New Life Cycles for Architecture and Infrastructure of City and Landscape is the second volume of the book series Re-cycle Italy. This book series relates the intentions, results and events of the namesake three-year research program – funded by the Ministry of Education, University and Research – involving over a hundred academics from the fields of architecture, urbanism and landscape in eleven Italian universities. The aim of the Re-cycle Italy project is to explore and define new life cycles for those spaces, those elements, those parts of the city and the territory that have lost their sense, function or usefulness. The research is based on the will to cut through the scientific debate and the practical demands of new directions for building in order to reveal the connections between the strategies for redefining the existing and the trends of theory, and to view the design as a cultural flywheel for territories.

The text is structured in two parts. In the introduction the assumptions of the research are put forward, and the second part of the book describes the structure of the research, the network of researchers, the national and international partners involved, the case studies and the activities to be carried out in these three years of work.
PRIN 2013/2016
PROGETTI DI RICERCA
DI INTERESSE NAZIONALE
Area Scientifico-disciplinare
08: Civil Engineering and Architecture 100%

UNITS
Università IUAV di Venezia
Università degli Studi di Trento
Politecnico di Milano
Politecnico di Torino
Università degli Studi di Genova
Università degli Studi di Roma “La Sapienza”
Università degli Studi di Napoli “Federico II”
Università degli Studi di Palermo
Università degli Studi “Mediterranea” di Reggio Calabria
Università degli Studi “G. d’Annunzio” Chieti-Pescara
Università degli Studi di Camerino
INDEX

INTRODUCTION

New life cycles for architecture and infrastructure of city and landscape 9
Renato Bocchi

STRUCTURE OF THE RESEARCH

The project
Issue 19
Objectives 23
State of the art 27

Network
Units 36
Case studies 82
Partners 84

Activities
Re-cycle Laboratory 91
Products 95
Agenda 99
INTRODUCTION
Giorgio Morandi, Natura morta, 1936. Fondazione Magnani Rocca, Mamiano di Traversetolo (Parma)
In an article published in the Sunday supplement of the “Sole 24 Ore” newspaper on February 3rd, 2013, titled The Intrinsic Value of Culture, Scottish philosopher John Armstrong comments on the interesting pamphlet by Martha Nussbaum (Not for Profit, Princeton 2010, published in Italian as Non per profitto, Il Mulino, 2011), in which she makes a strong appeal for the revival of humanistic culture in a world that is increasingly dominated by technocratic culture, and claims with forceful arguments that “the interest of a modern democracy does rest upon a strong economy, but this economic interest itself requires the contribution of humanistic and artistic studies in order to generate an atmosphere of careful and responsible open-mindedness, and a culture of creative innovation”.

Following on from these considerations, Armstrong writes that “humanistic studies can certainly – as Nussbaum claims – serve as a basis for democracy, or – as I believe – drive the economy itself or, again – as historian Tom Griffiths thinks, help us face long-term environmental problems”. But we must realise that “all these benefits are only accessible if the humanistic studies are able to profoundly involve a wide and
diverse audience”, thereby introducing the question of the socialisation of knowledge and direct contact with the social and political fabric. I believe that architecture and urbanism can and must be placed inside the realm of the humanities, as Armstrong himself wrote elsewhere (Reformation and Renaissance. New Life for Humanities, Griffith Review, 2011), but – due to their strong connections to social and economic policies – they must face the intense and fundamental scrutiny of public opinion, which Armstrong sees as the “intrinsic value of culture”, a concept that lies at the basis of his reasoning; and in this sense their renewal is not only desirable but also necessary for their survival. Furthermore, due to their close links with technology and design, architecture and urbanism are directly involved with producing techniques for transformation. This is where they can contribute to finding new life cycles for architecture, the city and landscape. And it is precisely in this intricate design culture, which is the main mission of our Venetian department, that the nucleus of the interdisciplinary research we are presenting today can be found: a profoundly operational research, rooted in the real world, but with a strong sense of design, which means it is projective and creative, and not just technical. The three-year research programme Re-cycle Italy – financed by the Italian Ministry of education for Area 08 involving over 100 specialists in architecture, urbanism and landscape design from 11 Italian universities – aims to operate along this line of integration between the different expressions of “intrinsic culture” resulting from a reflection on the foundations and the role of humanistic disciplines in connection with architectural, urban and landscape design, and the pressing demands coming from contemporary society to find new ways to halt the consumption of land and the waste of resources in order to assert, in the realm of urban and landscape transformations, an “eco-logic” inspired by the triple concept of Reduce-Reuse-Recycle that is by now widely accepted in the field of the so-called Green Economy. As strategies for urban and landscape regeneration, along with the three Rs of the so-called “eco-efficient recycling” mentioned above, we can also use the three Es of the more illuminated ethical and political stances: Economy, Equity, Environment, in other words economic growth combined with social equity and environmental protection, in the name of the great myth of today: the sustainability of transformation
processes, or as the American Bruntland Commission heralded back in 1987: “satisfying the needs of today without compromising those of future generations”.

The topic of Re-cycling is not a new one and has important precedents in the media, which our research refers to: one example is the full-blown media campaign carried out by the American architect William McDonough based on the slogan Cradle to Cradle (involving the generation of a new life-cycle for products, by using concepts borrowed from biology and applying them to industrial processes, as in changing from one state to another, with hardly any loss of energy). Another example in Italy is the study carried out by the MAXXI in Rome in the exhibition “Re-cycle: Strategies for architecture, the city and the planet” (curated by Pippo Ciorra and other Italian researchers, who are also an integral part of this research group).

The main aim of this research is to find ways to give a new meaning and to find new uses for what already exists on the land, in our landscape, in our cities, and gives new life to that which has been discarded or abandoned, thereby eliminating the production of waste as much as possible.

But the real challenge is to introduce into our design disciplines – architecture, urbanism and landscape design – the ability to spawn new life cycles in the “still life” of our increasingly cement-covered land (see the recent and shocking ISPRA report).

I have always found it fascinating that what we call “natura morta” in Italian is called in English (and also in Dutch) “still life”, in other words “quietly alive”, or – by pushing the etymology, the opposite of the definition used in Italian – “yet alive”. This could be the symbol of our research: transforming inert matter into a resource with new life cycles, just as Morandi transformed his “still lives”.

This is the deeper meaning – I believe – of the concept of recycling. As Pippo Ciorra wrote in the introduction to his exhibition at the MAXXI: “re-building instead of building: building about, around, inside, against, using waste materials; living in a ruin instead of building anew; re-naturalising instead of re-urbanising”.

This topic is of course not a new one. On the contrary, its history goes back a long way, as Alberto Ferlenga explained in that same catalogue, but what we hope is that by focusing on the idea of establishing new life cycles for the materials of the city and the land may help us to overcome
both the simplistic and defensive conservation of that which has main-
tained the most integrity during the transformation processes and the
technicalities of emergency or surgical intervention – thereby accepting
an open dialogue on issues of economic development and growth, but
firmly rooted in the values of intrinsic culture connected to architecture,
the city, the landscape and the values of environmental sustainability
that are present in every action of design or transformation.
So this is how the concept of recycling applied to architecture, the city
and the landscape can evolve from being a purely technical word to being
a keyword for finding new strategies and tools for the regeneration we
seek, by taking into consideration not only the waste produced by recent
transformations (such as, on the one hand, abandoned areas and infra-
structures, wasteland, and brownfields, and on the other the sprawl of
housing, with all the waste and embodied energy it carries with it), but
also the inert fragments of pre-existing territorial geography subjected
to disuse and marginalisation (which historian Antonella Tarpino rightly
calls disoriented – see Tarpino A., Spaesati. Luoghi dell’Italia in abbando-
no tra memoria e futuro, Einaudi, Torino 2012), for example fragile land,
the veins of rivers and hydrological networks, the traces that are left
behind – often for the benefit of the community rather than of the place
itself – by the cycles of history (a metaphorical recycling, if you will, but
just as strategic).
This should explain why, when we insist on the topic of recycling in ar-
chitecture, the city or the landscape – be it in so-called upcycle, down-
cycle or hypercycle processes, borrowing words from eco-efficient re-
cycling or be it in reference to the manifesto cradle to cradle devised
by William McDonough together with the chemist Michael Braungart
– we are searching for the right instruments to produce re-generation
processes (new life cycles) in the urban fabric, or in the sprawl and its
voids (from industrial warehouses to the scattered housing of the dif-
fuse city), in the immaterial traces of the landscapes of abandonment or
of memories, and lastly in the material that was in origin at the basis of
territorial geography: the “landscape as infrastructure”.
It is in this vast field of study that we set out to revive that intrinsic cul-
ture of which Armstrong speaks, by claiming a new role for the human-
istic subjects in addressing society and the community, and help peo-
ple to consider landscape everywhere as an important element for the
quality of life: “in degraded areas as well as in areas of high quality, in areas recognized as being of exceptional beauty as well as everyday areas”, as stated in the preamble of the European Landscape Convention.

* The text is based on the talk given at the Conference Re-cycle Italy, Università Iuav di Venezia, Palazzo Badoer, February 15 2013, Venice.
STRUCTURE
OF THE RESEARCH
THE PROJECT

ISSUE

OBJECTIVES

STATE

OF THE ART
Sissi Cesira Roselli, Soggiorno, Venezia 2012
In accordance with the objectives of Horizon 2020 and with the strategic policies of Europe 2020, and in conformity with the indications from the European Landscape Convention, this research intends to explore the operative impact of the recycling process on the urban system and traces of urbanization that mark the territory so that these “materials” can once again become part of a unique metabolism together with the environmental system. The idea of conservation of an “urban resource”, similar to the conservation of forests and rivers, naturalizes the phenomenon, but represents a fundamental step in the policies and the designs for the city. It recognizes the existence of a progression, from birth to old age, but also reacts to the decline by supporting the possibility and the utility of projects, policies and practices capable of activating new life cycles. 

The research begins by observing the difficult condition in which Italian cities and territories find themselves today because of two contradictions: the first concerns the progressive urbanization of land and the unrestrainable process of abandonment of buildings, even recently built, the second regards the nature of urbanization and the daily conflict between it and the “environmental system”, as if the two were somehow not coincident
realities. Shrinking cities that leave behind vast expanses of abandoned or semi-abandoned land, industrial activities that die or migrate elsewhere, entire communities that move on leaving behind them unused spaces, all this constitutes the occasion for recycling projects that define a completely new paradigm as far as design is concerned: to give a new sense and a new use to that which already exists, to give new life to rejected materials, re-naturalize rather than re-urbanize.

The contradictions and the problems faced in this research are the object of a true *Journey through Italy* which the large group involved in the project sets out to undertake with the collaboration of various institutions that have the task of monitoring the dyscrasia of the territory. The objects of the journey are urban fabrics and unfinished buildings, abandoned even before their use, existing but no longer congruent with new uses and new requirements, that produce ordinary landscapes of waste inside our cities or up against environmental structures. A map of that which has been built in the last twenty years in Italy is necessary for determining strategies that can address the urgent need for transformation of these critical territories; designs at different scales that can provide a new direction, beyond mere recovery, a new and different life; a strategic framework that can place the tools of urban planning and the processes of architecture once again in a dialogue with the other disciplines that are necessary for the definition of a single urban metabolism.

The research is oriented towards the same goals as Horizon 2020: found an idea of sustainability of the urban system starting with the reduction in consumption of the raw material “land”; optimize the use of energy and implement social inclusion; define strategies useful for rationalizing the construction system, with a move from constructing new buildings to modifying existent ones; convince companies to convert and innovate through recycling strategies and techniques. By updating the instruments of design, we want to explore the possibility that construction can be converted from a simple additive practice into a complex strategy for putting things back into circulation, from quantitative increment to qualitative development, and that through this change of course it can gain a new driving force and a new sense of necessity.

The research is structured as consequence and necessary continuation of a course that started with two past experiences: the PRIN 2007 research entitled *Landscape design for discarded places* and the exhibition *Re-cycle*. 
Strategies for architecture, the city, the planet, on show at the MAXXI Museum in Rome, which represent occasions of formation and consolidation of the work group. The results and the products that the research sets out to assemble are: at the end of the first year, strengthen the relations with international partners through the conference Re-Cycle Mapping – Geografie del riciclo in order to put forward new research proposals that can participate in calls for papers of European programs; at the end of the second year, formulate a law proposal for Emilia Romagna; at the end of the third year, submit designs and prototypes on the occasion of the final exhibition entitled Re-cycle Italy at the MAXXI in Rome. Three books (one Atlas of strategies, one text illustrating the law proposal for Emilia Romagna, one manual of recycling strategies) will collect the results of the work and will act as vectors for raising awareness and as operative tools for putting into effect new life cycles for Italian cities and territories.
Fabio Mantovani, Stanze, Bologna 2012
OBJECTIVES

Constructing an inter-disciplinary framework
One of the first aims of this research is to construct an articulated framework of knowledge on the topic of recycling, a mix of know-how and culture capable of synergistic development and offering methods, rules and regulations for acting upon the built environment. The disciplines that are most present in the project, and around which the work group has been formed, are architectural and urban design (ICAR/14) and town planning (ICAR/21), two disciplines that traditionally deal with the construction of the city and that define its transformation processes, but that only recently have found a common ground, thanks also to the contribution of landscape design (ICAR/15), in dealing with the concept of landscape. We intend therefor to initially gather research and experience developed in recent years on the topic of landscape, capable of going beyond the mere difference in scale of the design, capable of accepting the complexities of reality and of providing solutions for the emergencies that each day define the relation between urban and environmental systems, in order to lay down and define a strategy for designing cities and buildings based on the practice of recycling.
These three disciplines, that will work together with the others connected to the process of transformation of the land (technology, history, planning, agronomy etc.), are called upon firstly to reconsider their own analytical tools in order to reinterpret the Italian territory with a view to the possibilities that the existing heritage still offers: a journey through a nation that has deeply changed in the past twenty years and that needs directions of development different from those hereto imposed upon it by the continuous land consumption. Secondly, they will tend towards the definition of policies, operational dispositions, integrated practices and tactics that together will be capable of defining scenarios of change compatible with the new requirements and sensitivities of contemporary life and actions upon the materials inherited from a recent past.

Comparison with other realities in Europe
The topic of recycling buildings, infrastructures and portions of cities has become, albeit at different rates, a European priority, in part due to the limited size of the continent, its building tradition based on stratification and the will to convert the construction economy into a sustainable and environmentally aware system. The various Units will contribute their own existing connections of collaborations, structured around issues similar to those of the transformations of the urban model and the territorial structure, in order to build a vast international network, both European (to set up comparisons between similar situations that present problems, technology and legislation that are not too different) and extra-European (to verify that the same strategy can result from different problems and approaches: applied to fast-changing territories, as in Asia, or arising from the scarcity of raw materials, as in South America). The comparison, designed mainly to precisely update the state of the art, that will be particularly intensive during the first year of the research and will conclude with the conference at the Iuav entitled Geographies of Recycling, has the final objective of inciting the network of universities involved to develop European and international research projects.

Institutions, companies, administrations: the Italian scenario
Another important aim of the project is to develop a joint research with shared objectives with institutions, companies and administrations. The collaborations set up by the Units with institutions and research centers
have the task of producing monitoring activities useful for the *Journey through Italy*, documenting the changes of the land during the past twenty years, defining the scope of the problem on a national scale and hence underlining the need for the activation of a recycling strategy.

The collaborations with administrations in the territories under investigation by the different Units are strategic for developing the research on an operational level and therefore relating continuously with the other actors in the process of transformation of the land. The collaborations with Foundations and cultural associations are supposed to gather a wealth of knowledge and promote an awareness of recycling issues, studying the effects on design in a wide sense, and then indicating it as a transformational outlook on a national level, and not as a mere freezing of the territory. Lastly, the relations with companies aim to try and integrate the technology necessary for operating and implementing the recycling strategy as a building practice impossible today due to a materialistic culture based on new constructions. The interface proposed for the project is a complementary and necessary part of an articulated research proposal in which the university reclaims its role as a propositional actor in the process of land design, in the construction of a course connected to real needs and directions, to the daily practice of building, an essential condition for finding new directions for the nation’s development.

**Defining tools for building the Transformation**

As well as raising theoretical and technological issues, as well as implying a cultural and technological evolution, the recycling of existing buildings calls for changes in legislation. The work group makes its research experience available and at the same time accepts the challenge of defining strategies and methods for consolidating recycling as a design practice. To reach this objective, it sets out to critically assess the legislative and judicial instruments and their possible rethinking. In analogy to the passage from design to construction, the research regards this passage as a border between academic research on the one side and public and private actors on the other, with the same desire to make openings between universities and the other structures that govern the territory. It intends to deal with the issue of regulation, by translating the strategies into rules, into law proposals, in collaboration with the IBC of the Emilia Romagna region, making the most of each one’s competence and at the same time
accepting the challenge that this may define a course, a connection that is not occasional but that becomes a common practice in design research.

**Recycling exercises, synthesis and communication**

All of the objectives of this research tend to make the work and its results active and propulsive, in a moment when the country is looking for new opportunities, new economies. The work produced needs to be able to speak, to illustrate its own results. The intensive three-year program, together with the number of researchers involved, demonstrate the scale of the emergency and the sense of responsibility towards a territory that needs to be not simply protected but actively designed. The recycling exercises devised for the various case studies (articulated in order to fix specific situations, but also recurring problems) will be collected in an atlas entitled *Re-cyle Italy. Atlas of strategies*. The law proposal for the Emilia Romagna region will be summarized in another book, together with the various theories on recycling and disciplinary transversality. The various public meetings that will take place throughout the working period will be opportunities to verify the successful synthesis and communication of the results, and hence the capacity of the research to also become a cultural project.
There are two key issues that concur in the definition of the state of the art referred to the topic of recycling: the progressive abandoning of buildings in the post-production city and the new ecological urban dimension. These two issues, strongly connected to the economic situation of the new millennium, are explored in literature coming from the United States of America into our continent with the growing European crisis. But whereas there is an increasing number of tangible applications, of completed examples of recycled existing buildings in particular contexts (encouraged by favorable regulations, as in the *Convertible City* in Germany, or accompanied by a particular attention to social issues as in the case of the *New York High Line*), there is a lack both of an articulated and coherent scientific and theoretical apparatus, and of a diffusion of this topic in the construction world. In bibliographical terms, a recycling strategy involves mainly studies in art and technology: there is a lack of systemization and especially of clarification of how it might positively condition the way we imagine and build cities, resulting in legislation, in economic, environmental and social advantages.
Landscapes of abandonment

In the last few years, the evident impotence of design in addressing the growing state of abandonment in cities and land – dated, inherited from a recent past or recently disused – represents an issue involving various disciplines. Words such as: “blanc”, “déchet”, “drosscape”, “espaces délaissés”, “friches”, “garbage”, “junkspace”, “non-lieu”, “restes”, “ruines”, “terrains vagues”, “tiers paysage”, “vacant land”, “vides”, “wasting away”, “zone” are just some of the terms used in research and literature demonstrating a broadening phenomenon. In this cultural context we also find studies on urban contraction, a multi-dimensional process that can be applied to cities, parts of cities or entire metropolitan areas, affected by specific factors of economic and social decline. The most famous research project is Shrinking cities, by Philipp Oswalt, presented for the first time at the Venice Architecture Biennale in 2006. The topic is at present being studied by international programs involving various academic institutions: a research network is defining a new geography with two objectives, namely increasing knowledge in the phenomenon and its dislocation, and at the same time stimulating a discussion on strategies and policies to address the problem.

This is the case of Shrink Smart. The Governance of Shrinkage within a European Context, a research funded by the European Commission within the 7FP, or of The Shrinking Cities International Research Network (SCiRN™), an international consortium of researchers founded in 2004 at the Institute of Urban and Regional Development at the University of California, Berkeley, and by CIRES, Cities Regrowing Smaller. In the United States, the most extreme case is that of Detroit: it went from being a metropolis symbol of productivity to an emblematic example of urban contraction, an “urban park” where green areas are spreading due to diffused abandonment. If Detroit is being recycled in spite of itself, without a precise plan but in virtue of the violent phenomenon of redefinition of its characteristic, Rapid Re(f)use: Waste to Resource City 2120 by Joachim Mitchell addresses the other side of abandonment: that is to say the progressive increase in waste. The question of refuse is viewed by Mitchell as the new frontier of construction: his work explores the possibility that new buildings be constructed from re-using rubble and waste, thus turning the problem into a resource.

Following this line of study, the PRIN 2007 research was set up and conducted, entitled Landscape design for abandoned places developed between
2008 and 2010 by the University of Genoa (national coordinator professor Annalisa Maniglio Calcagno), Venezia Iuav (professor Renato Bocchi, working unit leader), Trento (professor Claudio Lamanna, working unit leader), Reggio Calabria (professor Franco Zagari, working unit leader, with Giovanni Celestini), Napoli (professor Vanna Fraticelli, working unit leader). The basis for this research was viewing landscape design as a process, capable of taking into account from the beginning the progressive data of the phenomena as they occur, and to have its own adaptive capacities in relation to the evolving context. In this sense the design dealt with the leftovers from previous or present transformations and included them in the process. The research intended to bring design techniques and methods closer to the biological processes profoundly linked to changes in the landscape: biological processes involving decay, disposal, digestion, recycling, and drawing their vital and reproductive forces from it (in a way this had been invoked and foreseen by Kevin Lynch in his posthumous book *Wasting Away*). The results are published in Maniglio Calcagno A., 2010 and in Bertagna A., Marini S., 2011.

**Recycling the existent**

The design experiences in recycling the existent define an idea of the city that is growing in importance in certain European towns due to social problems connected with the critical conditions of certain suburbs, or to the institution of regulations on land use. In French cities, in the eighties of the last century, large buildings in the suburbs had been significantly manipulated and transformed (Banlieue 89). In 2004 the Ministère de la Culture et de la Communication – Direction de l’Architecture et du Patrimoine – commissioned the architects Druot, Lacaton & Vassal to draw up a recycling strategy for the grands ensembles in order to offer more room, more technology, more energy (PLUS). During the 2006 Venice Architecture Biennale, the German pavilion exhibited the *Convertible City. Modes of Densification and dissolving Boundaries*, which presented architectural interventions on existing buildings and the idea of a city that grows on itself. The German research bears witness to a change in the construction system after new regulations limiting the number of new buildings [a reflection of the precise policies of land protection promoted in 1998 by the then Environment Minister Angela Merkel]. The existing buildings are considered to be matter which can be
transformed and through which the idea of the city can be renewed. During the 2008 Venice Architecture Biennale, in the Italian pavilion housing the exhibition *Italy in search of a home* (curated by Francesco Garofalo), several architects dealt with the problem of regulation in connection to the transformation of the city, putting forward a more conscious use of the raw material which is the land, by occupying ruins of a recent past in order to produce new urban spaces and new urban life cycles.

Following this line of study, the PRIN 2008 research was set up and conducted, entitled *Transformation, regeneration, architectural, urban, environmental valorization of marginal housing fabrics. Methods, tools, designs applied to the western sector of Milan* (professor Ilaria Valente, coordinator of the Politecnico di Milano working group; professor Gianfranco Neri national coordinator, Università degli studi Mediterranea di Reggio Calabria). In the exhibition being held at the moment at the MAXXI Museum in Rome entitled *Re-cycle. Strategies for architecture, the city, the planet* curated by Pippo Ciorra with Reinier De Graaf, Sara Marini, Mosè Ricci, Jean Philippe Vassal, Paola Viganò, which represents an introduction to this research proposal, the topic of recycling is addressed through a transversal and interdisciplinary approach: it is not viewed simply in its better-known role of re-using discarded materials, but as a strategy in a wider sense. The exhibition shows completed examples of recycling of buildings, cities, landscapes, together with works of art, photography, media, and illustrates how in other countries, because there are very few Italian examples, design has turned towards a redefinition of the existent, finding new ways based on the idea of stratification, on the paradigm of ecology, on technological research. In this sense, the exhibition measures the potential of a procedure that can positively address the economic and environmental problems of our construction sector. The materials on show and the theories gathered are published in Ciorra P., Marini S. (eds), 2012.

**The city and its metabolism**

To view the city as something that can be recycled means to consider its rhythms, its life cycles its metamorphoses. This is how one should interpret the famous book by Jane Jacobs *The Death and Life of the Great American City*. The city does not follow an unchangeable biological course, it has the capacity to regenerate itself from within, to overcome one life cycle and its decline by reinterpreting itself. The concept of life cycle has a long history in social sciences and in eco-
nomics: it speaks of changes rather than stasis; of sequences and alternations; of fluxes, dynamics and processes. One can find, in the long tradition of American studies on ecology of the city, the full force of the comparison between ecosystems and urban environment. Since the Chicago School of Burgess and Park, sociologists, geographers, planners and experts in real estate use concepts originating in research in botany and ecology in order to read the city and then build regulatory and interpretive models.

The book *Cradle to Cradle. Remaking the Way we Make* is the manifesto for an idea of the city capable of continuously renewing itself, the paradigm of an ecology that characterizes more and more urban studies in a move from urban design to urban landscape.

The consequences of a reduction in energy consumption and of climate changes on the development of the land have not yet been sufficiently investigated. If we concentrate on grey energy, along with the already established strategies of reduction in energy consumption and production of renewable energy (including Energy recycling) then the reasons and the need for a broad and capillary transformation of the existing city through the recognition of different life cycles clearly emerge.

The current policies, the recent experiences in territorial projects and the constructions of visions for large metropolitan areas (le Grand Paris 2009; New York 2030; UE, Roadmap 2050) show that the targets of reduction in energy consumption and CO2 emission imply a profound revision of existing buildings and urban fabrics, of their grain and their density; a revision of the mobility and accessibility systems, a redefinition of the relation between urban spaces, agricultural land, water, energy, the idea of a built system, the dynamics of which are associated to those of the natural system.

In the international consultation *Le Grand Paris*, many of the solutions presented by designers, among which the group led by Bernardo Secchi and Paola Viganò, are based on a metabolic vision of the metropolis, outlining the possibility of recycling the urban system, a hypothesis of development “100% recycle”. The Italian team investigated the possibility of building the new homes required up until 2030 in the Paris metropolis by re-qualifying and re-structuring the existing fabric, pursuing a self-sufficient energy use through the reduction in energy consumption and production of renewable energy, by making “pavillonnaire” areas more dense and be re-structuring the “habitat collectif” and the functional “mixité” of productive activities (cf. Secchi B., Viganò P., 2011).
BIBLIOGRAPHY

Landscape of abandonment

Recycling the existent
Shortcutting Material Flows. 010 publishers.


The city and its metabolism

DOHERTY G., MOSTAFAVI M., [eds], 2010. Ecological Urbanism. Lars Muller Publisher.


NETWORK

↑

UNITS

CASE

STUDIES

PARTNERS
RESEARCH UNITS

01 // UNIVERSITÀ IUAV DI VENEZIA
02 // UNIVERSITÀ DEGLI STUDI DI TRENTO
03 // POLITECNICO DI MILANO
04 // POLITECNICO DI TORINO
05 // UNIVERSITÀ DEGLI STUDI DI GENOVA
06 // UNIVERSITÀ DEGLI STUDI DI ROMA “LA SAPIENZA”
07 // UNIVERSITÀ DEGLI STUDI DI NAPOLI “FEDERICO II”
08 // UNIVERSITÀ DEGLI STUDI DI PALERMO
09 // UNIVERSITÀ DEGLI STUDI “MEDITERRANEA” DI REGGIO CALABRIA
10 // UNIVERSITÀ DEGLI STUDI “G. D’ANNUNZIO” CHIETI PESCARA
11 // UNIVERSITÀ DEGLI STUDI DI CAMERINO
Sissi Cesira Roselli, Venexia, Venezia 2012
Renato Bocchi [P0]  
**coordinator and scientific director**

Aldo Aymonio [P0]  
Agostino Cappelli [P0]  
Alberto Ferlenga [P0]  
Carlo Magnani [P0]  
Matelda Reho [P0]  
Mario Lupano [PS]  
Paola Viganò [PS]  
Roberta Albiero [PAC]  
Fernanda De Maio [PAC]  
Enrico Fontanari [PAC]  
Stefano Rocchetto [PAC]  
Margherita Vanore [PAC]  
Maria Chiara Tosi [PAC]  
Stefano Munarin [PANC]  
Giovanni Mucelli [RC]  
Sara Marini [RNC]  
Luigi Latini [RNC]  
Lorenzo Fabian [RTD]  

Valerio Paolo Mosco [RTD]  
**research fellows**

Matteo Aimini  
Chiara Cavalieri  
Irene Guida  
Cristina Renzoni  
Vincenza Santangelo  
Alessandro Santarossa  
Fabio Vanin

**PhD candidates**

Giulio Testori  
Martina Barcelloni Corte

**collaborators**

Silvia Dalzero  
Emanuel Lancerini  
Alessandra Libardo  
Mauro Marzo [RNC]
Re-cycle Veneto city

The local Unit from the Università Iuav di Venezia, as the team leader, is organized in such a way as to direct and develop the *Re-cycle Italy*, research project as a whole and to produce theories, strategies, procedures and recycling prototypes to be applied to specific conditions that are found in the Veneto region.

The research project is structured so as to produce a sort of *Journey through Italy* and to record the obvious transformations that have changed the country’s appearance: a large number of new buildings that were not always necessary and are not yet being used, together with a proliferation of abandoned, forgotten, inaccessible areas. This contradiction is echoed by a growing conflict between environmental and urban systems resulting in real emergencies (flooding, landslides, social alienation, technological deficit and waste of energy and raw materials etc.). In answer to these malfunctions of the system, the design tools at all scales (from the master plan to the regulations that govern the transformation of the single object) still concentrate on the possible increase of the built mass, and the building companies need to begin research in step with a new economic and social life cycle more adapted to the current situation.

The Unit studies the recycling of cities and land as a possible way of connecting the requirements of the natural and the built environments, by re-interpreting the urban transformation processes as actual life cycles. The reference to recycling is used as a technique for defining analytic tools and design processes, beyond mere metaphorical fascination. After identifying the nature of the material (rubble, waste, abandoned land etc.), a realistic recycling strategy is sought (assembly, up-cycling, demolition etc.) and its feasibility is verified in precise territorial contexts. The choice of applied cases, very varied, tends to show the pervasiveness of recycling and its efficiency relatively to the emergencies of the land, and concentrates on existing or developing relationships with administrations and companies in order to underline the strong commitment of this research to reaching applicable results that address real demands.

The experimentation in recycling processes can be applied in particular to the large number of disused manufacturing and industrial buildings and hence to work space, disused military compounds, infrastructural networks (waterways, railways, roads).
In order to make the transition from theoretical research to the development of recycling strategies and to its possible operational implications, the Iuav Unit will rely on the collaboration with laboratories from its own university – the cartographic lab (Circe) for monitoring the terrain, the multimedial lab (Me.La) for the rendering techniques, the materials lab (Labsco) for testing prototypes – and also with external actors in order to establish an international cooperation (university network), suggest new legislation, application models and economic assessments (Audis), ensure a dialogue with the local territory and communicate the results (Fondazione Fabbri).

These collaborations are intended to root the research in those issues deriving from the Horizon 2020 document: to verify whether or not a recycling strategy (concentrating on places and areas that have already been compromised) is necessary for saving energy and opposing the depletion and dispersion of resources already underway. The Veneto region is well suited as an emblematic case where alteration processes of the environmental system are associated with the scenario of a post-production system waiting to enter a new life cycle, no longer based on an increase in quantity but on the flow of energies in order to kick-start a positive development trend.
Autostrada A22, Trento
Giorgio Cacciaguerra [PO]
scientific director

Maurizio Costantini [PO]
Corrado Diamantini [PO]
Claudio Lamanna [PAC]
Giuseppe Scaglione [PAC]
Claudia Battaino [RC]

research fellows
Cristina Mattiucci
Chiara Rizzi
Stefania Staniscia
Smart re-cycle
Recycling strategies for architectures and outspread city

Recycling is an issue tackled at various scales from researchers and technicians with different training that are united by a single and specific goal that achieves a sustainable development in terms of product, aggregate and territory.

The issue of recycle as a territorial and urban regeneration is now seen primarily as a recovery and environmental sustainability, as well as energy saving (so-called scrap) which neglects social sustainability and quality of life parameters.

In metropolitan areas, where in Italy 70% of population live, the sustainable regeneration is the nodal element to deal with the decay of the city and buildings by the adaptation to safety and energy standards, the recovery of public spaces and green, the innovation of technological networks and infrastructures.

In this way a saving process of resources and a policy of cities scrapping starts and here in Italy, according to some press assessments not expressed in strictly scientific terms, it leads to a saving of production of eight medium size nuclear power plants.

Discontinued, unusable, obsolete and unrecoverable, empty or marginal urban space and peripheral areas represent a planning resource to revitalize parts of cities and not to employ parts of a new territory again. “Recycle” embraces a complex process ranging from urban and territorial regeneration of voids as elements and physical structures, to recycling of materials physically derived from architectures and not.

The presence of many abandoned or being abandoned buildings and urban facilities characterizes the contemporary city development as a non-occasional form of urbanization, rather structural: it is, from one hand, a physiological dynamic of the contemporary city, due to internal migration to other sites.

From other hand it depends from a surplus of construction because of the contraction in demand of residential and commercial buildings, which seems to correspond to a general state of non-development rather than a real population decline.

The situation has become even more widely perceived as an image of decay in some urban pockets of many European cities; the abandon of sites
and buildings is even more significant as conceptual aspect of contemporary towns, than a physical feature of waste areas. At the same time, in this framework however is still going on the urbanisation of new external areas, consuming more of its uses, paving the way for new abandonments. For this urban heritage – buildings and sites in obsolescence trend – architects are called upon to study the strategies for reactivation of new dynamics through integrated recycling projects. Architectures and abandoned spaces can be of valuable reserves for the city and territory, in an environmental strategy as opposed to unreasonable consumption of soil. The research aims to rethink those parts of the city, the result of urbanization and growth in the recent past but technologically obsolete, “inner peripheries”, urban patterns that conform as closed systems, which show signs of crisis and disaffection. In these zones the weakening of the intensity of use is the initial state of crisis which associated usually various problems – like energy poor efficiency of old buildings, the sociability loss etc. – that leads to the divestment. The idea of recycling of such parts is connected with the architectural concept of waste and implicitly contains the positive value of evolution, as a repository of opportunities for transformation into a new entity, socially and economically useful. This is to find ways of recycling sites in which the city shows clear signs of crisis, reconsidering the issue of consumption of finite resources.
Giovanni Hänninen, Chiesa, Milano 2012
Ilaria Valente [PO]
scientific director

Roberto Spagnolo [PO]
Guya Grazia Bertelli [PS]
Arturo Sergio Lanzani [PS]
Gianfranco Becciu [PAC]
Chiara Merlini [PAC]
Gennaro Postiglione [PAC]
Fabrizio Zanni [PAC]
Andrea Di Franco [RC]
Umberto Sanfilippo [RC]
Andrea Gritti [RNC]
Marco Bovati [RTD]
Barbara Coppetti [RTD]
Juan Carlos Dall’Asta [RTD]
Federico Zanfi [RTD]

research fellows
Simonetta Armondi
Cassandra Cozza

Anna Moro
Anita Raimondi
Andrea Oldani

PhD candidates
Michela Bassanelli
Felipe Barrera Castellani
Sara Impera
Carlotta Lamera
Sandra Maglio
Mauro Marinelli
Cristiana Mattioli
Elsayed Doaa Salaheldin Ismail
Elena Scattolini
Giulia Setti
Alisia Tognon

collaborators
Francesco Curci
Maddalena Falletti
Giovanni Hänninen
Productive re-cycles
The project of grounds, fabrics and buildings among uncertain destinies and operable resources

The UR contribution is related to the issue of recycling of construction and architectural elements located in urban dwelling areas, focusing the definition of design tools and territory management policies applicable to the lifecycle of new fabrics, constructions, land for production purposes in national and Lombard context.

The declination of the recycling issue aims at operating towards the definition of a new lifecycle (defined as hyper-cycle) taking up and changing, through subtraction, addition and recovery, the stratification of areas, constructions, applications involved in productive fabrics obsolescence diachronic processes.

The UR contribution aims at outlining new geographies of the production areas, characterized by a poor technological content and spatial articulation, verifying if they can be the object of design interventions capable of fostering new, more durable and more sustainable development stages in densely populated environments.

The research focuses on the problem created by urban fabrics, networks, infrastructural artifacts, buildings and open areas affected by dereliction, obsolescence and underutilization processes, leading to a significant level of crisis of the developmental model adopted in the most populated and active territorial frameworks of the country and coinciding with a phase shift in urbanization processes. This dynamic affects sometimes recently used mixed and fragmented spatial structures and frameworks.

These areas are affected by urbanization and land use interventions, overlapped by infrastructural artifacts resulting from an infrastructural policy featuring new and dull interventions (the Pedemontana and the Brebemi as well as the construction of roundabouts, ring roads, link roads etc.), or interventions following a more incisive policy of networks enhancement (remote heating or hydraulic system efficiency) often in conflict with the existing fabrics and contexts.

Some of the criticalities of these processes, having a clearer ecological dimension, stand out (ex. the urban water cycle).

The free areas, fragmented by urbanization, have an uncertain future, it is hard to recover them for agricultural purposes or use them as parks, or
for urbanized structures either. In the same way the dereliction and underutilization of structures and infrastructures scattered throughout our landscapes is not acceptable, considering the scarcity of land resources and the need to consider sustainable development also in terms of the application of ecological concepts in the constructed environment.

The aforementioned wealth of fabrics, networks, buildings and open areas must therefore be considered a resource usable to start a new lifecycle, capable of mobilizing a broad range of interventions inspired by conceptual triangulation associating reduction, reuse, and recycle for an eventual compensation in terms of social, spatial environmental and architectural quality.

The goals of the UR coinciding with three research products:

- the setup of an atlas of Lombard and Padan shrinking city, resulting from a descriptive and interpretative practice of the dwelling frameworks involved;
- the definition of the issues arising from the reduction/reuse and recycling processes of low technological and spatial content production areas existing in Lombardy, with particular reference to their relationships with the other elements of the dwelling area and downstream comparison with research and projects in a European and an international context;
- the definition of multidisciplinary explorations implementing the knowledge of the financial, regulatory, technological ecological-environmental constraints in architectural and urban design, open to the dialogue with the actors of the transformations and the different competing skills concurring to a redefinition of the process used to shape the process in the architectural and urban development practices and in their implementation in specific contexts.
Mauro Berta, Andrea Delpiano, Progettualità reti e grandi telai, 2013
Antonio De Rossi [PO]
**scientific director**

Liliana Bazzanella [PO]
Giovanni Durbiano [PO]
Gustavo Ambrosini [RC]
Michele Bonino [RC]
Elena Comino [RC]
Massimo Crotti [RC]
Alessandro Armando [RNC]
Mauro Berta [RNC]

**PhD candidates**
Danilo Marcuzzo

**collaborators**
Paolo Antonelli
Marco Barbieri
Francesca Camorali
Carlo Deregibus
Mattia Giusiano

**research fellows**
Andrea Delpiano
Roberto Dini

**scholarship holders**
Davide Rolfo
Land transformation, in a scenario of strong contraction of resources like the present, seems to be quite a fleeting subject. Design disciplines, which were used to interpret the growth as a consumption activity done by a confident colonization of empty spaces, now appear to be immobilized by the end of the incremental logic, an attitude which was often stigmatized, but never dropped.

The sprawl, the dynamics of urbanization of polycentric territories, are now thwarted by a “new density attitude”, materialized through a compaction of edges, a definition of “gates”, an infilling practice. Urbanity is brought in the territory by adding new elements till the complete saturation of the more “porous” space. The assumption is that there is no revitalization without addition.

At the same time, other land elements are ignored, sometimes even rejected, neglected or maybe protected, but surely excluded from the processes of transformation: they are geographical structures whose marginal life somehow continue, and still endure, potentially showing a new vitality. Elements that seem to stop being “waste-spaces” by embracing new life cycles that underlie a new idea of territorial balance. Fixed land resources, for which the theme of recycling takes on primary significance, even if difficult to achieve.

Some of these fixed land resources better suit to still be a “frame” for future development, not just from a morphological point of view: in particular, rivers seem to be really suitable to the idea of “cradle to cradle” recycling, which is exactly referred to the changing of arrangement of evolving elements. The Research Workgroup will inquire into this potentiality through an experimental recycling process [a selection-defection-recycling-weaving process] made on old and new materials, upon which new transformations are to be imagined.

A critical reading of river basins is a first step in order to reflect upon their ability to organize various facilities and settlements, as it should continuously and severely test their fragility and environmental risk, which is exactly the character that most allow rivers to concretize conflicts and redefine collective rules. Through the reading of some significant experiences (River Agreements, the “Green Crown” project) it is possible to assume the
Piedmont as a case study, in order to imagine a “recycling atlas” for geo-environmental structures, metaphorically following the sense proposed by McDonough.
The continuity of the large river basins in Piedmont now appear as fixed land resources, that are quite easily operable, with encouraging opportunities for environmental improvement. Moreover, these materials show a pervasive relation with the whole territorial system, so that it is simply necessary to find an equilibrium without any further marginalization. In this sense, river basins can be though as prerequisites to larger transformations and revitalization projects. To verify this hypothesis, some initial case studies can be assumed. An interesting inter-municipal park in the Cuneo area, possibly leading to new planning through a relation between the new railways and the old fields, and the difficult context of the Susa Valley, where the river appears today as a possible way to define an alternative development, capable of combining economic opportunities and social practices in a plural way.
Massimo Strazzeri | Flickr, Listen to the Silence, Genova 2007
Mosè Ricci [PO]  
**scientific director**

Marco Del Borghi [PO]  
Jörg Schröder [PO] Hannover  
Fara Favia [PAC] UNIBAS  
Ina Macaione [PAC] UNIBAS  
Maria Valeria Mininni [PAC] UNIBAS  
Raffaella Fagnoni [PANC]  
Manuel Gausa Navarro [PANC]  
Adriana Del Borghi [RC]  
Biagio Perretti [RC] UNIBAS  
Andrea Vian [RC]  
Alberto Bertagna [RNC]  
Gabriella Gallo [RNC]  
Carlo Strazza [RNC]  

**research fellows**

Simona Arata  
Sara Favargiotti  

**PhD candidates**

Jacopo Avenoso  

Carmela Coviello / UNIBAS  
Cristina Dicillo / UNIBAS  
Cristina Gorzanelli  
Gaia Grossi  
Mathilde Marengo  
Chiara Olivastri  
Virginia Ortalli  
Lara Parodi  
Clarissa Sabeto  
Emanuele Sommariva  

**collaborators**

Nicola Canessa  
Maddalena Ferretti / Hannover  
Christian Haid / Hannover  
Kerstin Hartig / Hannover  
Sarah Hartmann / Hannover  
Ines Lüder / Hannover  
Emanuela Nan  
Teresa Pagnelli / UNIBAS  
Rosanna Rizzi / UNIBAS
RE-CITYING
Recycling as an infrastructure to reactivate the city

Recycling means bringing things back into circulation, giving new value and meaning to waste. In a prospective of decrease, as is the case induced by the global crisis, the point of view of those who deal with architecture and urban planning radically changes. The recycling strategy is the conceptual background of a new contemporary urban planning culture: the transit from a measurement system (the territory) to a value system (landscape). The term re-activation intends the process of re-significance of public space. In this sense working with public space signifies proposing a more profound meaning regarding urban regeneration. RE-CYTING identifies a collective non-sporadical enterprise that demonstrates the possibility and convenience of an urban development founded on new social cohesions, new energies (both material and human) and new economies for the city.

The Genoa Unit will deal with the recycling of obsolete or underused spaces of the railway infrastructure, imagined as latent public spaces, relational engines also in their proximity, systematic, diffused. The idea is to imagine an urban development model which re-gives value to open spaces, considered more and more as a cost rather than a resource and to structure visions, tactics and conversion policies around these areas, renewing them as urban catalyzers. The dismissed areas analyzed by the research project create a system, which can work as a backbone for the urban settlement of Genoa, the Genoa BELT | Basic Ecologic Light Transformation/Transportation. This system creates the structure for the research project and for the actions of requalification of these dismissed/underutilized logistic platforms, as well as of the districts of urban transformations and the suburban and peripheral areas of the city.

The research launched in 2008 with the QVQC (Quali Velocità, Quale Città) project to investigate the policies of mobility and integrated transport, in relation to urban transformation and the induced impacts along railway routes, and will proceed deepening the issues connected to the requalification and reorganization of the traversed urban nodes. An experimentation phase and a pre-project verification will be developed on selected case studies with the support of local authority to promote eco-innovation activities, re-configure transport nodes in proximity of obsolete areas, following environmental sustainability criteria.
The first research objective is the elaboration of the Recycle Footprint map: a parametric mapping which is not only a zenithal mosaic, but rather a three dimensional relief of the city, a system of information that highlights multiple layers of values (parameters related to consumptions, environment, collective and convivial dimensions). Supported by the Cesips Research Center, the research projects aims to evaluate the Life Cycle Assessment (LCA) of the considered areas, individuating scenarios of prevision and ex-ante evaluation, elaborating an adaptive model for urban transformations. General objective of the research project is to outline transformation processes through strategies and visions declined according to the different paradigms (urban regeneration, liveableness, conviviality, responsibility), in order to propose a new performances based model, rather than a different formal model.

The Genoa Research Unit is linked to the following national and international unites, whose knowhow and parallel experiences will enrich and contribute to the development the Genoa project. Matera | Recycle Agriculture: the Matera case study consists of the study of suburban agricultural patterns in order to experiment and develop new concepts of reclaiming. Barcelona | Recycle Open Space will explore future visions for Barcelona starting from the reuse and the reinterpretation of its open spaces, intended as contemporary relational spaces. Intended as a Multistring City, Barcelona can be reactivated intersecting, modifying and overlaying these spaces of multiple densities, identities and activities. Hanover: Recycle brownfield. The contribution of the German research partner reassembles different experiences of ecological urban development, landscape preservation and reconversion, in relation to social and economic forces. These issues contribute with different inputs to the Recycle Footprint Mapping, a conceptual approach that will be than reapplied to the Continental Area, a dismissed industrial district in Hannover.
Piero Ostilio Rossi, Riciclare la memoria, Memento Park, Budapest 2010
Urban metabolism

In our Country, the need to control the landscape is a widespread although undefined and blurred social aspiration; the contradiction between the nostalgia for an unspecified however happy past and the persuasion that our contemporary society is the repository of a system of disvalues that cannot but corrupt and degrade the landscape, increasingly implodes in a condition of powerlessness leading to consider the landscape itself either as one of the things needing to be somehow put in a museum or as something that is endangered forever and that cannot be the target of any actions at all.

Between these two extreme positions, an intermediate space of research and proposals exists, where we intent to include our working proposal that is summed up in the idea of testing – through experimental methods and projects – the possibility of implementing processes of upgrading of recent and often unauthorised landscapes and settlements, characterised by the presence of productive activities that – owing to their intrinsic nature – introduce elements of strong deterioration, until representing “waste-landscapes”. Waste landscapes and images – such as, for instance, depots of out-of-use vehicles or landfills, outdoor warehouses and shops of building materials – pollute metropolitan landscapes. Although necessary to the life of the city, its economy, its building cycle or mobility, these activities represent an element of huge degradation, determine an important denigration of landscape perception, and cause detriment to the health of the environment.

In particular, recycling-related activities are adopted by the Research Unit as strategic actions on urban settlements and landscape, in consideration of the fact that the general conditions of society nowadays impose to operate to reuse scrap materials, to re-built rather than built, to re-naturalise rather than urbanise; all in all, to provide a concrete answer by visual and design culture to the pressing issue of sustainability. More specifically, we intent to implement and test actions on the materials that completed their lifecycle (waste, fragments, wreckages...) according to assembling mechanisms that envisage new configurations as compared to the initial ones. The “as found” subject acts as both a frame and a background to this project. “As found” is the capacity to look differently and give new meanings to what is ordinary, which concerns life as it is; it is the capacity
to design by collecting clues and traces, by recovering signs and meanings that belong to our daily lives and to our common feelings: it is, in short, the theoretical basis of a dialectical attitude between disciplinary tools and reality that well-fits to the design dimension of landscape and recycling.

The field of action of the project involves a particular area of the city of Rome: the “Comet Tail” (Coda della Cometa), that is to say the linear conurbation in the NE-SW part of the city, along the lower flow of the Tiber River, between the Ring Road of Rome (Grande Raccordo Anulare) and the sea. This territory has special characteristics and, therefore, specific potential that deserve attention. The definition of “Comet Tail” proposed by Gustavo Giovannoni in the mid-thirties, recalled in the title of the research refers to the configuration of Rome as per the Variance Zoning of Rome dating back to 1942 (developed by Marcello Piacentini), drafted following the decision to launch – through the implementation of E42 – the expansion of Rome towards the sea; a decision that markedly changed the overall strategy of city development under the Town-planning Scheme of 1931.

On the basis of the Variance Zoning – that was never approved because to the war but that acted as a point of reference for the subsequent expansion of the city in its southern part – Rome was to take the form of a comet with a big head represented by the urban expansion of the Town-Planning Scheme of 1931 and a long tail projected towards the sea and up to the Ostia Lido district.

This area has produced a significant amount of slag landscapes for the characteristics of its tumultuous development: real by-products of sprawl and a too rapid urbanization, zones of concentration of production scraps or waste production, areas suspended in a condition of abandonment. The Research Unit intends to draw up guidelines for the drafting of a master plan and pilot projects destined to the implementation of these types of activities in adequate and suitably equipped areas, and to reconvert the areas into the most suitable destinations of use, with a view to giving back quality and value to the territories and the landscapes involved, to strengthen their identities and promote their development.
Alex MacLean, Cava pendici Vesuvio, 2004
Carlo Gasparrini [PO]
scientific director

Vito Cappiello [PO]
Antonio Cavaliere [PO]
Roberto Serino [P0]
Michelangelo Russo [PS]
Massimo Fagnano [PAC]
Lodovico Maria Fusco [PAC]
Fabrizia Ippolito [RC] UNINA2
Antonio Passaro [RC]
Marina Rigillo [RC]

research fellows
Nunzio Fiorentino

PhD candidates
Libera Amenta
Danilo Capasso
Emanuela De Marco
Cecilia Di Marco
Davide Di Martino

Ottavia Gambardella
Adriana Impagliazzo
Sabrina Sposito
Anna Terracciano
collaborators
Francesca Borrelli
Daniele Cannatella
Salvatore Carbone
Susanna Castiello
Paola Galante

Joined Unit POLIBA
Nicola Martinelli [PAC]
Spartaco Paris [PAC]
Alessandro Reina [RC]
collaborators POLIBA
Vincenzo Bagnato, Federica Greco,
Maristella Loi, Giovanna Mangialardi,
Francesco Marocco, Michele Mundo,
Graziarosa Scaletta
Recycling and re(land)scaping the drosscapes

The aim of the research unit is to explore the recycle theme as interaction between drosscape, or dross landscape, and the creation of new lands, making a multifunctional open space network for contemporary city. Drosscapes draw a complex geography of abandoned and uncultured areas, left behind as waste of urban and industrial metabolism, or polluted and degraded by intensive processes of environmental modification. Drosscapes are the areas with highest potential for recycling. A variety of spaces of different sizes, tightly related to the plots of the consolidated city and urban sprawl. These spaces are subject of specific planning intentions aimed at supporting the integration of open spaces in the network systems of the contemporary urban landscape.

The morphological and urban configuration of drosscapes represents an urban regeneration strategy and takes on it morphological characters of the “progetto di suolo” (ground or land design) which aims at building landscape networks in different scales, composed of a variety of inhabited open spaces characterized by mixed uses and functions, able to relate to an image of a city seen as a multi-scalar relation system.

The research aims to define a cognitive and planning approach to drosscapes regeneration, starting from an interpretation model of the land which is able to create a relationship between several structural components, particularly referred to values and weakness due to an uncertain overlapping of networks.

An interpretative and evaluative knowledge of the land in which this kind of spaces are, has to refer to a technical and procedural rethinking of the reclamation project, to look over the fragmented culture of public interventions: these “drosscapes” can be identified as a relevant substrate for an ecologically oriented urban and landscape project. Urban planning has to integrate itself with other disciplines – like urban ecology, real estate development, landscape design, earth science – in the research field that complains interactions between problems (deriving from ecological and environmental, infrastructural and urban aspects) expressed by drosscapes through urban regeneration strategies, making of new kind of urban spaces, implementation of new alternative economic models and sustainable energetic cycles.

Brownfields need both multi-scalar recycle strategies – from urban rela-
tions dimension to one chosen by reclamation intervention – and technical and administrative check models that meet well defined temporal and normative contexts. The ecological and urban consequences look over the regeneration of compromised sites, in fact they involve both ecosystems and urban patterns. The establishment of a drosscape – of which integration processes with the consolidated city are strongly limited – matches with urban and ecological decline. It is a waste space which evolves following his own dynamics. These dynamics are socially dangerous and strongly constrictive of grown and economic implementation possibilities. In this way drosscape recycle strictly interact with rural spaces linked to the city and with the structural components of urban landscape: the superficial and deep water networks, the infrastructures, the urban settlements that have to be regenerated.
La re-loaded city come nuovo paradigma di sviluppo urbano: installazione “Waste Landscape” di Elise Morin e Clémence Eliard al Centquatre di Parigi, 2011
Re-loaded city
Recycle strategies for re-activating cities

The Research Unit of Palermo approaches the key theme of Re-cycle applying it to the regeneration of urban and suburban settlements assigning new life cycles to urban complex, human settlements and infrastructure networks, disused, chancing or with shrinking functions. The Shrinking City produces several urban “fragments”, functional “chips” and “scrap” of development that, through a recycling process/project, can be brought back into urban infrastructures for new cycles of life. They would be capable to generate new urban and suburban landscape based on abandonment, disposal, de-rating or change of use of urban settlements in a new urban renewal perspective. The research will cover both living and manufacturing issues, and logistic and military ones, working not only on material assets but also on intangible assets linked to identity resources in areas that can be recycled to produce a new “urban software” proceeding from rewriting and recombination of still efficient “lines of code” (functions, resources, tissues and architectures): the RE-LOADED CITY.

A “sustainable, creative and responsible city” has to be capable:
- to rethink models for urban communities;
- to reinvent the forms of the settlement from the reactivation of urban identity capitals or disused and changing capitals;
- to redesign creative relationships between environment and landscape;
- to raise the production of urban settlement cultures able to activate a new “urban metabolism” reacting to decline scenarios and powered by interconnection between cities, landscape and infrastructure.

Coherently with the challenges of HORIZON 2020 and with its proactive approach, the research works within “Capitalism 3.0” which leads us to revise the planning urban agenda, where the options consist primarily in a long-term resources preservation by continuous reuse, recycle and creative developments and in a permanent guide of settlement processes through a strong integration with ecological sustainability, planning, land use management, impact energy, design of morphologies and production of value.

The “ethic of responsibility” in planning requires not only to ensure ecological sustainability of the settlements, but also concrete actions for a
creative regeneration of resources degraded by human activities, by activating their latent or potential values excluded from a “debit driven” development, and by their full involvement in the project of the future that local communities will embrace with a renewed agreement with the cities. The Research Unit of Palermo will work in mainly urban and territorial dimension characterized by excess and overproduction, activating new life cycles for urban systems in change, disused urban fabrics and infrastructure networks in transformation will be addressed through modification, or removal, or reinventino planning and urban design actions.

the urban design procedures suggested are related to the so-called up-cycling (scrapping), a method in which, instead of reducing to the lowest common denominator such detritus, they are re-created, without being destroyed but altering their functions by pursuing creative perspective and increasing their “resilience” in comparison to the changes of development. The research unit will work on Sicily territory with particular attention to the so-called “north-west platform of Palermo”. In concrete will be identified projects and policies of change to “reactivate” an urban metabolisms capable of tracking an exit strategy for the crisis through actions that bear on “software”, on the “operating system” of the city, on its “intelligence” rather than just the reuse of carcasses, fragments and scraps. The Up-cycling requires new ways to see urban material available after abandonment or reduction of previous usage, without comfortable leaks to the “rarefaction” of urban fabric, but challenging in new ways the “densification”.

Vincenzo Giofrè, Benvenuti a Reggio Calabria Città Metropolitana, 2012
Vincenzo Gioffrè [RC]

**scientific director**

Vittorio Amadio [PAC]
Gianni Celestini [PAC] UNIRoma1
Adriano Paolella [PAC]
Rita Simone [PAC]
Claudio Marcianò [RC]
Consuelo Nava [RC]

**PhD candidates**
Antonia Di Lauro
Emanuela Genovese
Venera Leto
Elisabetta Nucera
Nicola Sapone
Giuseppe Giovanni Zumbo

**staff from other institution (CNR)**
Giuliana Quattrone [RC]

**staff from foreign institution (NTUS)**
Giamila Quattrone [research fellow]

**consultant**
Franco Zagari
Recycling discarded landscapes: experimental projects for the metropolitan city of Reggio Calabria

Recycling is one of the best generator of creative innovation. The Operational Unit at Reggio Calabria interprets Re-cycle as a multi-scale design tool through which to re-signify discarded landscapes in semi-urban/semi-rural contexts, meaning by discarded landscapes those that are deemed useless because have been affected by loss of role and meaning, following unceasing habitat evolution.

The task of the OU, within the national work group, is to put forward design strategies in compliance with Horizon 2020 objectives, according to a multidisciplinary integrated approach. This will allow to aggregate resources and knowledge coming from different sectors, technologies and disciplines, which range from sustainable urban design to landscape and architectural design, from landscape urbanism to energy city, to economic processes underlying participatory territorial governance.

The research objective is to experiment, from an interpretational and operational viewpoint, recycling strategies that can be applied to landscape, meant, like in the European Landscape Convention, as an expression of the community that lives in it and modifies it. Landscape design will materialize in multi-functional operational proposals that combine the environmental issues of soil consumption and primary resources reduction with figurative, aesthetic and spatial experimentation.

The experimentation scope of the OU will encompass abandoned landscapes that are formed next to, under and between road networks and railway lines, next to quaysides, near disused quarries, but also voids and opens spaces next to rivers and sandy shores, cultivated and reclaimed lands, lands that are either abandoned or affected by urban sprawl. These are all sensitive places which outline new Mediterranean and metropolitan scenarios, configure “networks” of landscape units, energy flows, production exchanges, shared uses and users’ behaviours. By building up an atlas of design experiences based on new scenario paradigms, the research will put forward relevant proposals for the re-signification of urban and suburban discarded landscapes, according to a trans-scale operational approach (from city to building to detail). Relevant national and international case studies will be looked at, which can provide, in terms of objectives and methods, sustainable models for application to Reggio Calabria Met-
ropolitan City. The proposal will consist in experimental design projects which will be carried out in contexts considered emblematic of the rapid transformation processes of contemporary landscapes. Unplanned and unauthorized development has often resulted in large amounts of “debris” which, metaphorically speaking, comprise empty spaces, terrain vagues, abandoned landscapes situated mainly next to natural and infrastructural systems. The working hypothesis is to:

a) assign new roles, functions, meanings and quality to discarded landscape in order to initiate virtuous urban regeneration processes, enhance the potential of marginal contexts to become places for slow mobility, sustainable production of primary goods and renewable energy, and to experience new social practices in nature;

b) configure sustainable “production” scenarios able to decline a new vocabulary for the regeneration of sensitive sites: ecohousing scenarios, agourban districts as sustainable organization models, energy zones for the management of new low energy consumption networks, water farms, sustainable communities and energy parks.
Francesca Pignatelli, Edificio in rovina, Cocullo 2012
Francesco Garofalo [PO]
科学主管

Carmela Andriani [PO]
Cristina Bianchetti [PO] POLITO
Rosario Pavia [PO]
Lorenzo Pignatti [PO]
Susanna Ferrini [PAC]
Massimo Angrilli [RC]
Stefania Camplone [RC]
Giuseppe Di Bucchianico [RC]
Paola Misino [RC]
Piero Rovigatti [RC]

研究助理
Raffaella Massacesi

博士候选人
Vincenza De Vincenziis
Stefania Gruosso

Mario Morrica
Stefano Picciani
Patrizia Toscano

合作者
Emilia Corradi
Michele Manigrasso
Francesca Pignatelli
Recycling fragile territories

The opposing face of growing cities, which produce the built and urban leftovers that are the object of the Re-Cycle research programme, is the abandonment of vast areas of land. The fact that the two phenomena are linked and complementary is evident, though it has yet to be fully investigated with the intent of proposing strategies for dealing with them. It is thus necessary to identify where and how this leftover manifests itself also as contraction and abandonment.

This implies above all a refinement of a selection of notions:

- the notion of fragility (within a territorial and temporal understanding);
- that of heritage (that, as a "given", is considered ready to be "valorised", linking it back to a dimension of economics);
- that of infrastructure which can no longer be intended in traditional terms, but rather as viewed by Stewart Brand (Whole Earth Discipline: An Ecopragmatist Manifesto, 2009), who proposes a notion of infrastructure as a support serving the environment, on par with natural networks;
- that of inclusive design, given that the physical accessibility to a site is not enough on its own to guarantee effective social inclusion and the valorisation of diversity between individuals;
- the very notion of recycling (beyond its generic and consolidated definition) that lends itself to any ideological mystification (other than a scarcely-operative extensions of its own field).

The region of Abruzzo features a "void" centre, affected by analogous processes to those found in other regions of Italy, where the presence of tourism is not capable of ensuring balanced development due to its localisation in concentrated points, producing instead a new and specific quantity of leftovers. Minor centres, instead, present a heritage that requires attention and resources based on their history and fragility (not only seismic), but in so doing only confirms the underlying reasons for its decline and exclusion. Emergency and post-emergency reconstruction policies risk provoking undesired effects. The work programme is thus extraneous to the binomial relationship earthquake-reconstruction, critically examined in its instrumentality and as a short-term response.

Re-cycling signifies instead implementing a new way of producing and inhabiting space. Re-cycling involves all scales, it requires strategies for
vast areas and complex and global policies of intervention that range from the environment to the territory, the landscape, the system of settlement, infrastructural and environmental networks, single buildings, industrial products and materials, the disposal of waste and its recovery and reuse; the research is thus trans-scalar and inter-disciplinary.

Proposing re-cycling means confronting a continuous process, programming the entire lifecycle of a system, whether a city or an object of design. Within this framework, the approach to design proposed by Design for All, by intercepting new typologies of individuals, goods and services, until now “excluded” from their autonomous and conscious fruition, reveals itself a formidable tool for the competitive re-launching of under-developed territories. The research intends to further investigate the strategic role of infrastructural-environmental networks in the organisation of territorial systems, within which to test new methods of production-distribution (from energy to waste recycling, industry, agriculture, mobility and services) and consumerism (affecting dwelling behaviour and attitudes). Through experimentation, as the scale of a vast area, of individual urban centres, of dwelling units and buildings, technologies, components and materials, the research proposes the development of guidelines for a revision of both current territorial, landscape and urban planning procedures and regulations and criteria of architectural design and construction (energy efficiency, seismic design, the use of certified components...).
Giulia Menzietti, Bulimia, 2013
Pippo Ciorra [PO]
scientific director

Umberto Cao [PO]
Luigi Coccia [PANC]
Piotr Bronislav Barbarewicz [RC] UNIUD
Giovanni Corbellini [RC] UNITS
Marco D’Annuntiis [RC]
Anna Rita Emili [RC]
Alessandra Marin [RC] UNITS
Bianca Maria Rinaldi [RC]
Lucia Nucci [RNC] UNIROMA3
Gabriele Mastrigli [RTD]

collaborators
Alessandro Gabbianelli
Emanuele Marcotullio
Giulia Menzietti
Urban waste of the Adriatic city

The main field of reference for our Research Unit is that of contemporary urban phenomena, seen both as a critical aspect of the physical and social evolution of the new Europe and as a keypoint of the discussion about improving the management of resources, landscape, quality of inhabited lands. More specifically the context which will act as the main case-study of our unit is the coastal linear Italian city. Besides being the traditional counterpart for our school, it is in fact also the wider reserve for recyclable space. Or, as we prefer to specify in the case of our unit, for up-cyclable space. Where as up-cyclig we mean an approach to the practise of recycle aiming to the “non-complete-earsement” of the tracks and of the body itself of the pre-existing architectural self, differently from what we do with the treatment of everyday waste.

The attitude to a recycle approach holding strong memory of the previous biological cycle (or cycles) of the building/space sounds in fact more appropriate for our disciplinary context, traditionally used to put together pragmatic “good practices” and sophisticated theories managing the co-existence of tradition and modernity.

The space between the cities – up-cycling and urban materials.

The mechanism of urban transformation in XXI Century Europe (especially the Mediterranean area) is straight and clear. The growth (sometimes de-growth) is the result of the development of four primary elements, generally separated and non-harmonized. The first element is “infrastructure”, the only and final spine for the urban layout. Second comes the “housing”, mainly made of single family units or small palazzinas that have been standing as the main and raw material for the diffusion of Italian sprawl in the last thirty years. Third we have the workspaces: sheds, office malls, “tecnopolis”, retail malls which represent the most plastic and dynamic layer in the urban continuum. A layer continuously alternating expansion and contraction, therefore – especially in the present economic context – the largest producer of “recyclable” spaces. The fourth, rather hybrid and undetermined, material has more to do with all we are used to consider “legacy”, including landscape, historic settlements and monuments, considered as the most formal version of public spaces.

It is actually the unsynchronized growth of these four elements – the uneven combination of built and void areas we still call “city” – that lead as
an inevitable consequence to the overgrowth of spaces quickly declining towards the end of their lifecycle: consumption, abandonment, misuse, i.e. immediate need for re-cycling, or better for up-cycling. It’s the DNA of what we call “contemporary city”, where “contemporary” takes the role of a judgment rather than a time label, characterized by terrain vague, short-lasting programs, overproduction of waste, residual and generic spaces. Which leads to two final comments. First is the possibility to further clarify the task of our program, which is the research for new reading and designing tools to manage the death and life of these territories. Second is the necessity to acknowledge that traditional scale hierarchy do not fit anymore neither to the analysis we aim to complete nor with the project tools we are looking for.
CASE STUDIES

01 // UNIVERSITÀ IUAV DI VENEZIA

02 // UNIVERSITÀ DEGLI STUDI DI TRENTO

03 // POLITECNICO DI MILANO

04 // POLITECNICO DI TORINO

05 // UNIVERSITÀ DEGLI STUDI DI GENOVA

06 // UNIVERSITÀ DEGLI STUDI DI ROMA “LA SAPIENZA”

07 // UNIVERSITÀ DEGLI STUDI DI NAPOLI “FEDERICO II”

08 // UNIVERSITÀ DEGLI STUDI DI PALERMO

09 // UNIVERSITÀ DEGLI STUDI “MEDITERRANEA” DI REGGIO CALABRIA

10 // UNIVERSITÀ DEGLI STUDI “G. D’ANNUNZIO” CHIETI PESCARA

11 // UNIVERSITÀ DEGLI STUDI DI CAMERINO
NATIONAL PARTNERS

01 // UNIVERSITÀ IUAV DI VENEZIA
02 // UNIVERSITÀ DEGLI STUDI DI TRENTO
03 // POLITECNICO DI MILANO
04 // POLITECNICO DI TORINO
05 // UNIVERSITÀ DEGLI STUDI DI GENOVA
06 // UNIVERSITÀ DEGLI STUDI DI ROMA “LA SAPIENZA”
07 // UNIVERSITÀ DEGLI STUDI DI NAPOLI “FEDERICO II”
08 // UNIVERSITÀ DEGLI STUDI DI PALERMO
09 // UNIVERSITÀ DEGLI STUDI “MEDITERRANEA” DI REGGIO CALABRIA
10 // UNIVERSITÀ DEGLI STUDI “G. D’ANNUNZIO” CHIETI PESCARA
11 // UNIVERSITÀ DEGLI STUDI DI CAMERINO

AITEC → Associazione Italiana Tecnico Economica Cemento
CE.Si.S.P. → Centro per lo Sviluppo della Sostenibilità dei Prodotti
CERISDI → Centro Ricerche e Studi Direzionali
IIA → Istituto sull’inquinamento atmosferico
ACTIVITIES
↑
RE-CYCLE
LABORATORY
PRODUCTS
AGENDA
LABORATORY RE-CYCLE

01 // UNIVERSITÀ IUAV DI VENEZIA

02 // UNIVERSITÀ DEGLI STUDI DI TRENTO

03 // POLITECNICO DI MILANO

04 // POLITECNICO DI TORINO

05 // UNIVERSITÀ DEGLI STUDI DI GENOVA

06 // UNIVERSITÀ DEGLI STUDI DI ROMA “LA SAPIENZA”

07 // UNIVERSITÀ DEGLI STUDI DI NAPOLI “FEDERICO II”

08 // UNIVERSITÀ DEGLI STUDI DI PALERMO

09 // UNIVERSITÀ DEGLI STUDI “MEDITERRANEA” DI REGGIO CALABRIA

10 // UNIVERSITÀ DEGLI STUDI “G. D’ANNUNZIO” CHIETI PESCARA

11 // UNIVERSITÀ DEGLI STUDI DI CAMERINO
Three books
Re-cycle Italy. Atlas of strategies
Re-cycle Italy. Proposal of a regional law for Emilia Romagna
Re-cycle, sub-cycle, hyper-cycle. Theories of a wandering concept

Final exhibition
Re-cycle Italy / MAXXI Museum in Roma

During the last phase of the research the work group will undergo a re-organization. All the OUs will write reports, produce media that will contribute to the book Re-cycle Italy. Atlas of strategies, where all the material produced in the study of recycling procedures applied to city and territory will be collected. The text shows the work done in the first year on a national level, the update of the state of the art carried out together with the international institutions involved, the aspects of recycling declined according to the five programs and the respective effects on an analytical and design level in the single applications. Part of this material will be selected and integrated into the multimedia recounting of the various initiatives of the previous two years and elaborated into the Re-cycle Italy exhibition to be held at the MAXXI Museum at the end of the three years of research. The elaboration of the materials for the Atlas and the exhibition will be coordinated by a group of researchers from the Iuav OU. A mixed group from the various universities, coordinated by representatives of the Iuav OU, will further study the theoretical opus developed in the previous two years. The objective of this group is to valorize the interdisciplinary nature of the project in order to explore the possible theoretical deductions of the concept of recycling and to verify the effective contributions the very diverse disciplines involved. This group will return the results of the studies undertaken by all the OUs in the previous three years together with the results of this phase of further investigation in the book Re-cycle, sub-cycle, hyper-cycle. Theories of a wandering concept. Another mixed group, again coordinated by the Iuav OU, will prepare the proposal for a regional law in collaboration with the IBC of Emilia-Romagna, based on the results obtained in the previous two years. The group will again rely on the contribution from the national and international institutions involved, this time focusing on the regulatory aspect. The results of this discussion will form the material for the law proposal and will be presented in the book Re-cycle Italy. Proposal of a regional law.
*for Emilia Romagna*, aimed in particular at kick-starting a national debate on the management and transformation of the territory. Special care will be devoted to the way in which the results are put across, so that it will be accessible to wider public, not just specialists in the field but for society as a whole.

The three books, although the result of a common research, will be based on separate foundations and will have specific methods of communication, according to the structure of the texts, in order to explore different aspects of the same strategy and hence fill the gaps in the present state of the art.
↑2013

14-15 February
Opening seminar about research
[VENEZIA]

September/October
Closing seminar first stage of the Journey through Italy + Journey Pescara-Sulmona by train
[ASCOLI / PESCARA]

↑2014

January
Closing Convention first year of research
RE-CYCLE MAPPING / Geographies of Recycle
[VENEZIA / TORINO]

March/April
International Workshop
[PALERMO]

July
International Workshop
[GENOVA]

September/October
International debate
[NAPOLI]
↑ 2015

February
Forum LANDSCAPE OF RE-CYCLE at IBC Bologna and parallel event in every university [BOLOGNA]

September/October
Summary seminar of the experiences on field and of the relations with national partners [MILANO]

↑ 2016

February
Exhibition and final Convention at MAXXI Closing Seminar [ROMA]
New Life Cycles for Architecture and Infrastructure of City and Landscape is the second volume of the book series Re-cycle Italy. This book series relates the intentions, results, and events of the namesake three-year research program – funded by the Ministry of Education, University and Research – involving over a hundred academics from the fields of architecture, urbanism and landscape in eleven Italian universities. The aim of the Re-cycle Italy project is to explore and define new life cycles for those spaces, those elements, those parts of the city and the territory that have lost their sense, function or usefulness. The research is based on the will to cut through the scientific debate and the practical demands of new directions for building in order to reveal the connections between the strategies for redefining the existing and the trends of theory, and to view the design as a cultural flywheel for territories.

The text is structured in two parts. In the introduction the assumptions of the research are put forward, and the second part of the book describes the structure of the research, the network of researchers, the national and international partners involved, the case studies and the activities to be carried out in these three years of work.