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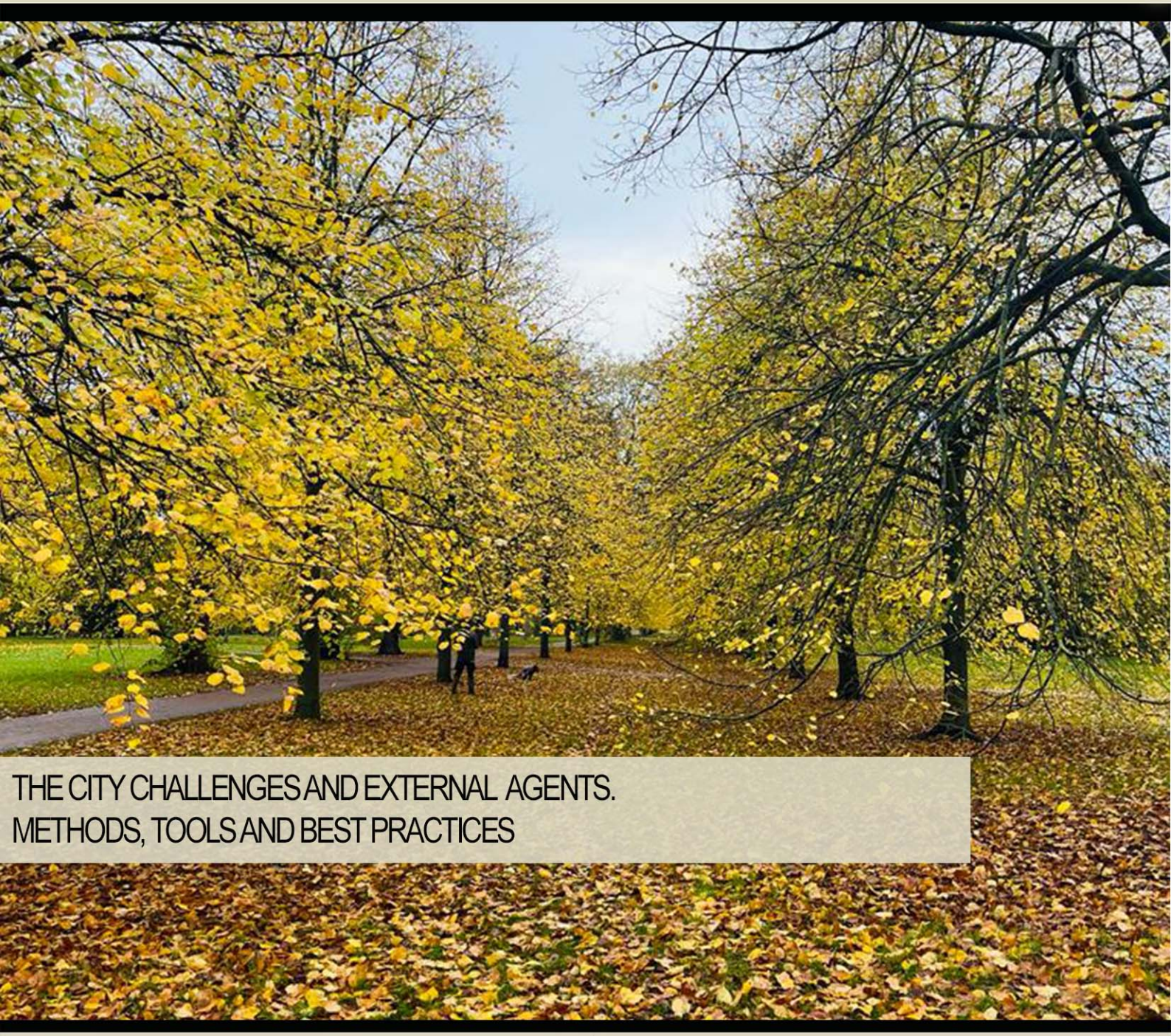

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The cover image shows a view of Hyde Park in London (United Kingdom) during the autumn season.
The photo was taken by Enrica Papa in November 2023.

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REVIEW NOTES – Urban practices

City vs Energy consumptions: Community-led Energy Planning (CLEP) practices from the world

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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 remaining in the groove of rigorous scientific in-depth analysis. This section of the Journal, Review Notes, is the expression of continuously updating emerging topics concerning relationships between urban planning, mobility and environment, through a collection of short scientific papers written by young researchers. 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 Urban Practices section aims at producing, analyzing and reporting data on recent and relevant policies in the urban domain.

This contribution aims at delving into the Community-led Energy Planning (CLEP) practices and some application from the world. Energy communities are a growing trend in urban planning, as cities seek to reduce their reliance on fossil fuels and increase their energy resilience. This paper presents a focus on CLEP applications and their main advantages and challeges. This section of Review Notes examines the urban planning practices that have enabled the growth of community-led energy planning practices and the movements that promoted and enables such shift.

Keywords

Energy crisis; New technologies; Urban energy.

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1. Introduction

The world is facing a climate crisis, and one of the most important ways to address it is to reduce our reliance on fossil fuels and transition to a more sustainable energy system. Only recently, urban energy planning has been drawn to the attention of land use planning, which has led, in the past decades, to a lack of coordinated strategies for balancing urban and energy-related development and efficient implementing policies for energy saving (Papa et al., 2016; Carpentieri et al., 2019). To enhance energy planning, it is crucial to incorporate it within the iterative urban and territorial transformations governance cycle. Community-led energy planning (CLEP) is a promising approach to this transition.

Community-led energy planning (CLEP) and bottom-up energy communities, as explored in the Review Notes of the previous issue (Guida, 2023), are both promising approaches to the energy transition. However, there are a few key differences between the two.

First, CLEP is a more holistic approach that considers all aspects of the energy system, including energy efficiency, renewable energy, energy storage, and demand management. Bottom-up energy communities, on the other hand, are often more focused on specific energy projects, such as renewable energy projects or community energy sharing programs.

Another key difference is that CLEP is a more inclusive and participatory process. CLEP initiatives typically involve a wide range of stakeholders, including residents, businesses, community organizations, and government agencies. Bottom-up energy communities, on the other hand, are often more grassroots-led and may not involve as wide a range of stakeholders (Bocca, 2021; Shirgir et al., 2019).

Finally, CLEP initiatives are typically more strategic and long-term in nature. CLEP initiatives typically develop comprehensive energy plans that set goals and targets for reducing energy consumption, increasing the use of renewable energy, and improving energy resilience (Fasolino et al., 2020; Tondelli, 2023). Bottom-up energy communities, on the other hand, may be more focused on specific short-term projects.

Considering all the above, CLEP can help communities to reduce their energy consumption by implementing a variety of energy efficiency measures, such as retrofitting existing buildings with energy-efficient materials and appliances and implementing renewable energy projects which aim at reducing communities' reliance on fossil fuels. The holistic and integrated approach promoted by CLEP initiatives is the driving force of their success, contributing lowering energy costs by reducing their reliance on fossil fuels and increasing their use of renewable energy. Renewable energy sources are typically much cheaper than fossil fuels, and the cost of renewable energy technologies has been declining rapidly in recent years. In addition, CLEP can help communities to reduce their energy costs by promoting energy efficiency and conservation. For example, CLEP initiatives can educate residents' behaviours and businesses about simple ways to save energy, such as turning off lights when they are not needed and unplugging electronic devices when they are not in use.

Planning community-led energy systems can also help entire neighbourhoods to become more resilient to energy shocks and disruptions by increasing their energy self-sufficiency and diversifying their energy mix. Energy self-sufficiency means that a community can generate its own energy, without relying on external sources. This can be achieved by developing renewable energy projects and energy storage systems. Moreover, diversifying the energy mix means using a variety of different energy sources, such as renewable energy, fossil fuels, and nuclear energy. This can help to reduce the risk of blackouts and other energy disruptions.

By holistically implementing the aforementioned initiatives, it is worth nothing that the positive return on CLEP' investments may go further energy (and money) saving. For instance, CLEP can help to create jobs and boost economic development by stimulating investment in the local energy sector. For example, renewable energy projects and energy efficiency retrofits require skilled workers to design, install, and maintain them. Additionally, CLEP can help to attract new businesses to the community. Businesses are increasingly looking to locate in communities that have a strong commitment to sustainability and renewable energy.

Another significant return on investment boosted by CLEP is the improvement of community well-being, by reducing air pollution, creating green spaces, and fostering social cohesion (Caglioni, 2023; Fistola, 2023). Air pollution is a major health problem that contributes to respiratory diseases, heart disease, and cancer. Renewable energy sources do not produce air pollution, so switching to renewable energy can help to improve air quality and public health (Gargiulo et al., 2023; Guida & Martinelli, 2023).

Moreover, CLEP initiatives often involve the development of green spaces, such as community parks and gardens. Green spaces can provide a variety of benefits, including recreation, stress relief, and improved mental health. CLEP initiatives can also help to foster social cohesion by bringing people together to work on common goals.

Overall, CLEP offers a number of significant benefits for communities. By reducing energy consumption, lowering energy costs, increasing energy resilience, creating jobs and boosting economic development, and improving community well-being, CLEP can help communities to build a more sustainable and prosperous future.

Apart from introducing CLEP as an innovative and forward-looking initiative to limit energy consumptions in urban areas and engage local communities, this section of Review Notes aims at introducing three among the most successful CLEPs, from UK, US and India.

The first movement is "Transition Towns". In the United Kingdom, the Transition Towns movement is a network of communities that are working to transition to a more sustainable future. Many Transition Towns have developed community energy plans, which have helped to reduce energy consumption and increase the use of renewable energy in these communities.

The second movement promoting CLEP is the "Energy Democracy movement". The Energy Democracy movement is working in many cities in the United States to promote energy democracy and ensure that communities have a voice in the energy transition.

Finally, the Self-Reliant Village Electrification (SRVE) program is presented. The SRVE program is a government program in India that provides financial and technical assistance to villages to develop and implement their own energy plans. The SRVE program has helped to electrify over 10,000 villages in India, and it has also helped to reduce energy consumption and increase the use of renewable energy in these villages.

The following boxes sum up the main traits of these urban planning practices.

Transition Towns Network

Transition Towns communities are typically focused on four key areas: food, energy transport and buildings.

Transition Towns communities are working to create more resilient and sustainable food systems. This includes initiatives such as community gardens, farmers markets, and food co-ops. From the energy perspective, Transition Towns communities are working to reduce their energy consumption and increase their use of renewable energy. This includes initiatives such as energy efficiency retrofits, renewable energy projects, and community energy sharing programs. For what concerns transport, Transition Towns communities are working to reduce their reliance on cars and promote more sustainable modes of transportation, such as walking, biking, and public transportation. Finally, Transition Towns communities are working to make their buildings more energy-efficient and sustainable. This includes initiatives such as building retrofits and green building practices.

In the United Kingdom, there are over 600 Transition Towns communities. Many Transition Towns in the UK have developed community energy plans, which have helped to reduce energy consumption and increase the use of renewable energy in these communities.

Here are a few examples of community energy initiatives in the UK.

Totnes Renewable Energy Society (TRES) is a community energy cooperative that has developed a number of renewable energy projects in Totnes, including a solar farm, a hydroelectric plant, and a biomass boiler.

Brixton Energy Co-operative is a community energy cooperative that provides renewable energy to residents and businesses in Brixton. The cooperative owns and operates a number of renewable energy projects, including a solar farm and a wind turbine.

Transition Town Lewes has developed a community energy plan that sets ambitious goals for reducing energy consumption and increasing the use of renewable energy in Lewes. The plan includes initiatives such as energy efficiency retrofits, renewable energy projects, and community energy sharing programs.

The Energy Democracy movement

The Energy Democracy movement is a global movement that is working to promote energy democracy and ensure that communities have a voice in the energy transition. Energy democracy is a concept that calls for the democratization of the energy system, including the social ownership of energy infrastructure, the decentralization of energy systems, and the expansion of public participation in energy-related policymaking.

The Energy Democracy movement is based on the following principles: (i) Energy is a human right and everyone has the right to access affordable, reliable, and clean energy; (ii) Energy should be democratically controlled and Communities should have a voice in the decisions that affect their energy systems; (iii) Energy should be just and equitable; (iv) Energy should be sustainable and the energy system should be based on renewable energy and other sustainable technologies.

The Energy Democracy movement is working to achieve its goals through a variety of strategies. Some of them include the organization of community, in order to build and strengthen community-based organizations that can advocate for energy democracy.

Moreover, the movement is advocating for policies that promote energy democracy, such as community energy planning, community energy ownership, and energy democracy demonstration projects.

Finally, The movement is also using direct action tactics, such as protests and blockades, to raise awareness of energy democracy issues and put pressure on policymakers.

Many projects managed and promoted by the movement have raised in recent years, "from Puerto Rico to Alaska".

Self-Reliant Village Electrification Program

The Self-Reliant Village Electrification (SRVE) program is a government program in India that provides financial and technical assistance to villages to develop and implement their own energy plans. The SRVE program has helped to electrify over 10,000 villages in India, and it has also helped to reduce energy consumption and increase the use of renewable energy in these villages.

The SRVE program was launched in 2005 by the Ministry of New and Renewable Energy (MNRE). The program is open to all villages in India that are not already electrified by the grid. To participate in the SRVE program, villages must form a Village Energy Committee (VEC). The VEC is responsible for developing and implementing the village's energy plan.

The SRVE program provides villages with a variety of support, including:

Financial assistance: The SRVE program provides villages with financial assistance to cover the cost of developing and implementing their energy plans. The amount of financial assistance provided depends on the size and scope of the village's energy plan.

Technical assistance: The SRVE program provides villages with technical assistance to help them develop and implement their energy plans. This assistance can include help with energy auditing, planning, and project implementation.

Capacity building: The SRVE program provides capacity building support to villages to help them manage their energy systems and ensure the long-term sustainability of their energy projects.

The SRVE program has been very successful in helping to electrify villages in India and increase the use of renewable energy in these villages. As of 2023, the SRVE program has helped to electrify over 10,000 villages in India. The program has also helped to install over 10 million solar panels and over 1 million biogas plants in villages across India.

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