

Cities at the Forefront of the Environmental Challenge

Climate change is arguably the greatest challenge of our times, with COVID-19 further highlighting the need for a sustainable future. Despite the pandemic, urbanization is not slowing globally. Covering just 3% of the Earth's surface, metropolitan systems are currently home to 55% of human beings and are expected to increase dramatically over the next 20 years. Cities [...]

by [Tobia Zevi](#)



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emissions and 70% of solid waste, while absorbing around **70% of global energy**. To fight climate change effectively, we ought to design more environmentally sustainable urban systems.

2021 may be a crucial year, and Italy plays **a fundamental role** as Chair of the G20 and Co-Chair of COP26, while the EU is trying hard to do its part with the Green Deal and the Next Generation EU.

What are the goals of more sustainable cities? What are the key elements of a much needed urban transformation? What is the expected impact of Covid-19 on this transformation?



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The Role of Ecological Transition in Urban Development Projects

Urban regeneration, by its very nature, affects relations between a territory, its urban structures, and its inhabitants. Given that cities exhaust a substantial share of the world's resources and correspondingly contribute to an equal amount of carbon emissions, urban regeneration will likely play a central role in the "ecological transition" process. Awareness of — and [...]

by [Luigi Borré](#) and [Giancarlo Boffetta](#)



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equal amount of carbon emissions, **urban regeneration will likely play a central role in the “ecological transition” process.**

Awareness of — and concern for — the environment has grown enormously in the last twenty years, particularly over the past decade, impacting citizens, public services, operators, and investors.

The phenomenon is such that the effectiveness with which urban regeneration projects are capable of **attaining the objective of ecological and environmental protection has become one of the most important factors in decreeing the success (or failure), in economic and other terms,** of these initiatives. In other words, the growing awareness of these issues in market demand for real estate requires such developments to devote equal attention to them.

Different Types of Urban Regeneration Projects Call for Different Ecological Measures

Crucially, there is a stark difference between projects aimed at **converting existing buildings** with city regeneration policies, between projects aimed at **restoring entire urban areas** that are affected by decay, dereliction or conversion, and between efforts to **rehabilitate areas whose services are no longer deemed indispensable** (such as brownfield land).

The first case is common across Italy and a number of European cities that boast centuries of rich history and art. Here, urban regeneration operations ought to take into account the occasionally **stringent restrictions that come with specific historic and cultural contexts:** their artistic value has to be preserved in new urban planning projects.

In this case, environmentally speaking, there is relatively little room for manoeuvre: what can be done is to focus on **energy retrofitting buildings that can reduce CO2 emissions.**

Meanwhile, urban restructuring projects that affect the **very structure of a city** entail a considerable leap in scale but also hold symbolic significance for a city's urban landscape.

Because ecological transition will be at the heart of new urban landscape projects, particular attention will be devoted to the preservation of large green spaces, the introduction or promotion of modes of transport that employ renewable energy sources, efficient waste management and energy optimisation, and the use of new materials and sustainable construction technologies.

In such projects the potential effectiveness of the solutions in terms of environmental protection and energy efficiency is much greater. In fact, their impact will be multidimensional because they will affect individual buildings as well as land lots and entire city districts.

It goes without saying that without growing awareness and concern around climate change issues, such

multidimensionality might have been seriously hindered.

The Need for an Integrated, Comprehensive Approach to Urban Development Projects

These "solutions" ought to be **considered against the backdrop of the urban context they will be applied to**. For instance, it is imperative to take into account repair work with the surrounding area and to promote the operation's long-term benefits. It is also crucial to embed these efforts into a city's wider transport network.

Regardless of whether these urban regeneration projects fall under the aforementioned first or second category, it is essential to emphasise the basic essence and aims of environmental science. This means **assessing previous scientific applications and past environmental failures** that may have inadvertently worsened the climate crisis because they endeavored to solve single-case ecological issues (such as mobility, production, energy sources), without taking into account their relation to one another and the complex, layered environmental dynamics of a larger urban landscape.

Moreover, this criticism should enquire into the progress created by single-case technologies that have not been matched by a corresponding increase in the ability to predict the consequences that their use might have on the ecosystem. Therefore, **it is imperative to implement integrated tools and technologies** to guide transformation processes towards a comprehensive **sustainable innovation process** and Pareto optimality.

In the interest of comprehensiveness, each development project should also be firmly embedded in in-depth analyses of a city's socio-economic environmental context.

The interconnected nature of these integrated, comprehensive projects includes, for instance, the origin of the materials to be used, their circularity and the energy consumption that their production entails, the reduction of consumption, the use of renewable energy sources, the integration of multimodal transport networks, the construction of green infrastructures, the creation of ecosystem services, the continuity of the water cycle and its reuse, and the public spaces system.

The Environment As a Complex Set of Human Relationships

Another important factor to consider is the environment as a set of human relationships, which is influenced by the way we make sense of our environment and the physical places within it.

After all, the redevelopment of places — if it begins with structural, physical and economic objectives — ultimately redefines the very spaces and relationships between individuals.

New places should be created with a social focus in mind, thus fostering personal relationships and providing new objectives to these new places, enabling communities to identify themselves with shared values.

It is therefore essential to assess the benefits of the project for the community and to adopt methods for encouraging participation by citizens and stakeholders and making sure their opinions are heard in the various phases of the project.

As recent research into the plant world teaches us, organizations that enjoy greater freedom and sturdiness are built on a matrix model, as opposed to the centralised animal model. In other words, these are **decentralised organisations that ensure widespread decision-making without a single command centre**. Rather, decision-making arises and spreads spontaneously from (and across) the peripheral level, which is where needs are clear, information is available, and problems need to be addressed rigorously.

In other words, creating new areas that combine dimensions and public spaces designed to host and promote different activities favours the birth of communities.

The objectives of urban regeneration should then include the creation of **hybrid spaces with enabling technologies and data collection in an accessible format that ensures decentralised growth**.

To exemplify, energy communities — which exist in Italy on account of new legislation — embody the strength of a local network as well as participation, energy optimisation, carbon footprint reductions, new technologies, and space-sharing.

Self-produced urban agriculture spaces, group-purchasing, and group-sharing offer additional insights around hybrid. Decentralised spaces.

As such, the enhancement and reinforcement of **the resource-sharing principle** (including the sharing of spaces and services) **offers encouraging prospects for cities' effective ecological transition**.

Conclusion

There is no doubt that the ecological issue – and the ecological transition perspective – is one of the founding pillars of the last decades most inspired urban regeneration projects. Many are the possible examples: the harbour area of Nordhavn in Copenhagen, La Confluence at the crossing of Rhône and Saône rivers, the decommissioned coal-fired power station of Battersea area in London, the regeneration of the harbour area of HafenCity in Hamburg and the transformation of the wide railway area of the Clichy-Battignolles project in Paris, just to mention some interventions, based on different concepts and objectives. In Italy it is worth mentioning the Milan north-west end development, with the regeneration of ExpoMilano 2015 area and the realization of the contiguous Cascina Merlata – UpTown smart district.

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