protection Planning: Researches and Planning Examples from South Italy** ..... 97  
*Daniele La Rosa*

<b>The Spatial Plan of the Metropolitan Region of Barcelona</b> .....	120
<i>Joan López Redondo</i>	
<b>Mobility and Urban form: The Case of the Metropolitan Area of Barcelona</b> .....	140
<i>Carles Donat</i>	
<b>Developing a Green-TOD Urban Design Model to Promote Eco-City Development</b> .....	152
<i>Kangli Wu</i>	
<b>Urban-Rural Sustainable Development and Planning Method Based on Cybernetics</b> .....	175
<i>Huiyi Tang, Ming Lu</i>	
<b>The Peri-Urban Landscape as Battlefield Between Private and Public Perspectives</b> .....	180
<i>Alessandra Lai</i>	
 <b>Part 4 Cold Climate Regions: Challenging Context to Experiment Low Carbon Target Development</b> .....	
199	
<b>On the “Low-carbon” Approach to Cope with Weather Vulnerability: A Case Study of the Snow Village of China</b> .....	201
<i>Wen Cheng, Tianyu Zhao</i>	
<b>Dynamic Analysis for Solar Energy Availability in Harbin High-rise Residential Area</b> .....	210
<i>Ming Lu, Jun Xing, Shuxin Chen</i>	
<b>Thinking about the Urban Development in Northeast of China in the Background of Economic Transition</b> .....	221
<i>Yu Zhang, Ziguang Chen</i>	
<b>The Europe China Clean Energy Center</b> .....	238
<i>Roberto Pagani</i>	

# **Part 1    Keynote Speech**



## The City and the Country: How to Reconstruct a Relationship

Arnaldo Cecchini<sup>1,a</sup>, Maria Rita Schirru<sup>2,b</sup>

<sup>1</sup>*Department of Architecture, Planning & Design-University of Sassari (Italy)*

<sup>2</sup>*Department of Communication and Social Research-University of Rome "La Sapienza"*

<sup>a</sup> *cecchini@uniss.it*; <sup>b</sup> *mrita@tiscali.it*

The greatest division of material and mental labour is the separation of town and country. The antagonism between town and country begins with the transition from barbarism to civilisation, from tribe to State, from locality to nation, and runs through the whole history of civilisation to the present day (the Anti-Corn Law League).

The existence of the town implies, at the same time, the necessity of administration, police, taxes, etc.; in short, of the municipality, and thus of politics in general. Here first became manifest the division of the population into two great classes, which is directly based on the division of labour and on the instruments of production. The town already is in actual fact the concentration of the population, of the instruments of production, of capital, of pleasures, of needs, while the country demonstrates just the opposite fact, isolation and separation. The antagonism between town and country can only exist within the framework of private property. It is the most crass expression of the subjection of the individual under the division of labour, under a definite activity forced upon him—a subjection which makes one man into a restricted town-animal, the other into a restricted country-animal, and daily creates a new the conflict between their interests. Labour is here again the chief thing, power over individuals, and as long as the latter exists, private property must exist. The abolition of the antagonism between town and country is one of the first conditions of communal life, a condition which again depends on a mass of material premises and which cannot be fulfilled by the mere will, as anyone can see at the first glance. (These conditions have still to be enumerated.) The separation of town and country can also be understood as the separation of capital and landed property, as the beginning of the existence and development of capital independent of landed property—the beginning of property having its basis only in labour and exchange.

This rightly famous passage from the German Ideology provides a key for the interpreta-



tion of the relationship between the city and the country in all its unbalance; undeniably, the city has never been “sustainable” in any sensible meaning of the word, we rather could say that the city is the place of organised human life with the paramount accrual of entropy.

Both the birth and the development of cities are under the sign of oppression of its exterior, of dissipation, of pollution, more in general of externalities.

The first great division of labour, the separation of town and country, condemned the rural population to thousands of years of mental torpidity, and the people of the towns each to subjection to his own individual trade. It destroyed the basis of the intellectual development of the former and the physical development of the latter. When the peasant appropriates his land, and the townsman his trade, the land appropriates the peasant and the trade the townsman to the very same extent. In the division of labour, man is also divided. All other physical and mental faculties are sacrificed to the development of one single activity. This stunting of man grows in the same measure as the division of labour, which attains its highest development in manufacture. Manufacture splits up each trade into its separate partial operations, allots each of these to an individual labourer as his life calling, and thus chains him for life to a particular detail function and a particular tool. “It converts the labourer into a crippled monstrosity, by forcing his detail dexterity at the expense of a world of productive capabilities and instincts.”

Nonetheless, the city is one of the first fruits of the capacity of the mankind to control its future which has given rise to agriculture, and is at the basis, non only etymologically, of the civilisation (without forgetting though that culture is related to cultivation).

Closed urban form has been the rule until 700, limited by walls defending the city from the external world of the countryside, and beyond from the wilderness of the forest (wilderness is close to natural, while cultivated country is utterly artificial), places where the physical incolumity of the traveller could not have been protected and from where perils to citizens and the city could have come, in time of war and in time of peace.

The urbanlimes was defined, sharp, precise. At night the gateways were closed and outside the darkness took sway. The city gate had the same sacral value of the house doorsteps, the boundary between inside and outside, the barrier against the forces of evil.

Besides under the oppression, the city was also born under the sign of many marvellous things, but not unbound from the terrible ones.

We therefore need to take the city into account.

The problem of the limit has always existed, but perhaps it now almost always assumes not only local dimensions.

In the past, many cities, the predominant majority, have come to extinction for having destroyed their environment, above all their countryside and forests, that is, the conditions for their survival-essentially, an autophagia.

It is worth remembering that a characteristic of the modern city has been the breakaway from the "dogma" of spatial contiguity of the supplies and of the markets, while a characteristic of the contemporary city is the breakaway from the spatial contiguity of the production.

The urban expansion and the growth of urban consumption in the recent decades is determining also a globalisation of the environmental effects, both in terms of instantaneous impacts and of the stable pressure: not only the entire present world is invested, but also the entire future world is consumed.

Here in returns under many facets the original conflict between the city and the country.

There is a irreducible duality, a constant conflict, an opposition, between the two modalities of settlement of our species, that is, between the city and the country.

An opposition dividing the human settlements through history in distinct and complementary categories, a contraposition which in its purest form has had a well defined margin, a clear frontier, a sharp boundary in the city walls, almost always a necessary element of the city throughout history.

The boundary of city walls has always influenced the form of the city, increased its density to maximum levels, and contributed to the city's insalubrity.

But cities have often spilled over beyond the walls, faubourg were born close to the city

gates.

Moreover, the city has often embraced agriculture within its walls, above all to resist sieges.

And foremost, daily, or rather nightly, a continuous flow of goods from the surrounding country flooded the general market, the abdomen of the city.

The general markets, such as Paris's Le Halles, the true protagonist of Zola's *Le Ventre de Paris*, were the point of encounter between the city and the country; at nights in the country the darkness rules and everybody sleeps, lays down in bed at sunset and wakes up with the first hours of sunrise, one can stay alone if one wishes; in the city the life is incessant and the nights are animated with lights and activities, pleasures and sins occupy theatres, cafés, pubs and streets: one could be able never to stay alone, as it happens in London to the protagonists of Poe's *The Man of the Crowd*.

#### **This Is How Zola Talks About It:**

Amidst the deep silence and solitude prevailing in the avenue several market gardeners' carts were climbing the slope which led towards Paris, and the fronts of the houses, asleep behind the dim lines of elms on either side of the road, echoed back the rhythmical jolting of the wheels. At the Neuilly bridge a cart full of cabbages and another full of peas had joined the eight waggons of carrots and turnips coming down from Nanterre; and the horses, left to themselves, had continued plodding along with lowered heads, at a regular though lazy pace, which the ascent of the slope now slackened. The sleeping waggoners, wrapped in woollen cloaks, striped black and grey, and grasping the reins slackly in their closed hands, were stretched at full length on their stomachs atop of the piles of vegetables. Every now and then, a gas lamp, following some patch of gloom, would light up the hobnails of a boot, the blue sleeve of a blouse, or the peak of a cap peering out of the huge florescence of vegetables—red bouquets of carrots, white bouquets of turnips, and the overflowing greenery of peas and cabbages.

#### **And Poe:**

As he proceeded, the company grew more scattered, and his old uneasiness and vacillation were resumed. For some time he followed closely a party of some ten or twelve roisterers; but from this number one by one dropped off, until three only remained together, in a narrow and gloomy lane, little frequented. The stranger paused, and, for a mo-