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## NEW CHALLENGES FOR XXI CENTURY CITIES

Multilevel scientific approach to impacts of global warming on urban areas,  
energy transition, optimisation of land use and emergency scenario

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TeMA Journal was established with the primary objective of fostering and strengthening the integration between urban transformation studies and those focused on mobility governance, in all their aspects, with a view to environmental sustainability. The three issues of the 2025 volume of TeMA Journal propose articles that deal with the effects of Global warming, reduction of energy consumption, immigration flows, optimization of land use, analysis and evaluation of civil protection plans in areas especially vulnerable to natural disasters and multilevel governance approach to adaptation.

TeMA is the Journal of Land Use, Mobility and Environment and offers papers with a unified approach to planning, mobility and environmental sustainability. With ANVUR resolution of April 2020, TeMA journal and the articles published from 2016 are included in the A category of scientific journals. The articles are included in main scientific database as Scopus (from 2023), Web of Science (from 2015) and the Directory of Open Access Journals (DOAJ). It is included in Sparc Europe Seal of Open Access Journals, and the Directory of Open Access Journals.



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1 (2025)

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The cover image shows a composition of two photos of the Temple of Serapis in Pozzuoli (Italy). Giuseppe Mazzeo took them in January 2009 and March 2025. At the top, the 2009 image shows the temple flooded, with the pavement not visible. In the down, the 2025 image shows the temple's pavement dry and exposed. The Temple of Serapis is one of the leading visual indicators of the bradyseism phenomenon in the Phlegraean Fields. The bradyseism phase, highlighted by comparison, started in the first years of this century, as shown by the data published by the National Institute of Geophysics and Volcanology (INGV) on the website dedicated to the phenomena (<https://www.ov.ingv.it/index.php/il-bradisismo>).

TeMA - Journal of Land Use, Mobility and Environment offers researches, applications and contributions with a unified approach to planning and mobility and publishes original inter-disciplinary papers on the interaction of transport, land use and environment. Domains include: engineering, planning, modeling, behavior, economics, geography, regional science, sociology, architecture and design, network science and complex systems.

With ANVUR resolution of April 2020, TeMA Journal and the articles published from 2016 are included in A category of scientific journals. The articles published on TeMA are included in main international scientific database as Scopus (from 2023), Web of Science (from 2015) and the *Directory of Open Access Journals* (DOAJ). TeMA Journal has also received the *Sparc Europe Seal* for Open Access Journals released by *Scholarly Publishing and Academic Resources Coalition* (SPARC Europe). TeMA is published under a Creative Commons Attribution 4.0 License and is blind peer reviewed at least by two referees selected among high-profile scientists. TeMA has been published since 2007 and is indexed in the main bibliographical databases and it is present in the catalogues of hundreds of academic and research libraries worldwide.

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## NEW CHALLENGES FOR XXI CENTURY CITIES:

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## Contents

- 3** EDITORIAL PREFACE  
Rocco Papa

### FOCUS

- 7** **Situating walkability examining walkability elements of recurring routes**  
Jani Tartia

- 23** **Definition of spatio-temporal levels of accessibility. Isochronous analysis of regional transport networks**  
Annunziata Palermo, Gaetano Tucci, Lucia Chieffallo

- 39** **The impact of transportation planning on agricultural areas and plant health: a case study of Antalya/Konyaaltı West Ring Road**  
Engin Kepenek, Engin Kepenek, Şerife Betül Çetinkaya

### LUME (Land Use, Mobility and Environment)

- 55** **Campi Flegrei and the Metropolitan Area of Naples. Emergency planning in a high-risk territory**  
Giuseppe Mazzeo

- 79** **Revitalising abandoned historical districts. Application of an incremental and adaptive approach to regeneration**  
Diksha Dody, Daniele Ronsivalle, Maurizio Carta



- 95 Mobilising equity. Emerging evidence for integrating vulnerable communities**  
Irina di Ruocco
- 113 Multilevel governance approach to adaptation. The construction of the Italian mid-Adriatic green infrastructure**  
Timothy Daniel Brownlee, Rosalba D'Onofrio, Chiara Camaioni
- REVIEW NOTES
- 131 Urban energy transition between regulatory evolution and scientific production: a bibliometric analysis**  
Valerio Martinelli
- 143 Digitalization in urban planning: a framework to realize smart cities**  
Annunziata D'Amico
- 151 Competitive climate adaptation. Italian start-ups leading the way to adaptation to climate change in cities**  
Stella Pennino
- 161 Exploring open and green space characteristics for climate change adaptation: a focus on the urban heat island**  
Tonia Stiuso
- 169 Global warming reports: a critical overview of IGOs publications**  
Laura Ascione

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## REVIEW NOTES

### Urban planning literature review

# Global warming reports: a critical overview of IGOs publications

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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 five parts. Each section examines a specific aspect of the broader information storage within the main interests of TeMA Journal. In particular, the Urban planning literature review section presents recent books and journals on selected topics and issues within the global scientific panorama.

For the first issue of TeMA Journal volume no. 18, this section provides a critical overview of recent reports and documents on climate change, published by different types of stakeholders. This review examines the landscape of climate change reporting through a comparative lens, focusing on key findings, strengths, weaknesses, and implications of selected publications. This contribution aims to examine reports produced by International Governmental Organizations (IGOs), analyzing their approach, findings, and potential limitations.

## Keywords

Global warming; Climate change; Reports; Adaptation; Intergovernmental organizations.

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## 1. Introduction

Climate change is potentially the most challenging and complex issue of this era. The impacts of global warming are already visible such as sea rising, hurricanes, floods, and heatwaves that are becoming stronger and more recurrent posing risks to population, natural assets, and invaluable cultural heritage. Cities play a important role in this emergency. They are, in the first place, the biggest greenhouse gas emitters; secondly, they are among the most exposed to climate change (Codemo et al., 2021; Balletto et al., 2022). Their role in fighting this is irrefutable.

As the global temperature is already at 1°C above pre-industrial levels, according to IPCC Sixth Assessment Report, maybe mitigation will not be enough. Urban policy and planning must place a high value on adaptation so that cities are more resilient and capable of withstanding the impacts of a warmer world. (Guida, 2021; Guida, 2022; Mazzeo & Polverino, 2023).

Adaptation to climate change is becoming part of the plan of many varied organizations worldwide. Intergovernmental Organizations (IGOs) play a crucial role in this process, as they supply decision-making for governments and international stakeholders (Abegón, 2023). IGOs such as the Intergovernmental Panel on Climate Change (IPCC), the World Health Organization (WHO), the United Nations Environment Programme (UNEP), the United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Office for Disaster Risk Reduction (UNDRR) and many others promote mainstreaming of adaptation policies at different sectors and scales (Dellmuth & Gustafsson, 2021; Ingaramo & Negrello, 2024). As part of these efforts, increasing attention has been given to urban resilience as a key strategy for ensuring cities remain liveable, efficient, and safe in the face of climate change (De Noia et al., 2024). For instance, Palermo et al. (2024) argue that regenerating urban resilience through data-driven approaches is essential to address the multifaceted challenges posed by a changing climate. A series of reports produced by IGOs are analyzed in this article, providing detailed analyses of the effects of climate change, mitigation efforts, and future projections

The aim of this analysis is to give a critical evaluation of these reports, highlighting their strengths and weaknesses, internal consistency between sources, and potential biases resulting from their approach.

The article is organized into four sections. After this introduction, the following section provides a comprehensive overview of three IGO reports. The third section presents a comparative analysis of the reports, highlighting their strengths and weaknesses, along with the similarities and differences between them. The fourth section provides a conclusion, summarizing the main findings.

## 2. Reports summary

This section provides a detailed analysis of three reports published by different intergovernmental organizations, offering insight into the diverse perspectives and approaches adopted at the international level. Each report focuses on a different aspect of climate adaptation and through a comparative reading of these reports, it is possible to understand how different international institutions frame and implement climate action across sectors. The selected reports are presented in the following Tab.1

Title	Organization	Publication date
Adaptation Gap Report 2024 - <i>Come hell and high water</i>	UNEP	2024
COP 29 Special Report on Climate Change and Health - <i>Health is the argument for climate action</i>	WHO	2024
<i>Implementation guide for land use and urban planning</i> - Words into Action.	UNDRR	2019

**Tab.1 Overview of the reports analyzed, including their title, publishing organization and year of publications**



## Adaptation Gap Report 2024 - *Come hell and high water*



The Adaptation Gap Report is an annual publication by the United Nations Environment Programme (UNEP), which serves as leading global authority on environmental issues. UNEP collaborates with government, civil society and the private sectors to address environmental challenges. Its work focuses on climate change, nature and biodiversity loss and pollution (UNEP, 2024). The 2024 Adaptation Gap Report, titled "Come Hell and High Water", presents a revised analysis of the status of climate change adaptation, highlighting the gap between existing policies and required action. The report focuses on the technological and financial resources to be mobilized for adaptation and those available.

The report, in its first part, identifies the acceleration impacts of climate change, with a disconcerting increase in extreme weather phenomena. Against this context, it underscores the urgency of adaptation action to safeguard human lives. Nevertheless, despite growing consciousness and the availability of planning tools, the uptake of concrete adaptation actions is slow and fragmented. Many countries, particularly those most exposed or those affected by conflict, do not have the resources and capacities to develop and finance effective adaptation plans according to financial capability and constrained institutional ability. The planning tools also significantly differ in terms of quality, with others failing to respond fully to the needs of local populations or incorporating social inclusion dimensions to their maximum extent. The following section discusses the gap in finance, examining the disparity between public and private finance. As much as the contribution of the private sector is towards addressing adaptation, the sector's participation is still low. Addressing these challenges, Adaptation Gap Report 2024 presents key propositions for accelerating and scaling-up global adaptation action with citations of adaptation projects undertaken. Some of its key propositions include mobilizing additional finance resources, setting more effective tools for planning, enhancing capacity development and technology transfers, promoting the adoption of justice- and equity-focused approaches, and developing surveillance mechanisms to measure progress. The other critical sector the report outlines is the relations between National Adaptation Plans (NAPs) and Nationally Determined Contributions (NDCs). NAPs are a strategic national adaptation plan over the long term, while NDCs set out nations' contributions towards addressing climate change, including adaptation measures. The report finds that while adaptation aspects are mostly included in NDCs by countries, consistency between NAPs and NDCs is not established to a significant degree. To ensure coherence between these frameworks is crucial to effective integration of adaptation efforts, preventing duplication of effort and inefficient use of resources.

Retrieved from: <https://wedocs.unep.org/20.500.11822/46497>

## COP 29 Special Report on Climate Change and Health - *Health is the argument for climate action*



World Health Organization (WHO) is a specialized UN agency and the international global health authority. It is the coordinating center for world health and plays an important role in the reaction to public health problems worldwide. WHO periodically releases reports on principal health-related issues. It has released a special report on the occasion of COP29, titled "Health is the Argument for Climate Action."

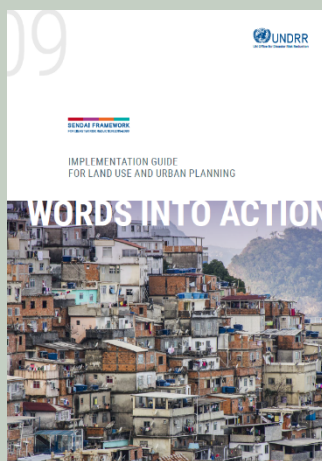
The report introduces a new perspective with health not only being one of the most vulnerable sectors to climate change impacts but also as an essential driver of accelerating and transforming climate action. WHO states that climate emergency is indeed a health emergency of a multichallenger nature one that has direct and circular effects on our physical and mental health, and indirect effects on the transmission of infectious diseases, food and water safety and the resilience of health care systems

In addition, the report presents compelling evidence that climate mitigation actions can yield significant co-benefits to health within a virtuous cycle of social, environmental, and economic well-being. To more clearly illustrate this complex interconnection, the report examines specific health concerns linked to the impacts of climate change. It addresses issues such as an increase in extreme temperatures and their influence on death, heatwaves, and destructive storms, which pose significant threats to both housing and mental well-being. The report places emphasis on the high level of association between air pollution and elevated mortality rates after severe weather events, stressing the need to integrate these risks into formal future analyses and policy considerations at every level of specific interest is the report's examination of the social and environmental determinants of health, including access to safe drinking water, food, clean energy, healthy living conditions and high-quality health services. WHO stresses that while the health sector itself is a source of emissions, it can also contribute significantly to health promotion through low-emission policies, climate resilience, and transition to sustainable health systems. The report recognizes the potential of renewable energy, sustainable transport, and healthy diets not only to reduce emissions but also to improve air quality, food security, living standards, social justice, and mental health.

Also, the report issues a call to action in three critical areas: people, by bringing together health workers to mobilize people and to counsel patients; place, through enabling collective action by municipal institutions through sustainable city policies and planet, through the management of the economic, financial and governance origins that underlie the climate emergency.

Retrieved from: <https://www.who.int/teams/environment-climate-change-and-health/climate-change-and-health/advocacy-partnerships/talks/health-at-cop29/>

### Implementation guide for land use and urban planning - Words into Action.



The UNDRR is the lead coordinating international efforts geared towards reducing disaster risk. UNDRR serves as a coordinating agency to provide guidance on advocacy, monitoring and reporting on with the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030. This non-binding, voluntary agreement was adopted by UN Member States at the Third World Conference on Disaster Risk Reduction in Sendai in Japan in 2015 and aims to avoid new disasters risk and reduce existing ones to the extent possible.

This report is part of UNDRR's "Words into Action" series, which seeks to provide clear guidelines to translate disaster risk reduction (DRR) into practice through urban and territorial planning. The report is intended for lead stakeholders, including policymakers, urban planners, and researchers. It describes the importance of including disaster risk assessments in land use planning and urban policies. The report singles

out climate change as a major driver of rising urban risks and urges national and local governments to consider climate action plans as mechanisms to implement disaster risk reduction actions that take future climatic conditions into account, and steer urban development in line with changing patterns of the environment. As a first step towards resilience cities, mainstreaming DRR in urban planning is provided as an important action. The report examines how risk reduction may be integrated into urban law and building codes while also advocating for greater flexibility to create context-specific solutions.

Through case studies, the report explains how cities around the world have successfully adopted DRR interventions, such as the creation of urban green spaces and enhanced building regulations, to reduce disaster risk. In conclusion, the report emphasizes governance and social engagement. Shaping DRR interventions with citizens as active stakeholders from the beginning not only makes these interventions effective, but also socially sustainable. The way forward to build safety and resilient cities of the future is through a holistic approach that considers climate change, population growth and economic development as a common strategy

Retrieved from: <https://www.undrr.org/words-into-action/implementation-guide-land-use-and-urban-planning>

### 3. Critical overview and comparative analysis

The three reports under analysis share a common objective, which is the need to reduce climate impacts and foster more resilient cities through adaptation strategies. Whether their origin is different, climate finance for adaptation gap report, public health for WHO special report or disaster risk reduction for UNDRR, all these documents lead to the core finding that these challenges demand a globally coordinated response to accelerating climate impacts. Overall, the reports highlight the need for a rigorous, cross-sectoral approach to integrate risk mitigation and building towards sustainable development, equity and social justice.

The UNEP adaptation gap report provides an in-depth assessment of the financial and policy aspects of climate adaptation. Its strength is the data, quantitative approach that highlights global funding deficits and policy gaps. It is a high-level set of policy recommendations that would benefit decision makers and financial institutions for the most part. However, its emphasis on macroeconomic indicators means that it often lacks the nuance required for region-specific recommendations and detailed implementation pathways. This limitation may hinder its practical applicability in localized contexts.

Moreover, the WHO special report focuses on the health impacts of climate change and frames the issue as a public health crisis with broad co-benefits. The strength of this report is its innovative, qualitative approach that integrates case studies, epidemiological data and expert insights to highlight how action on climate can also yield major public health benefits. Its emphasis on co-benefits and equity grounds the case for climate action in the experiences of health professionals and community leaders, making it relevant to a wider audience. However, the report is rather general, offering less emphasis on the economic mechanisms necessary to support its proposals, reducing its direct applicability to financial policymakers.

The UNDRR Implementation guide for land use and urban planning report focuses on action and implementation for disaster reduction. Its strength lies in its application-oriented approach, it gives examples of concrete, measurable actions with which resilience can be incorporated into the management of urban planning and land-use. Because of its technical recommendations and examples of best practices from around the world, this report has a particularly strong utility for local governments, urban planners, and disaster risk managers. Also, over the years, disaster risk reduction has moved up the decision-making hierarchy, gradually being recognized as a key policy area at both the local and national levels (Weichselgartner & Pigeon, 2015). This increasing focus has led to calls for more integrated approaches that also address climate adaptation's broader financial and health aspects. A summary of all the considerations discussed is provided in Table 2.

Report	Focus	Approach	Target Audience
Adaptation Gap Report 2024 – <i>"Come hell and high water"</i>	Climate adaptation financing and policy gaps	Data-driven, quantitative analysis and policy-oriented	Decision makers, financial institutions and climate adaptation planners
COP 29 Special Report on Climate Change and Health – <i>"Health is the argument for climate action"</i>	Health impacts of climate change and co-benefits	Qualitative, case study-based and public health-focused	Health professionals, decision makers and community leaders
<i>Implementation guide for land use and urban planning - Words into Action.</i>	Disaster risk reduction and urban resilience	Practical, implementation-oriented and technical guidelines	Local governments, urban planners and disaster risk managers

**Tab.2 Summary of key findings, similarities, and differences among the reports**

### 4. Conclusions

Climate change continues to be one of the greatest challenges of this time, requiring collective action across all levels of government (Di Gregorio et al., 2019; Okafor et al., 2023). Considering that cities are inherently complex systems, characterized by dynamic interactions between physical infrastructure, socio-economic



factors, and governance structures (Papa et al., 2021), the challenges of climate change further compound this complexity. Addressing these challenges requires a multi-faceted approach that focuses on concrete interventions such as building robust infrastructure, fostering community preparedness, investing in early warning systems, and promoting equitable access to resources and information (Gargiulo & Lombardi, 2016). Intergovernmental organizations (IGOs) have emerged as key players in this arena with a range of perspectives that are complementary to one another for deploying better action to increase resilience and adapt to the changing climate risk. This multifaceted approach is illustrated by the three reports examined in this study. The UNEP Adaptation Gap Report, for example, allows an understanding of the financial and policy measures gaps that must be addressed to facilitate effective adaptation responses, forming the basis for data-informed investing shortfalls and strategies. This WHO Special Report reframes climate change as a public health emergency, highlighting the interdependence between environmental sustainability and human health and well-being, and thus promoting policies that have health and environmental co-benefits. On the other hand, the UNDRR “Words into Action” report provides realistic and action-oriented implementation principles to enhance urban resilience, incorporating disaster risk reduction measures. While each of these reports has a different focus and approach, the insights they present together to provide a fuller picture of climate resilience. However, to translate these into transformative climate adaptation, it is critical for them to be integrated into a unified policy framework, although this becomes indispensable, especially at the local scale (Isola et al., 2024).

Future efforts should prioritize interdisciplinary collaboration, the development of clear implementation pathways, and the establishment of standardized metrics that can effectively translate recommendations into tangible, sustainable outcomes.

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