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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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Contents

179 EDITORIAL PREFACE
Rocco Papa

FOCUS

183 Aging population and the accessibility of public transportation services: transportation policy perspective for Turkey
Süleyman Nurullah Adahi Şahin, Abdulkadir Özden, Ardeshir Faghri, Michael L. Vaughan

203 The role of renewable energies in landscape transformation. Methodological proposal and application to the Valdagno case study
Elena Mazzola

219 Land transformation and new road infrastructures. An analysis on direct and induced impacts due to the Brebemi highway
Rossella Moscarelli, Marialaura Giuliani

LUME (Land Use, Mobility and Environment)

239 Mobility changes occasioned by COVID-19 lockdown measures: evidence from an emerging economy
Ernest Agyemang, Samuel Agyei-Mensah, Aruna Sivakumar, Ricky Nathavni, Majid Ezzati

255 An evaluation on the change of natural areas: the case of Eastern Black Sea settlements
Doruk Görkem Özkan, Sinem Dedeoğlu Özkan, Seda Özlü Karadeniz

271 Mode choice patterns and socio-spatial equity in contrasting transitional urban mobility systems

Mashood Arif, Ahmad Adeel, Nida Batool Sheikh

REVIEW NOTES

293 Positive Energy Districts for urban energy transition: regulatory challenges and implementation strategies

Valerio Martinelli

299 Digitalization in urban planning: new digital technologies for sustainable cities

Annunziata D'Amico

307 Competitive climate adaptation. European startups driving climate change adaptation in cities

Stella Pennino

315 Exploring open and green space characteristics for climate change adaptation: a focus on flooding phenomenon

Tonia Stiuso

321 Global warming reports: a critical analysis of NGOs publications

Laura Ascione

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REVIEW NOTES – Urban planning literature review

Global warming reports: a critical analysis of NGOs 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 second issue of TeMA Journal volume no. 18, this section provides a critical analysis 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 provide a comprehensive understanding of Non-Governmental Organizations (NGOs) perspectives on climate change, examining their role as intermediaries between scientific research and public awareness, while critically assessing both the strengths and potential limitations of their reporting approaches.

Keywords

Global warming, non- governmental organizations, climate change, adaptation

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1. Introduction

The phenomenon of climate change has now been identified as the most urgent and complicated challenge of the 21st century. The consequences of climate change, which include severe weather changes, the extinction of species, along with increased ocean levels and human habitation changes, are visible and well recorded in scientific journals. The scientific community worldwide has converged, with organisations such as the Intergovernmental Panel on Climate Change (IPCC), to issue warnings about the deadly consequences of inadequate or delayed measures that are irreversible (Pennino, 2025). The implementation of political initiatives has been characterised by a certain slowness and inconsistency. This can be attributed, in some cases, to the constraints imposed by the interests of disparate nations and economies (D’Onofrio et al., 2025). Nevertheless, the climate governance sphere has undergone significant transformation and is subject to ongoing change. For instance, there has been a marked increase in the number and variety of reports submitted not only by the intergovernmental authorities but also by non-governmental organisations (NGOs) and other community cohorts (Haris et al., 2021). It is evident that these actors have become increasingly engaged in the process of converting scientific information into strategic plans, thereby underscoring the necessity for action and offering counsel to various sectors. Consequently, they have assumed the role of a conduit, more commonly referred to as the science–policy gap. In the context of international relations, IGOs (International Governmental Organizations) such as the UNFCCC (United Nations Framework Convention on Climate Change) or the IPCC (Intergovernmental Panel on Climate Change) represent formal organizations comprised of member states. These IGOs possess a distinct legal status, which is conferred upon them through the treaties they conclude. The primary function of these entities is to establish a framework for intergovernmental cooperation and to deliver scientific or legal products. In contrast, NGOs are statistically autonomous of states and derive their power from sources of legitimacy, expertise, and audiences. These actors frequently emerge from the grassroots and function as advocacy platforms, intellectual think tanks, or as nexuses within urban and civil society (Hadden & Jasny, 2019).

In this landscape, characterised by its heterogeneity, non-governmental organisations (NGOs) have assumed a pivotal role in the dissemination of knowledge. These entities have been instrumental in shaping the discourse surrounding climate change, advocating for policy measures that extend beyond the scope of commitments made by governments, both in terms of their ambition and their implementation. This contribution reviews three leading NGOs, which also correspond to different framings of the climate crisis: the World Economic Forum (WEF), a global platform that assembles leaders of business, politics, and academia to evaluate systemic risks; the World Resources Institute (WRI), a think tank that produces data and monitoring instruments targeted at specific economic sectors; and C40 Cities, a network of mayors that seek to carry out climate action on the ground. Despite their divergent institutional composition and profile, all three organisations are pivotal in the translation of climate science.

The subsequent section will undertake a detailed analysis of their most recent reports, evaluating the manner in which each NGO frames the climate challenge. After the introductory section, the following section provides a comprehensive overview of three NGO reports. The third section of the report presents a comparative analysis of the reports, highlighting their strengths and weaknesses, along with the similarities and differences between them. The fourth section of the text offers a conclusion, which summarises 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
<i>C40 Cities Annual Report 2024</i>	C40 Cities Climate Leadership Group	2024
<i>Global Risks Report 2024</i>	World Economic Forum (WEF)	2024
<i>State of Climate Action 2023</i>	World Resources Institute (WRI)	2023

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

C40 Cities Annual Report 2024

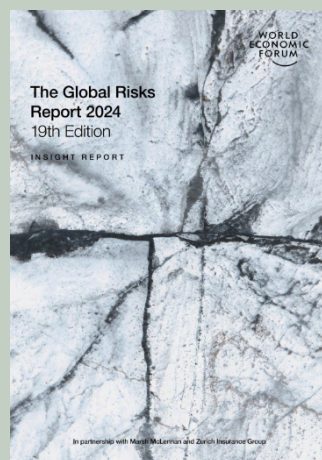


The C40 Cities Annual Report 2024 offers a collection of climate action led by cities, representing mayors as crucial actors in worldwide progress. The report's fundamental premise is that even in the event of national governments failing, cities have the capacity to deliver concrete and ambitious results in the present. Furthermore, it highlights the collective impact of the 97 member cities of the network, which collectively account for 23% of the world GDP and have generally achieved significantly greater progress in reducing emissions than their respective national governments. The report under review here sets out to highlight some of the key climate accomplishments in the areas of clean air, green jobs, and a just transition, utilising numbers to demonstrate the scale of their impact. Moreover, the document presents the narrative of the Duchess of City, with examples such as London, Paris and Rio, which are documented as having been active in the total abandonment of fossil fuels, the establishment of the renewable energy sector and, concomitantly, the reinforcement of the sustainable infrastructure sector.

It is also notable that the report outlines a clear 2025-2030 business plan, with a focus on reducing fossil fuel use by half, establishing green zones, and promoting climate justice. The report is thus a dual-purpose document, serving both as a robust instrument of verification and as an advocacy tool. It underscores the imperative to recognise the significance of urban areas and to provide them with the necessary support to facilitate the achievement of the 1.5°C target.

Retrieved from: https://www.c40.org/wp-content/uploads/2025/06/C40_annual_report_2024_Final.pdf

Global Risks Report 2024



The World Economic Forum's Global Risks Report 2024 provides a comprehensive and deeply unsettling assessment of global risks, including everything from geopolitical conflict to technological disruption. Nevertheless, whilst the report addresses numerous crises, the unambiguous and most urgent alert focuses on the rapidly escalating climate and environmental emergency. The document presents a compelling argument for framing climate change not as a future problem but as an intensifying driver of instability, portraying it as the most critical structural challenge to humanity's future.

In the two-year preview, extreme weather events are identified as the most significant environmental concern, surpassed only by misinformation. This phenomenon exemplifies a substantial consensus among experts worldwide concerning the repercussions of climate change, which encompasses extreme heat, deluge, and wildfires. These phenomena are already precipitating crises at a systemic level. A 10-year time perspective is presented in the report, the findings of which are even more alarming, with environmental risk featuring predominantly. The four highest risk levels are of an environmental nature, namely: extreme weather events, critical change to Earth systems, biodiversity loss and ecosystem collapse, and natural resource shortages.

This compelling ranking suggests a profound shift in risk perception, whereby the systemic collapse of natural systems on the planet is regarded as the ultimate long-term risk, surpassing all other potential hazards. The report presents a novel proposition: that Critical Change to Earth Systems should be recognised as a significant new hazard, with reference to the possibility of the crossing of "climate tipping points". The report issues a strong warning that the 1.5°C warming threshold is likely to be crossed as early as the early 2030s, with the resultant irreversible and perpetual changes including the collapse of ice sheets, rapid thawing of permafrost, and disruption of ocean currents.

Furthermore, the report effectively demonstrates that climate risks are a "threat multiplier", i.e. they are linked and exacerbating other forms of global risks. The report utilised two case studies: natural resource shortages (food and water) and involuntary migration, which are positioned among the top ten long-term risks and directly linked to the reality of climate breakdown. The report states that as climate change worsens, it will contribute to economic stress, societal polarisation, and conflict, resulting in a negative cycle of cumulative crises. The Global Risks Report 2024 offers a definitive conclusion regarding the environmental crisis. While other present dangers may be of concern, the environmental crisis is worsening to a point of no return.

Retrieved from: https://www3.weforum.org/docs/WEF_The_Global_Risks_Report_2024.pdf

State of Climate Action 2023



The State of Climate Action 2023, a report compiled by a coalition including the World Resources Institute and Systems Change Lab, serves as a rigorous, data-driven evaluation of global efforts to limit warming to 1.5°C. The core purpose of the initiative is twofold: firstly, to translate the Paris Agreement's temperature goal into tangible, sector-specific targets for 2030; and secondly, to provide a stark, evidence-based assessment of the world's progress. The report is characterised by its quantitative methodology, which transcends perception to quantify real-world action against scientifically aligned benchmarks. The central message is characterised by a deliberate and powerful dichotomy, which is introduced in the foreword as "two seemingly irreconcilable truths." Firstly, the world is significantly falling short of its climate targets. The report's comprehensive analysis of 42 indicators across key sectors – power, buildings, industry, transport, forests, food, and finance – reveals that only

one, the share of electric vehicles in passenger car sales, is "on track." The majority of these are categorised as "well off track" or, more alarmingly, "heading in the wrong direction". This is quantified through "acceleration factors," which calculate the required rate of progress to be accelerated. For instance, the phase-out of coal must be accelerated sevenfold, and deforestation rates must decline fourfold. Secondly, despite this bleak evaluation, the report underscores "remarkable advancements" and indications of exponential transformation in specific domains. The accelerated, S-curve growth of solar power and electric vehicles indicates that transformational, non-linear change is not only feasible but already occurring. The employment of dual narratives in this manner serves a strategic purpose, utilising hard data to convey the extreme urgency of the crisis while concurrently offering evidence-based hope that rapid acceleration is achievable, thereby countering fatalism. The report presents a detailed methodology, defining 1.5°C-aligned 2030 targets for each indicator. A set of colour-coded indicators is utilised to provide a concise overview of performance for each sector. Each indicator is supported by a chart that visualizes historical data against the required trajectory, thereby rendering the "action gap" immediately apparent. The analysis also contextualises these trends by discussing recent policy developments, such as the Inflation Reduction Act, and market shifts that could influence future progress.

Retrieved From: <https://files.wri.org/d8/s3fpublic/202311/stateclimateaction2023.pdf?VersionId=zplrp6BsmfRn2y3kSB0BFdfwAaTzXsM>

3. Critical overview and comparative analysis

Despite the common general goal of promoting action on climate change across the three reports, the World Economic Forum's Global Risks Report 2024, C40's Annual Report 2024, and the World Resources Institute's State of Climate Action 2023, each approach is characterised by its own distinct approach, tone and framing. Each title has been uniquely designed to align with its intended audience and the institutional mandate of the publisher. When considered collectively, these elements offer a comprehensive and persuasive depiction of the global climate problem.

The World Economic Forum's Global Risks Report provides a comprehensive picture of the systemic risks posed to the global economy and stability by climate change. The report does not strictly fall within the remit of a climate report; rather, it is a general risk report in which climate change has been identified as the most significant long-term risk. The methodology adopted in conducting this research comprised the administration of surveys to nearly 1,500 executives of global organisations.

The tone of this research is characterised by a sense of gravitas, which is intended to address the audience of chief executive officers, finance ministers, and insurers. The report's most notable strength lies in its credibility, which allows it to establish a link between climate change and other pressing concerns, such as misinformation, geopolitical conflict, and economic collapse. This phenomenon conveys a salient message to the Davos elite: the existential threat they have been alerted to has now materialised and is inextricably intertwined with the myriad of other dangers that keep them awake at night. The primary focus of the report is the macro-level interconnections of threats, and it presents a picture of a world whose adaptive capacity is being stretched to the limit.

In contradistinction the C40 report is characterised by an emphasis on agency and hope. The core imperative goal of this report is to assert proactive city resolutions, driven by a sense of optimism in city-led solutions. The mayor's actions have been commended for their success in surpassing significant milestones in the realm of climate action, which have been attributed to their pragmatic heroism. These accomplishments are commendably complemented by the report's illustrious narratives. It is evident that the city of Cambridge has taken significant strides in its commitment to environmental sustainability, as evidenced by the establishment of designated air zones within its boundaries. In contrast, the city of Rio has demonstrated a progressive stance on the matter, with its proactive adoption of clean energy sources.

The report is replete with concise case studies and thematic illustrations. It is politically motivated and is directed towards nation-state governments. The report contends that policy implementation cities 'sustain' the Paris Agreement. The scaling of urban funding appeals, autonomy, case workings, cited actions, achievable milestones, proven effective methods and most critical issues were discussed. The latter included a granular focus. Finally, the WRI is subject to scrutiny with regard to its climate accounting.

The report's defining characteristic is the "acceleration factor," which is defined as the discrepancy between the efforts required and the actions taken.

To illustrate this, consider the following example: "coal must be phased out seven times faster." The article adopts a neutral stance, refraining from any undue emphasis on the pessimism espoused by the WEG or the optimism expressed by C40. The target demographic of this text consists of individuals who are referred to as "technocrats" in the context of WEG. Technocrats are defined as policy makers, think tanks and non-governmental organisations. The necessity for technocrats to have access to an urgent, impartial and verifiable benchmark is crucial in order to hold leaders accountable. While it offers insights into the factors contributing to our underperformance, it does not delve into the successes of other parties. Instead, it provides an estimation of our shortcomings and subsequently emphasises the necessary efforts required to enhance our performance.

A summary of all the considerations discussed is provided in Tab.2.

Report	Focus	Approach	Target Audience
Cities Annual Report 2024	City-Led Solutions and best practice	Bottom-up. Highlights concrete actions	National governments, international organizations funders, and the media.
Global Risks Report 2024	Systemic Risk and Interconnected Threats	Top-down; based on a survey of global leaders' perceptions.	Global elite (CEOs, finance ministers, insurers, and policymakers).
State of Climate Action 2023	Performance Tracking and Accountability	Data-driven and diagnostic. Measures global progress against 1.5°C-aligned sectoral targets	Technical experts, policy advisors, government agencies, and civil society organizations.

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

4. Conclusions

A comprehensive review of the three reports reveals a pivotal element of contemporary globalisation: the escalating involvement and the mounting sophistication of non-governmental and non-state actors. These actors have moved beyond the periphery and become central to the action in the debate (Haris et al., 2020). This initiative has emerged as a response to the perceived deficiencies in the global governance system, which is often characterised by a lack of dynamism and effectiveness. This demonstrates that non-state actors are assuming responsibility not only to raise the alarm but also to invent responses to the problems and, most importantly, to measure the shortcomings (Nasiritousi et al., 2016). A salient observation that emerges from this comprehensive overview is the profound and unsettling paradox of the considerable discrepancy between public awareness, available opportunities, and the tangible measures implemented to address the issue.

The Global Risks Report, published by the World Economic Forum (WEF), demonstrates that climate risk awareness has now reached the highest level of decision-making. It is regarded as one of the most significant existential challenges of our age. By way of contrast, the C40 Cities Report functions as a showcase for "the possible", thereby demonstrating the existence of bold, creative, and genuinely scalable solutions. Moreover, it is evident that these solutions are already being locally adopted by pragmatic mayors.

In conclusion, the World Resources Institute's (WRI) publication, entitled 'State of Climate Action', provides a comprehensive evaluation of the global progress made in the realm of climate action. It is somewhat perplexing that the global community has seemingly chosen to disregard the potential dangers and the available solutions to these dangers. The term 'implementation deficit' is employed to denote the inadequate implementation of policies, which is considered by the State of Climate Action to be a significant shortcoming in the actions of policymakers worldwide. Paradoxically, a more profound comprehension of climate science, or the development of novel inventions in this field, does not represent the core of the problem. Indeed, there are already rapid and reliable climate solutions available which have been invented.

The climate crisis has been identified as the primary driver of this transformation in global governance (Stiuso, 2025). As the impacts of climate change intensify and its systemic nature becomes indisputable, it is this phenomenon, with its attendant risks, urgency, and cross-cutting implications, that has compelled non-governmental actors to intervene (Brenda et al., 2008). These actors are not merely marginal contributors to the debate, but rather occupy a central role in the advocacy, implementation, and accountability processes (Pandey, 2015). In this sense, the climate emergency has become not only an environmental and socio-economic challenge, but also a powerful driver of institutional innovation beyond the state.

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