

TeMA

Journal of
Land Use, Mobility and Environment

The climatic, social, economic and health phenomena that have increasingly affected our cities in recent years require the identification and implementation of adaptation actions to improve the resilience of urban systems. The three issues of the 15th volume will collect articles concerning the challenges that the complexity of the phenomena in progress imposes on cities through the adoption of mitigation measures and the commitment to transforming cities into resilient and competitive urban systems.

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THE CITY CHALLENGES AND EXTERNAL AGENTS.
METHODS, TOOLS AND BEST PRACTICES

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The cover image shows the Irpinia hills at sunset, highlighting the enhancement of two renewable energy sources: sun and wind.
The photo was taken by Giuseppe Mazzeo in August 2022, in S. Andrea di Conza, Avellino, Italy.

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REVIEW NOTES – Economy, business and land use

Urban sustainable development: the cost of pursuing SDGs

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Abstract

Starting from the relationship between urban planning and mobility management, TeMA has gradually expanded the view of the covered topics, always following a rigorous scientific in-depth analysis. This section of the Journal, Review Notes, is the expression of a continuous updating of emerging topics concerning relationships among urban planning, mobility and environment, through a collection of short scientific papers. The Review Notes are made of four parts. Each section examines a specific aspect of the broader information storage within the main interests of TeMA Journal. In particular, the Economy, business and land use section aims at presenting recent advancements on relevant topics that underlie socio-economic relationships between firms and territories. The present note aims at highlighting the costs associated to the UN Sustainable Development Goals. The high investment costs and the gap that still divides cities from the achievement of the sustainable targets shed lights on the need to incentivize both public and private investments.

Keywords

Sustainable Development Goals; Cities; Costs; Investments.

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1. Introduction

The pursuit of a sustainable development has become a priority for both public and private organizations that seek to foster social, environmental and economic development without compromising the possibility for future generations to do the same. Improving social inclusion, climate change mitigation and adaptation (Errigo, 2018; Molavi, 2018), reducing inequalities (Battarra et al., 2018; Guida & Caglioni, 2020), protecting cultural and natural heritage (Bianconi et al., 2018; Shirgir et al., 2019), are some of the critical challenges on which organizations should focus on, while generating wealth for communities that can thrive over time. The 17 Sustainable Development Goals (SDGs) developed by the United Nations trace the path bot for administration and companies to pursue sustainable development. These ambitious goals represent great opportunities that require large investments to be put into practice. To this aim it is worth investigating what are the costs associated to the achievement of SDGs, since most of the literature has mainly focused on the related benefits. Analyses from the World Bank have recently estimated that low and medium income countries need investments from \$1.5 to \$2.7 trillion per year between 2015 and 2030 to achieve SDGs (Vorisek & Yu, 2020). Although the relevance of this issue, very few attempts in literature have tried to address it, and yet it is worth the investigation, given that financial constraints may hinder the effective implementation of practices aimed at pursuing a sustainable development. A recent study (Filho et al., 2022) has highlighted that, financially, SDGs can be pursued through private investments, social and environmental bonds, and foreign direct investments. These financial instruments represent investments and not mere costs that suggest that sustainability makes sense, financially, only if it also generates desired returns. That is a critical point in the debate about sustainable-related costs. About this, Filho and colleagues (2022) also argue that there is a cost on non-being sustainable that probably overcome the cost of implementing sustainability-related measures. That said, it seems clear that sustainability-related investments can help communities in generating future benefits, but at the same time it is necessary to incentivize public and private investments that need also to guarantee short-term performance to be attractive for investors. Balancing short-term financial performance with long-term social and environmental value creation is thus one of the most challenging points for achieving SDGs. To this aim, ambitious public policies have been designed to create business opportunities for sustainability-related investments within a so-called sustainable transition. In the case of urban environments, the most significant areas of intervention about sustainable investments may regard among others transports, public housing, waste management, public space management, governance quality, inclusion and transparency. As far as these areas are concerned, in the next section some examples will be highlighted to show the composition of sustainability-related required investments in the cities of four developing countries.

2. The cost of pursuing SDGs in cities

Sustainable development in urban environments mainly refers to the specific SDG 11, sustainable cities and communities. However, also other SDGs may be oriented towards to development of sustainable urban environment. Developing transportations, housing and governance (Burlando & Cusano, 2018), for example, do not just allow cities to pursue SDG11 related targets but also other targets related for example to SDG1 (reduce poverty), SDG10 (reducing inequalities), or SDG16 (peace, justice and strong institutions) to name a few. In 2020, a study of the United Nations (UN Habitat, 2020) tried to assess the level of investments needed by 129 small, medium and large cities in Bolivia, Colombia, India and Malaysia. The study identifies five investment categories: housing, transports, solid waste, public space, and governance and planning. According to the analysis, the average annual costs of developing sustainable cities spans from an average of circa \$18million for small cities (less than 100.000 inhabitants) in Malaysia to \$5,28 billion for large cities (more than 1 million inhabitants) in Malaysia as well. In the country of Southeast Asia, the most consistent investments for small and medium (between 100.000 and 1 million inhabitants) cities regard transportations,

with expenses that would absorb about 80% of the total required resources. For large cities, instead, Malaysia's priority regards the management of public space with an estimated annual cost of \$3,60 billion. Indian cities face a slightly different situation, as their priority is the management of public space both for small, medium, and large cities. In this case, however, the percentage of the investments absorbed by the different categories shows a pick for public space management with an average annual cost of about 50% on the total amount of resources needed to pursue SDGs. Small Indian cities need about \$34 million, while the investments expected for medium and large cities are respectively \$143 million and \$2,02 billion.

South American countries show different priorities. Both in Bolivia and Colombia, cities allocate most of the investments on transports and housing. Bolivian cities require respectively \$54 million, \$190 million, and \$644 million, for small, medium and large cities, while Colombian cities require an annual expense of \$30 million, \$340 million, and \$3,10 billion.

These estimated costs give an idea of the huge amounts of investments required by cities if they want to achieve the targets identified in the SDGs scheme. At the same time, the four countries analyzed are not among the best performer in achieving SDGs. Although the situation may vary from country to country, however, the analysis carried out by the United Nation gives a clear idea of the investments needed by urban environments if they want to become sustainable. Moreover, in order to have a much clearer idea of the investments needed it is also important to understand what still needs to be done before cities achieve SDGs-related targets. A recent report analyzed how much Italian cities are close to achieving SDGs (Cavalli et al., 2020). According to this research, all the Italian provinces perform very well only in SDG13 (climate action) related targets. On the contrary, they are still quite far from achieving many other goals such as SDG5 (gender equality), SDG7 (affordable and clean energy), SDG10 (reduced inequalities), and even SDG11 (sustainable cities and communities). This suggests that still much needs to be invested for cities to achieve most of the expected results related to SDGs.

3. Discussion and conclusions

SDGs represent a great opportunity for cities to develop new investment plans aimed at achieving sustainability-related targets. Costs associated to the strategies and activities oriented towards the sustainable development maybe very high, as the related interventions may regard structural changes as the construction or renovation of infrastructures. This is the case, for example, of developing countries where transports, housing and public space management represent the most significant areas of interventions that require both public and private investments. Costs are also high for those cities that are still far from achieving SDGs target. As we have seen for Italian provinces, there is still much to do to reach the desired levels of SDGs, and in order to achieve these results by 2030, investments are still needed. To a certain extent, governmental actors are developing incentive plans to drive sustainable-related investments, but in order for them to be effective, long-term benefits should also encounter attractive short-medium financial returns. Sustainability-related expenses in fact should not be seen as mere costs, but they should rather be perceived as investments. To this extent, it is important to assess the convenience to invest in such activities considering that missing the opportunity of embracing sustainability may present more costs in the future for cities and other organizations.

References

- Battarra, R., Zucaro, F., & Tremiterra, M. R. (2018). Smart mobility and elderly people. Can ICT make the city more accessible for everybody?. *TeMA-Journal of Land Use, Mobility and Environment*, 23-42. <https://doi.org/10.6092/1970-9870/5768>.
- Bianconi, F., Clemente, M., Filippucci, M., & Salvati, L. (2018). Regenerating Urban Spaces: A Brief Commentary on Green Infrastructures for Landscape Conservation. *TeMA Journal of Land Use Mobility and Environment*, 11(1), 107-118. <https://doi.org/10.6092/1970-9870/5216>

Burlando, C., & Cusano, I. (2018). Growing Old and Keeping Mobile in Italy. Active Ageing and the Importance of Urban Mobility Planning Strategies. *Tema-Journal of Land Use Mobility and Environment*, Special Is, 43–52. <https://doi.org/10.6092/1970-9870/5756>

Cavalli, L., Eni, F., Mattei, E., Italia, S., Lizzi, G., & Toraldo, S. (2020). L'Agenda 2030 in Italia a cinque anni dalla sua adozione: una review quantitativa. *Reports*.

Errigo, M. F. (2018). The Adapting City: Resilience Through Water Design in Rotterdam. *TeMA, Journal of Land Use, Mobility and Environment*, 11(1), 51–64. <https://doi.org/10.6092/1970-9870/5402>

Filho, W. L., Dinis, M. A. P., Ruiz-de-Maya, S., Doni, F., Eustachio, J. H., Swart, J., & Paço, A. (2022). The economics of the UN Sustainable Development Goals: does sustainability make financial sense? *Discover Sustainability*, 3(1). <https://doi.org/10.1007/s43621-022-00088-5>

Guida, C., & Caglioni, M. (2020). Urban accessibility: the paradox, the paradigms and the measures. A scientific review. *TeMA Journal of Land Use Mobility and Environment*, 13(2), 149–168. <https://doi.org/10.6092/1970-9870/6743>

Molavi, M. (2018). Measuring Urban Resilience to Natural Hazards. *TeMA, Journal of Land Use, Mobility and Environment*, 11(2), 195–212. <https://doi.org/10.6092/1970-9870/5485>

Shirgir, E., Kheyroddin, R., & Behzadfar, M. (2019). Defining urban green infrastructure role in analysis of climate resilience in cities based on landscape ecology principles. *TeMA Journal of Land Use Mobility and Environment*, 12(3), 227–247. <https://doi.org/10.6092/1970-9870/6250>

UN Habitat. (2020). The cost of making a city sustainable. Retrieved from: <https://unhabitat.org/news/27-apr-2020/the-cost-of-making-a-city-sustainable-measuring-the-financial-cost-of-meeting-sdg>

Vorisek, D., & Yu, S. (2020). Understanding the Cost of Achieving the Sustainable Development Goals. World Bank Working Paper, (February). <https://doi.org/10.1596/1813-9450-9164>

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