Landscape devices for a healthier lifestyle in metropolitan areas: the Piers project

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Abstract

Our research group in the department of architecture and Design of Sapienza University in Rome is working on landscape projects aimed at making cities more livable, by introducing adequate physical activities in citizens' daily lives. Encouraging daily physical activities cannot be accomplished only through warnings, we need spaces that truly facilitate movement and support healthy lifestyles.

We are both working on metropolitan strategies and local devices: by creating a large number of connection spaces (called piers) between urban settlements, metro and train stations, we'll foster local and daily connections between residences and services avoiding car usage, while encouraging walking and cycling.

The Piers re-activate and regenerate publicly owned open spaces - be they unused or under-utilized, marginal and/or unsafe - peculiar of urbanized contemporary territories.

The Piers are not simplifiable to linear paths: they are a constellation of spaces and equipments, tangible landscape infrastructures, which allow sustainable, healthy and secure transfers. They are thought to host new activities, green economies, urban-rural connections and nourishing social inclusion, therefore dramatically enhancing the ecological role of open spaces.

Citizens have the chance to actively participating in the design, construction and management of the Piers: in this way the Piers are guaranteed to meet the new needs of metropolitan citizens (accessibility, wellbeing, social security and inclusion). But also be perceived as common goods and conceivably maintained and defended by the community itself. True livable spaces, capable of making our cities more comfortable.
**Overall context and objectives**

Metropolitan areas are the living space of most of the world’s population. More than 50% of the world’s population nowadays lives in cities and it is projected to reach 85% by 2100 (OECD 2015). That’s why the future of the planet depends on Sustainable Urban Development. As the World Urban Campaign Partners (coordinated by UN-Habitat) declared in the 2012 Manifesto for Cities: “the battle for a more sustainable future will be won or lost in cities”. In other words, metropolitan areas are places of many problems concentration but at the same time are an ideal starting point for new solutions, like innovative projects which could lead to a radical transition to more sustainable and inclusive global development models.

The projects we are doing in Italy and Europe (also through Community funds) try to answer to this emerging questions, hopes and expectations of metropolitan areas. They address issues of global relevance (as can be seen in the 2030 Agenda for Sustainable Development Action Plan) that may assume specific and unique characters in the European context if compared with the American one.

The issues we are addressing, concerning urban ecosystem health and its inhabitants, are the following:

a. **metropolitan accessibility**, intended as the ability to move around the city and to access services in a sustainable (reducing private vehicle usage) and inclusive way (i.e. possible for everyone). At an urban and global level is therefore possible to obtain the following individual benefits:
   - reduction of travel time, decrease stress, less sedentary life, pollution-caused illness reduction, road accidents reduction, etc.
   - reduction of urban pollution and greenhouse gas emissions (that largely depend on urban mobility based on private vehicles), climate mitigation.

b. **good health and wellbeing**: intended as a chance to live in a healthier environment, fostering daily physical movements and a proper & healthy nutrition. These are essential needs, related to a new sensitivity towards healthy lifestyles. This needs are now threatened in large conurbations where sedentary jobs, lifestyles and unhealthy diets prevail (even in countries such as Italy, famous for the Mediterranean diet). The benefits that come from promoting ad supporting new healthy behaviours and lifestyles affect both the individual and society:
   - improving life quality and expectancy, reducing risk related to the rising of diseases associated with obesity, unhealthy diets, sedentary lifestyles, and environmental pollution (in urban areas).
   - Decrease in Public Health spending.

c. **urban safety and inclusion**: intended as freedom from violence, conflict and crimes. A chance for everyone (children, women and elderly in particular) to use fearlessly streets, parks, and public places. Social inclusion increasingly depends on cultural inclusion (education, training) and employment opportunities, especially in emerging areas related to environment to the landscape (green economies, urban farming, etc) with individual and collective benefits:
   - empowerment, capacity-building, autonomy, etc
   - social cohesion and community resilience, real metropolitan citizenship. Decrease in Welfare spending. Reduction of crime and security costs
Specific issues in Rome metropolitan area

Our project is focused on the urbanized territories of Rome metropolitan area, beyond the Grande Raccordo Anulare (the ring-road highway that circles Rome). The classical concept of suburbs is absolutely inappropriate to interpret the new metropolitan landscapes, showing completely different characters than ever before.

The contemporary city is composed of patterns repeating extensively. In the metropolitan area of Rome we recognise low/medium-density settlements, large unitary complexes (public or private driven), and different types of gated settlements (residential, commercial, service).

These territories have common issues.

**Lack of accessibility**

Rome is radically changed in the last decay, it has grown both in terms of population and urbanized areas. Flows of people for work, study, access to services involve an increasingly larger territory, beyond the municipal and provincial boundaries. At the same time the mobility system (in particular the railway network) remained the same as the last century: it does not reach all the districts, it is an inefficient and disconnected network.
As a consequence:

- people are forced to go by car both for long transfers, that for short and local ones. Dependence on private vehicles causes traffic, pollution, waste of money and time.

- sometimes people (especially fragile people, that is to say elderly people, persons with disabilities, children, immigrants) become “prisoners” in their neighbourhoods, they are not free to move in the urban area

- exclusion, people confined to their neighborhoods do not feel citizens of Rome

Poor accessibility means lack of connections and exchanges within urban contexts, characterised by greater cultural opportunities, work, information. That’s why we think that the right to urban accessibility is a condition for new metropolitan citizenship and a contrast to social marginality.

**Fig. 6** Rome growth: urbanized areas and railway network 1950-2005

**Fig. 7** transport mode in the metropolitan area of Rome
**Lack of public liveable places**

In the metropolitan territories of Rome, as in other European cities, there is a lack of public spaces able to host people and activities as squares, marketplaces, gardens and avenues, proper of the historical towns in the past centuries.

Public spaces in contemporary urban settlements are often poorly designed, inaccessible or enjoyable for all.

- Recently built public spaces lack in the historic layering and the complexity of uses whom give identity and, at the same time, guarantee the functionality of historic spaces.

- Streets are overrun by private vehicle traffic: squares and open spaces are occupied by parked cars, they are not pedestrian and cycling friendly, they do not encourage children autonomy within the neighbourhoods.

- Public spaces are often uncomfortable from the environmental point of view: big paved areas, devoid of vegetation, with unsustainable micro-climatic conditions that have an impact even on the urban climate.

- Inaccessible and underutilized public spaces are unsafe, fed with improper and illegal uses and activities: children, youths, women and the elderly are often prevented from using parks, squares and streets because of the fear for crime and violence.

High-quality public spaces are a fundamental service, a public common and a key element of the so called right to the city (UN Habitat 2015) on which we are working to boost safety and security, creating economic opportunities and public democracy, especially in the suburbs.

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*Fig 8 contemporary open spaces in Rome suburbs (photo by Alessandro Cimmino)*
Urbanized contemporary territories in Rome have also big potential.

**Wide availability of green spaces**

Rome metropolitan area is characterized by large portions of open spaces, unused or underutilized—many publicly owned—of high environmental and landscape value, that allow to imagine a social and ecological rehabilitation:

- **agricultural areas**: Rome is Europe's largest farming municipality (51,729 hectares, equal to 40% of the municipality’s total area). The Municipal Administration directly manages two farms itself: with a total of 2,300 ha, several farms are run by welfare associations (employing fragile subjects) and the number of social gardens is dramatically increasing. However, many agricultural areas are in disrepair, despite their great potential, both economically and from a historical and cultural perspective. The Agro Romano is a landscape of extraordinary value candidate as UNESCO heritage site.

- **environmental hubs**: Rome has an extraordinary asset of natural areas. The 64% of the municipal territory (80,000 hectares) is regulated by rigorous environmental protection plan by RomaNatura (the Regional agency for the management of protected natural areas in the city of Rome). The urban area has very high levels of biodiversity: within the Grande Raccordo Anulare (35,000 hectares) there are 1,300 wild plant species (representing 20% of Italian flora). There are also 5,200 different species of insects (14% of the species present in Italy), terrestrial vertebrates are 160 species, 10 of which are amphibians (27% of worldwide species). Reptiles species are 16 (27% of worldwide species), bird species are 140 (80 of which nesting, accounting for 32% of the species nesting in Italy). Mammal species are 33 (30% of the species present in Italy).

- **green areas of archaeological and historical value**: historic villas, archaeological parks, marginal and neglected excavation areas caused by extensive constructions. If we add an absence of renovation projects able to protect and reveal the extraordinary value of historic, environmental and landscape resources, we could foresee a chance for spatial and social regeneration of contemporary settlements.

**Community resilience**

To address social and environmental problems in new metropolitan territories, local governments have initiated many actions in line with international and community guidelines. But the most significant urban regeneration process in Rome metropolitan area, it's bottom-up. It is a process that led, in many suburbs, to the formation of viable communities, sharing and cohesive, able to support and feed public and private initiatives, showing great skills in self-organizing, information exchange and democratic participation.
Fig 9 green areas in the metropolitan area of Rome

Fig. 10 archaeological finds in Rome suburbs (Portuense district near Fiumicino airport) (photo by Alessandro Cimmino)
Our proposals: Piers project in Rome

According to international guidelines (UN Habitat), EU measures and funding lines 2014-2020, aimed at promoting environmental and social innovation in urban areas (Horizon 2020 Research and Innovation, Environmental Policy of the Green Infrastructure, etc) we believe that the above significant and urgent social and environmental challenges of metropolitan areas should be faced through landscape strategies.

With this term, we want to refer to actions able to modify open spaces, improving environmental performances, encouraging new healthy lifestyles and new forms of social inclusion, green and circular economies, in close cooperation with local communities.

Many European metropolitan cities (Grand Paris, Lyon, Greater London, Turin, etc) are moving towards this perspective.

Our research group at the University of Rome is working on the Piers Project, a strategic vision for the entire metropolitan area and a range of local actions, supported and controlled by the community. Piers project are new connecting devices, new landing places in the metropolitan conurbations. They are conceived as multifunctional infrastructures: new sustainable mobility connections, new green spaces, new social opportunities.

Piers as connection infrastructures supporting sustainable mobility. The proposed solutions are:

- New green, sustainable connections between settlements and urban transport system (green infrastructures to reduce car dependence promoting walking and cycling, constellation of spaces and equipment which allow fast and secure transfers but also many activities)

- New green, inclusive, efficient connections between residences and services (schools, sport and medical facilities, public offices) to eventually foster the autonomy of the most vulnerable people (children, elderly, etc).

Piers as green infrastructures enhancing the ecological role of open spaces, protecting biodiversity, restoring degraded ecosystems and implementing areas with good levels of naturalness, also in order to start the process of adaptation to climate change. The proposed solutions are:

- new resilience hubs, with enhanced environmental performances such as habitable forests and grasslands, stabilisation ponds, experimental vegetation systems for environmental mitigation, compensation and monitoring

- new green networks to reduce habitat fragmentation, such as environmental corridors, greenways, blue ways and stepping stones.

- Green roofs on public buildings, rain gardens, permeable multifunctional parking lots, able to reduce paved areas and improve urban micro-climate conditions

- adaptive solutions for water drainage and sewage also available for sport and leisure such as temporary green collection basins, habitable wetlands and basins, active dunes and ponds.

- designed floodplains, ecological corridors.

Piers as social infrastructures promoting communities' resilience (social inclusion, green economies, health and wellbeing, reduction of crime and security costs) by triggering productive social processes in different sectors (agriculture, crafts, art and culture) and by fostering outdoor living (new uses and new aesthetic perceptions of the natural world). The proposed solutions are:
- new urban-rural connections and devices, supporting innovative forms of production and green space care (social farms, collective gardens, social vegetable gardens, farmers markets)
- new green sustainable equipments to support educational and cultural activities, allowing the creation of arts and handicraft workshops, use/reuse and recycling of natural materials (outdoor lab and classroom, micro-storage of recycling materials, etc.)
- urban spaces and equipments promoting daily physical activity, such as innovative urban playgrounds on underused parking lot and green spaces, equipped to accommodate old and new sports practices (from the most contemplative practices in the nature such as yoga and tai chi, to the more “hard” ones, as parkour, spartan race or acro-bike). Moreover a wide range of intermediate activities as basketball, soccer, jogging, athletics, Nordic walking, skateboarding, skating, bocce, etc.)

These solutions represent a sort of catalogue, still in progress and implementable through design choices in relation to specific urban contexts, specific needs and participation attitude of inhabitants. Piers are in fact conceived as urban devices: a series of low budget, sustainable, nature based, repeatable and flexible measurements, **promoted and controlled by the community**, able to interact with different contexts.

This work program, the methodology and the design catalogue are the key elements of a proposal that was admitted at the second stage of evaluation in the biggest EU Research and Innovation program (Horizon 2020) on Nature-Based Solutions and Re-Naturing Cities.

**The co-design workshops and its results in Corviale suburbs**

*Piers project for the new accessibility of metropolitan area of Rome* began with the first experimental project in the Corviale suburb: a well-known neighbourhood for its social housing building one kilometre long. In this urban context, poor urban accessibility, shortage of local connections and lack of security are the problems that feed spatial and social exclusion and marginalization.

In October 2015 we started a co-working laboratory with residents, associations of citizens, public administrators, schools and third sectors organisations. The laboratory was not aimed to get a consensus on already defined proposals, but to build shared hypothesis in relation to performances and expected results, concrete possibilities of realisation, management, and maintenance. It consisted of 4 steps.
First step _sharing knowledge_: create, share and approve with all participants a knowledge framework of the context (public areas, available spaces, needs and problems) in order to obtain a common ground of comparison and a common language.

Second step _Creative dialogue and Public call_: an open debate with the stakeholders has transformed unfulfilled needs and questions in the first hypothesis of the piers project. The emerging topics are attributable to five broader families: Open the schools. Cultivate. Set up the space. Communicate the environment and the landscape. Live outdoor sports.

The open debate was also aimed to involve local communities in launching, coordinating and implementing activities generated and attracted by the piers and maintaining spaces and equipments. It also wanted to stimulate initiatives: Who is the candidate for action?
Third step _co-design_: Three different piers have been imagined:

- **the (Re)creational labs Pier**, dedicated to schools, arts and crafts activities with training purposes for the younger and employability for the elder.

  The pier has multiple functions:
  - it connects the schools to the neighbourhoods and the railway network through a sequence of safe spaces that allow students, parents and teachers to walk on foot, fostering children's autonomy, reducing traffic and risk of accidents, promoting daily movements
  - it is a network of spaces and equipments for educational and cultural activities, in particular art-craft workshops for use and recycle of natural materials (wood, clay, paper, cloth, etc.) derived from natural urban parks or from social farms present in the territory.
  - it supports new employment opportunities in traditional sectors (arts and crafts, agriculture)

- **The Playgrounds Pier**, dedicated to games, sports and athletes of all ages that will “colonize” underutilized public spaces.

  The pier consists of different types of spaces:
  - a continuous linear path that crosses and connects all neighbourhoods.
  - the playgrounds, intended as spaces for urban free, paved and green sports practice, equipped for various old and new sports practices.

- **The Picnic Pier**, imagined as green crown and enhancing device for the extraordinary landscapes and environments of of this urban territory. It is a system of open spaces with a strong link with agriculture and the environment and with the different landscapes of the urban area. It responds to a growing demand for collective farming practices (social farming), sustainable business productions, Education for food well-being and responsible consumption, movement and outdoor activities. These different needs find in the picture of picnics (interpreted as opportunities for discovery and knowledge) a ductile and declinable reference in many different ways in relation to the combination with different activities: historical-cultural, naturalistic, eno-gastronomic itineraries, environmental education, agricultural practice, etc.

Fourth step _Feasibility assessment_: Piers project developed in form of prototype to be experimented in different contexts, contains the “mandatory” reference at different levels of feasibility: Social feasibility; economic feasibility (EU Fundings), administrative feasibility.

Social feasibility is interpreted as a chance of implanting the strategy in the evaluated context and it’s based on “workshops” as a phase of collective elaboration and discussion between local actors, and as initial move for the project launch

An example of the variety of economic feasibility within which the Piers Project can be attributed is the EU program Horizon 2020 program for **Social Innovation** or **Nature Based Solutions**.

To give substance to the Piers project we proposed an implementation policy analysis considering the administrative legal impact of the interventions that make up the project and evaluate its feasibility.
It is useful to evaluate in advance the compatibility level of the projects with the existing regulations. The Italian administrative legal asset is particularly complex and it happens that even the best projects drown if you don’t manage with rules, public administrations, procedures.

**Fig 13-15  Corviale piers**

**Innovative ideas for more livable cities**

The elements of innovation that can make the Piers project meaningful for the reactivation of underused, or poorly functioning public spaces in the contemporary metropolitan territories are:

- The simplicity of the devices: an integrated combination of solutions, nature based, characterized by low tech solutions, low costs, easy replicability. At the same time able to set up new and fertile relationships between spaces and people and to work as an **ignition device** of significant changes of space, behaviours and economies for the contemporary metropolis.

- The direct involvement of citizens, not only as final beneficiaries, but also as actors in choosing, developing, managing and activating the piers. This new modality of working and designing, open and dialogical, is aimed to **increase ecological awareness and eco–social empowerment** (healthier relationship among individuals, families, communities, and the environment supporting, for example, new outdoor lifestyle. Encouraging daily exercise and sports practices, promoting innovative collective uses of open spaces).

- The opportunity for citizens to participate actively in the design, construction and management of public spaces is a necessary condition to ensure that these spaces are functional to meet the
new needs of metropolitan citizens (accessibility, wellbeing, social security and inclusion). Be perceived as common goods and maintained and defended by all the community. Be real liveable spaces capable of making our cities ready for the change.
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