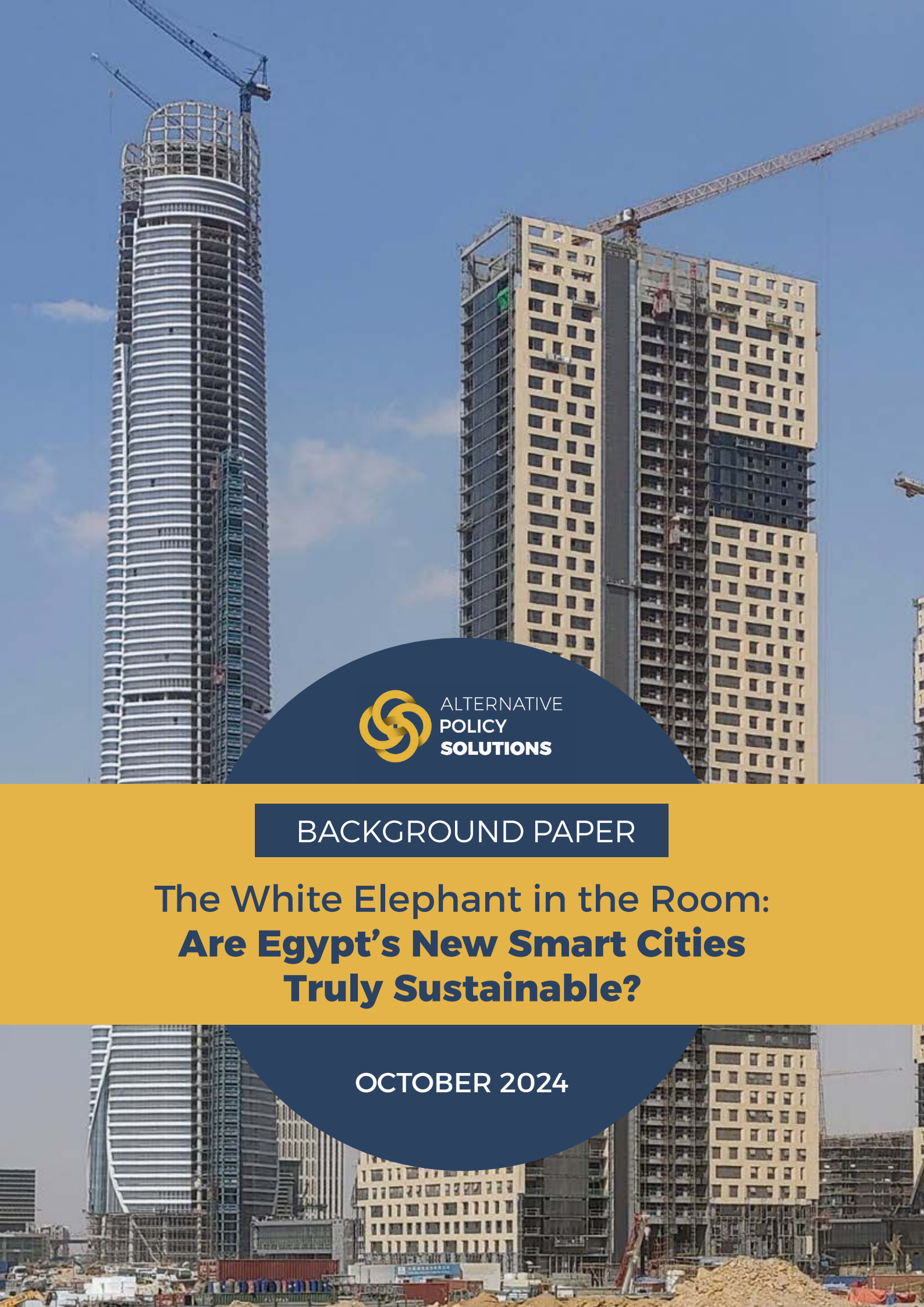

ALTERNATIVE POLICY SOLUTIONS

BACKGROUND PAPER

The White Elephant in the Room: **Are Egypt's New Smart Cities Truly Sustainable?**

OCTOBER 2024

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Alternative Policy Solutions

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Alternative Policy Solutions is a non-partisan, public policy research project at The American University in Cairo. Using rigorous, in-depth research and a participatory process of consultations with a diverse range of stakeholders, we propose evidence-based policy solutions to some of the most difficult challenges facing Egypt. Our solutions are innovative, forward-looking and designed to support decision makers' efforts to introduce inclusive public policies.

TABLE OF CONTENTS

1. Introduction 5

2. Sustainability in Urban Development: An Evolution 5

2.1 Urban sustainable development: where we are now 6

3. The Egyptian Context: A Brief History of Urban Development Projects 10

3.1 Constitutional foundation for urban sustainable development 10

3.2 Legislative framework of urban sustainable development 12

3.3 Egyptian climate mitigation strategies in the new cities 16

4. Mapping of Stakeholders 17

4.1 Public sector 17

4.2 Private sector 19

4.3 Civil society organizations 20

4.4 Stakeholder engagement 20

7. Concluding Remarks 21

8. References 22

1. Introduction

According to UN-Habitat, around 90% of the Egyptian population is concentrated in the Nile Valley (5% of Egypt's land mass), with the rest sparsely occupying the vast desert lands around it. This population distribution makes the country particularly vulnerable to the effects of climate change (World Bank Group, 2021). The congestion around the Nile Valley has kept the issue of urban development at the forefront of the Egyptian government's agenda over decades. Rapid urbanization in Egypt has led to the accretion of unplanned settlements and slums, where access to basic services such as water, sanitation, healthcare, and education is limited. Inadequate infrastructure planning and investment have also exacerbated congestion, leading to insufficient transportation systems and poor access to utilities. Informal urbanization also raises the land surface temperature in the overloaded Nile Valley areas, exposing the population to punishing heatwaves and public health crises such as heat strokes and dehydration (Mansour et al., 2022). The effects of rising temperatures are further aggravated by Egypt's dependence on the Nile as its primary water resource. As Egypt experiences an annual water deficit of 7 billion m^3, formulating an urban development strategy which centers a just and efficient management of water resources is a time-sensitive necessity (UNICEF, 2021).

The government's current strategy does not adequately respond to the population's needs. As a signatory to the United Nations Sustainable Development Goals (SDGs), Egypt is committed to implementing a context-specific urban development strategy that protects the environment, alleviates social and economic inequality, and mitigates the effects of climate change. Despite this, the Egyptian government's efforts are increasingly directed towards smart mega-city development projects, which it intends to finance primarily through foreign investments. These mega-cities are touted as the solution to the country's urban density problem. Part of a long history of Egyptian ventures into the desert, contemporary urban development projects advertise their reliance on smart infrastructure to engender a more sustainable urban landscape (Bloomberg, 2022). However, the high levels of housing vacancy, staggering real estate prices in the new urban communities, and the absence of public participation in urban planning call the sustainability of new mega-cities into question. The Egyptian urban development strategy would benefit from espousing a more holistic understanding of sustainability to better tackle urban sprawl. Egyptian urban sustainability policies should focus on regenerative development which strengthens infrastructure and promotes social inclusivity, rather than cost-ineffective 'smart' solutions. This paper will attempt to assess the current status of urban policies in Egypt, highlighting the persistent need for a more inclusive understanding of sustainability. To this end, it will first present a short overview to situate Egypt in the wider global context of sustainable urban development. The worldwide evolution of urban development and sustainability policies is reflected in current Egyptian decision-making—which has committed to abide by the SDG guidelines—but the role of local participation has nevertheless been consistently neglected. The paper then outlines the constitutional foundation which codifies the rights necessary for effective sustainability, such as the right to participate in urban planning, which the Egyptian state is bound to respect. The benefits and shortcomings of the relevant regulatory framework will then be analyzed. For the past decade, the Egyptian government has indicated a growing commitment to mitigating the effects of climate change. Therefore, a brief overview of its climate mitigation strategies will follow. Finally, this paper identifies the relevant public, private and civil society stakeholders, tracing their respective roles in the planning and implementation of Egypt's new smart cities.

2. Sustainability in Urban Development: An Evolution

The global conceptualization of sustainability in urban development has slowly evolved throughout the decades. Growing concerns about environmental protection and the state of urban development in the

1970s precipitated the creation of the United Nations Environment Program (UNEP) and the UN Center for Human Settlements (later named UN-Habitat). These two separate bodies were mandated to engage with issues pertaining to environmental sustainability and urbanization respectively (Simon et al., 2018). At the time, urban development policies were forged as a reaction to the intensifying urbanization in newly decolonized countries. As Rudd et al. argue, "The dominant conception of urbanization by governments was a temporary, largely negative phenomenon" (2018, p. 181). According to this framework, sustainability and urban development were conceived of as contravening processes of mitigation in which the policy response would "passively [seek] to lessen cities' impact on the environment" (Rudd et al., 2018, p. 181). Sustainability, therefore, was simply a policy directive attempting to balance the need for economic growth and the growing environmental stressors (Simon et al., 2018). As the widely known edict of the 1987 Brundtland Commission report defines it, sustainability entails "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987, p. 7). Simon et al. (2018) indicate that what these policies constituted as "needs" at the time did not seriously contend with non-economic factors. In general, urban areas' sustainability was measured against strictly quantifiable economic growth and environmental impact indicators (Gómez-Álvarez et al., 2018).

By the late 1990s, the urban development and sustainability landscape saw the expansion of the scope of indicators with the introduction of the Millennium Development Goals (MDGs), whose overarching aim was to alleviate global poverty. The failure of the preceding set of indicators to significantly assess and improve urban development prompted the authors of Agenda 21 to stress the importance of developing context-specific policies at the local level, as opposed to the previous focus on macro-level policies (Gómez-Álvarez et al., 2018).[1] Nevertheless, a normative framework persisted that viewed urbanization negatively. The inclusion of social justice dimensions centered the focus on the eradication of slums in the Global South as a means to alleviate poverty. According to Rudd et al., this framework did not adequately tackle the root causes behind the creation of slums (2018). The focus on slums as a manifestation of poverty that demands eradication hinges on an inadequate understanding of socioeconomic conditions. Poor living conditions are treated within this framework as the main problem rather than merely a symptom. Policymakers thus considered the problem resolved if households were lifted from "slum conditions" by being given access to water and housing rehabilitation services. While providing basic necessities is vital, this limited conception does not account for broader human social needs such as employment or a good quality education. In 2015, the adoption of the SDGs marked a turning point in the field of urban development and sustainability policies. With the ratification of 193 UN member states, the 2030 Agenda for Sustainable Development vowed to expand the sustainability requirement of urban development further.[2] As per Rudd et al. (2018), the 2030 Agenda also signified a paradigmatic shift in the UN conceptualization of urban development. They argued that "the inclusion of SDG 11 represent[ed] broad international consensus to legitimize sustainable urban development as a transformational driver for human development" (p. 184). This is reiterated by Gómez-Álvarez et al. (2018), who highlight that the aforementioned transformation would only occur if "effectively steered and deployed" (p. 171). In other words, this agenda represented a departure from earlier understandings of cities as a burden on the environment and sought to fold them into broader sustainability efforts.

2.1 Urban sustainable development: where we are now

In the wake of the adoption of the new SDGs and Agenda 2030, complementary initiatives sought to delineate the pathway to achieving the desired goals. Among them was the New Urban Agenda (NUA) formulated by UN-Habitat in 2016 and adopted in Quito, Ecuador. It was endorsed two months later by the UN General Assembly in Resolution 71/256.

1 According to the UN Conference on Environment and Development of 1992: "Agenda 21 is a comprehensive plan of action to be taken globally, nationally and locally by organizations of the United Nations System, Governments, and Major Groups in every area in which human impacts on the environment." It was adopted by 178 UN member states in the same year, preceding the introduction of the MDGs.

2 For example, SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable.

As part of the commitments of the NUA, in Article 161 of the UNGA resolution, member states vowed to "carry out a periodic follow-up to and review of the New Urban Agenda, ensuring coherence at the national, regional and global levels, in order to track progress, assess impact and ensure the Agenda's effective and timely implementation, accountability to citizens and transparency, in an inclusive manner" (UNGA, 2017, p. 27). The UN secretary-general is also required to document progress in the global implementation of the NUA quadrennially (UNGA, 2017, Art. 166).[3]

The NUA "symboliz[ed] the UN's recognition of urbanization as a permanent driver of development with potentially positive impacts on people and the planet" (Rudd et al., 2018, p. 183). According to the agenda, there are four core dimensions for effective urban sustainability policies: a) social sustainability, b) economic sustainability, c) environmental sustainability, and d) spatial sustainability (UN-Habitat, 2020; see also Elboshy et al., 2015; Salah et al., 2022; Salem et al., 2020).

Social sustainability

Emphasizes equity, inclusivity, and quality of life for all residents. It involves ensuring access to basic services, affordable housing, healthcare, education, and social amenities. Common policy recommendations prioritize social inclusion, address gender inequalities, and promote community participation and engagement. This dimension also necessarily hinges upon an equitable strategy of urban governance, public participation, and knowledge-sharing (Ouf et al., 2022; see also Gawad & Roberts, 2020; UN-Habitat, 2020).

Economic sustainability

Considers sustainable economic development, job creation, and the promotion of decent livelihood opportunities. Policy recommendations should aim to diversify the economy, support local entrepreneurship, and incentivize investment in sectors that contribute and support a just green transition and ensure the distribution of equitable economic dividends into the community. This includes promoting green industries, providing progressive financing opportunities, and fostering "decent work" (Salem et al., 2020, p. 995; see also UN-Habitat, 2020).

Environmental sustainability

Focuses on the protection of biodiversity and the interconnected ecosystem. In the face of ever-exacerbating climate change, urban development policy needs to accommodate policies promoting climate resilience, mitigation, and adaptation. This requires robust systems of data collection, environmental assessment with multiple stakeholders, and a transparent urban development strategy. The urban planning process should also take into account the needs of the rural environment and communities to mitigate the effects of unilateral urban development (UN-Habitat, 2020).

Spatial sustainability

Highlights the importance of absorbing organic urban growth through the provision of affordable and safe housing and the improvement of urban/social connectivity. This dimension also requires spatial equity in terms of access to affordable, well-connected transportation options, safe and accessible public places for marginalized communities, as well as "positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning" (UN-Habitat, 2020).

Keeping these key dimensions of sustainable urban development in mind, this paper reviews the current status of post-2015 global policies. Simon et al. assert that these four dimensions are often approached separately within academic research and policymaking circles, which leads to myopic results that fail to adequately address urban issues (2018). Nevertheless, they present an ambitious benchmark for existing and prospective urban development projects that aspire to take a more holistic approach to sustainability. Since the mainstreaming of this policy framework, there have emerged many different conceptions and manifestations of the 'new' sustainable city. In the following section, a brief overview of some of these visions is presented.

3 In 2021, in conjunction with the local UN-Habitat office, the Egyptian government submitted its national report on the effective implementation of the NUA ahead of the second round of the General Secretariat review.

Eco-cities

Scholarship on eco-cities began with a focus primarily on environmental sustainability, aiming to minimize resource consumption, reduce pollution, and promote ecological balance within urban areas. Eco-cities were grounded in a mode of living that operates within the limits of ecological boundaries by depending on a circular economy and regional self-sufficiency (Beatley, 2012). However, on the ground, they soon became synonymous with experimentation in green technologies that would not impede market growth. Scholars such as Caprotti (2014) posit that this model cannot be generalized or scaled up, owing to the magnitude of financing required to sustain experimental policies and retrofit already existing infrastructure with green adjustments. In other words, without contending with the globalized market system, eco-cities merely address some symptoms of climate change and urban sprawl in isolated nodes (Zhan & de Jong, 2018).

Smart cities

Smart cities rely on an urban planning concept that attempts to tackle the myriad problems associated with urban communities through the use of information and communication technologies (ICT) systems. Development planners and policymakers differ in their view of the extent and domains in which ICT should be involved, although their common focus remains enhanced (cyber) connectivity (Bibri, 2018). These cities leverage ICT to enhance efficiency, connectivity, and citizen engagement. Smart cities intend to use sensors, the Internet of things devices, and data analytics to optimize transportation, energy usage, public services, and infrastructure management (Anand, 2020). Nevertheless, critical urban scholars such as Kitchin et al. have problematized the promulgation of smart cities as top-down techno-fixes for the complex socioeconomic demands of socially just urban sustainability. They argue that smart cities are inclined to "capturing public assets and services by offering technological solutions to urban problems [....] Within this mindset, the place of the public sector is to act as broker, rather than service provider, with smart city units acting to source initial expertise and build partnerships" (2019, p. 6; see also Geenen, 2023; Sadowski & Bendor, 2019). This is reiterated by Anand, who posits that smart city mega-projects often act as a political smokescreen, which allows governments to redirect public funds into a "smart city [that] is the panacea for all problems" (2019, p. 209). According to Rosol & Blue, "Most of the costs of digital technologies are fully or partially borne through public taxes which effectively subsidize the private sector. By prioritizing investments in digital technologies and infrastructures, local governments often redirect public spending away from already underfunded areas of public intervention that address poverty (e.g. social housing, education, or health), or basic urban services such as waste management and sewage systems" (2022, p. 692). Following the four aforementioned dimensions, smart cities thus reinforce the need for centralized infrastructure and financing, which run counter to the social and economic sustainability dimensions. The technological infrastructure required to operate a functional smart city has also been criticized by experts for its negative impact on the environment itself. With its reliance on extractive activities, it prioritizes economic growth and human leisure over environmental concerns (Sharma et al., 2023).

Box 1 The case of the New Administrative Capital

The New Administrative Capital (NAC) is an all-encompassing city that is projected to house 14.5 million people enjoying green buildings, a solar-powered electric grid, and eco-friendly transportation by the year 2025 (Selim et al., 2024). As the project's first decade draws to a close, its sustainability is still an open question. According to the Central Agency for Public Mobilization and Statistics (CAPMAS), as compiled by the Built Environment Observatory, the population inhabiting the NAC by July 2023 amounted to zero (Shawkat & Elmazzahi, 2024). Currently, just 40,000 government personnel regularly frequent the city (Ahram Online, 2023a), most of whom still commute to their places of residence in the old capital. This follows the pattern of previous government 'new city' projects in the desert over the preceding four decades (Sims, 2014; see also Sweet, 2019; Almqvist, 2024). The skyrocketing prices of housing, with a focus

on luxury units as Elmouelhi (2019) argues, and the worsening economic conditions in Egypt effectively exclude large swathes of the Egyptian population from the new cities (Tadamun, 2015). Effective urban sustainability should instead emphasize the importance of tangible social cohesion and responsiveness to people's real needs (Elmouelhi, 2019; Selim et al., 2024). The stark centralization of the planning and construction of new cities, with minimal to no public participation and public good viability studies, has historically sapped people's motivation to move into the new cities (Kenawy, 2017). As Hassan observes, "Achieving higher levels of sustainability has necessitated additional considerations such as interconnected urban economics, policy incentives, and other regulations [...] a city's sustainability must take into account the entirety of its complex system" (2022, p. 73).

Moreover, the core of efficient urban sustainable planning is information transparency as well as the continuous participation of experts and stakeholders alike. Experts conducting studies on both contemporary and past experiments in Egyptian urban development cite the extreme centralization of decision-making as the biggest hurdle to sustainable urban development. According to Sweet (2019), many of these grand development projects stem from a political decision to rally the population and therefore overlook social needs and ecological considerations. This is reiterated by Selim et al. (2024), who present the arguments of some critics of the NAC project, claiming that sustainability concerns were not adequately integrated in the planning or implementation phases.

Furthermore, centralization has led to an overemphasis on the economic dimension of urban development, often at the expense of social and environmental considerations (Hegazy, 2014). Policies and decision-making processes have been primarily driven by economic objectives, such as attracting investment and promoting economic growth, while social and environmental aspects have received less attention from the government. The top-down approach to urban planning and development limits the involvement and participation of local communities and stakeholders. The lack of meaningful engagement can lead to a disconnect between the needs and aspirations of residents and the decisions made by centralized authorities, which can undermine social cohesion, inclusivity, and community ownership of sustainable development initiatives. According to Hamza (2016), the success of new city projects is contingent on a holistic plan for the broad regeneration of the already existing built environment. In other words, to avoid the inevitable pitfalls of previous urban development projects—where new urban 'nodes' were inadequately embedded in a flourishing network—a thorough planning stage is required before the new cities are envisioned. The government's current urban development strategy does not effectively integrate the four key pillars of sustainability into its policies, thus repeatedly failing to address the pressing issues of urban congestion and social inequality. Moreover, ostensible achievements on environmental indicators (such as the use of green building materials and means of transportation) are undercut because planning is divorced from social participation or socially equitable economic returns.

Smart sustainable cities

Smart sustainable cities purport to combine the principles of both eco-cities and smart cities to create urban environments that are not only environmentally friendly but also technologically advanced. These cities strive to achieve a balance between environmental sustainability, economic prosperity, and social equity. They also aim to integrate green technologies, digital innovations, and social initiatives to create a holistic approach to urban development.

The definition of a sustainable smart city has evolved. In its current use, it is not necessarily a complete net-zero energy zone, but rather a city

trying to integrate sustainable practices (Hassan & Lee, 2014). These sustainable practices must aim to correspond to the four dimensions of sustainable urban development, with the understanding that they intersect. What is often missing from current iterations of new cities which brand themselves as smart and sustainable is a lack of attention to social sustainability. Social sustainability hinges upon the enhancement of equal opportunity education, social and labor protection, and an inalienable right to the city (UN Habitat, 2020). Another crucial focal point to holistic sustainability is the importance of local governance to support decentralization efforts and allow for public participation at various stages of urban development projects. Not only does this foster more efficient and desirable policies, but it also strengthens the retention of the population in new city projects. Effective sustainable cities would absorb the informal urban sector and provide it with supportive infrastructure.

Egypt would benefit from implementing a holistic understanding of sustainability in its urban development strategy. Indeed, it is an urgent necessity given its climate vulnerability, population concentration along the Nile Valley, informal settlements, and urban sprawl encroaching on fertile agricultural land (El Ghorab & Shelby, 2016). Egyptian policy has focused primarily on grandiose smart city solutions—dubbed fourth-generation (4G) cities—the most notable of which is its highly touted development project in the NAC. New Alamein City is another 4G city project currently underway, with plans for at least 14 new smart cities which will span "an approximate total area of 580,000 acres to accommodate 30 million people" (Abdelrahman Hussein & Pollock, 2019, p. 6). Fourth-generation cities "are incorporating advanced technology to conserve energy and resources, provide citizen services and enhance residents' lives [....] To that end, the private sector and the government have been working together on innovative initiatives to support those goals" (American Chamber of Commerce in Egypt, n.d.). As previously discussed, smart cities fall short of the holistic sustainability model due to decision-makers' disproportionate emphasis on technocratic solutions and the heavy reliance on top-down governance. To shed light on alternative urban development pathways, the upcoming section will look more closely at the Egyptian context, its legislative framework, and policies that can be applied and improved upon to enhance sustainability.

3. The Egyptian Context: A Brief History of Urban Development Projects

In 2016, Egypt launched its Sustainable Development Strategy (SDS) as part of the overarching Egypt Vision 2030. The SDS outlined multipronged plans of action and goals that correspond to the SDGs. Urban planning and housing management represent a significant part of the strategy, discussed under the environmental dimension of the SDS. Since the 1979 establishment of the New Urban Communities Authority (NUCA) by President Anwar Sadat, the construction of new satellite cities has been the government's solution of choice for the ever-growing problem of urban encroachment on agricultural land (Hegazy, 2021). In the 1980s and 1990s, former President Hosni Mubarak redoubled efforts to alleviate congestion in the Nile Valley and to attract capital investment in desert mega-projects (Sims, 2014). Despite empirically low returns on investment and the unexamined repeated failure of new cities to meet their stated objectives of attracting substantial parts of the population, "the new regime seems propelled by institutional muscle-memory to try again on a grander scale" (Sweet, 2019, p. 19). In 2022, Prime Minister Mustafa Madbouly announced that Egypt is planning to establish 14 4G cities, some of which are relatively far along in the construction phase (Majd, 2022). The new 4G cities are marketed by the Egyptian government as green and eco-friendly, even though details about the new cities are scarce (OECD, 2024). Nonetheless, the NAC is reportedly committed to producing 30–35% of its power supply from renewable energy sources (Energy & Utilities, 2022). To better examine the implementation of urban sustainability principles in such cities, it is imperative to outline the existing regulatory framework that governs urban development in Egypt.

3.1 Constitutional foundation for urban sustainable development

As the global understanding of sustainable development evolved throughout the decades into

what it is today, constitutional bodies around the world began to recognize and integrate the fundamental rights that would facilitate it. In Egypt, sustainable development was first acknowledged as a right in late 1995 when the Supreme Constitutional Court recognized sustainable development as a "constitutional value" in case no. 34/1996. El Mohtady Bellah and Chiha state that, "the court reasoning in this case, the aim of its adopted approach was to secure the fundamental global values and to reduce potential clashes between domestic law and international law to a minimum [....] given the very close ties between this right and right to life" (2017, p. 161).

The current constitution of Egypt entered into force in 2014, with amendments adopted by a referendum in 2019.[4] In contrast to earlier constitutions, this document explicitly incorporates the principles of sustainable development. It included the first recognition of its kind of the fundamental right to adequate housing for all Egyptians in Article 78. This article further enshrines the role of public participation and environmental concerns in urban planning and implementation. The definition of sustainability disseminated in the Brundtland Report of 1987 is adapted in Article 78 as follows: "This is to be applied in a manner serving the public interest, improving the quality of life for citizens and safeguards the rights of future generations." This is also reiterated in Article 46, which establishes the right to "a sound healthy environment" for all Egyptians, and its protection as a national duty where "[t]he State shall take necessary measures to protect and ensure not to harm the environment; ensure a rational use of natural resources to achieve sustainable development; and guarantee the right of future generations thereto." Furthermore, sustainable development and social justice are codified as the tools with which the state aims to achieve economic prosperity in Article 27. This article also emphasizes the "fair distribution of development returns" without discrimination.

The constitution further guarantees social rights integral to holistic sustainable development, such as social solidarity (Article 8), equal opportunity (Article 9), disability rights (Article 81), the right to education (Article 19), and gender equality (Article 11). With regard to sustainable urban and rural development, Article 236 stipulates that the state is obligated to "guarantee setting and implementing a plan for the comprehensive economic and urban development of border and underprivileged areas [....] This shall be made with the participation of the residents of these areas in the development projects, and they shall be given a priority in benefiting therefrom, taking into account the cultural and environmental patterns of the local community."

Concerning local governance, the constitution affirms the state's obligation to "ensure administrative, financial, and economic decentralization" per Egyptian law, in Article 176. Decentralization and infrastructural support are thus guaranteed to local administrative units in governorates, cities, and villages (Articles 176 and 177). Article 175 declares that "[o]ther administrative units that have the legal personality may be established, if public interest so requires." Local elected administrative bodies are also granted responsibility for the implementation and oversight of development projects in their respective areas where they "shall be competent to follow up the implementation of the development plan, monitor [sic] of the different activities, exercise of oversight over the executive authorities using tools such as providing proposals, and submitting questions, briefing motions, interrogations and others" (Article 180). The right to freedom of information is codified in Article 68. Open access to information improves the quality of public participation in decision-making, allowing for the development of more effective and context-specific urban policies. The successful implementation of sustainable development hinges on a robust public accountability structure that is beholden to people's emerging needs (Chatwin & Arku, 2019). Citizens are also better able to hold administrative and policymaking bodies accountable when they have access to accurate and up-to-date data (Mukhopadhyay, 2017). The constitutional right to freedom of information, if enforced, should bolster the transparency of decision-making, encouraging the formulation of more coherent policies.

The constitutional foundation of the Egyptian legal

4 Egyptian 2014 Constitution in English and Arabic.

framework therefore enshrines the fundamental rights necessary for a holistic approach to sustainable urban development. The Egyptian government is constitutionally bound to provide safe and affordable housing, protect the environment, involve local communities in urban planning, and enact policies to reduce social and economic inequalities. While keeping this foundation in mind, an overview of the relevant urban development laws and policies will enable a better assessment of the new urban sustainability projects.

3.2 Legislative framework for urban sustainable development

Uniform building law

Law 119/2008, known as the uniform building law, streamlined all previous legal provisions and regulations concerning national and regional planning as well as land use, distribution, and development (UN-Habitat, 2015, p. 65; see also Ayyad & Gabr, 2012). Sustainable urban development is defined in Article 2 of the law as "managing the process of urban development through the optimal use of available natural resources to meet the needs of the current generation, without infringing on the opportunities of future generations."

Article 39 of the law prohibits the construction, rehabilitation, or expansion of building projects without an explicit permit from the relevant administrative planning authority. These permits may not be issued, according to the text of the law, unless construction projects comply with the specifications of design and implementation established in Egyptian codes (UN-Habitat, 2015). In 2015, a presidential decree amended the law to exclude "national projects" (determined as such by the Egyptian Cabinet) from the provisions of Article 39. The amendment allows national projects to sidestep the standard permitting process and declares that a compliance certification produced by the Egyptian Armed Forces Engineering Authority—the state body responsible for undertaking said projects—is sufficient (Presidential Decree 23/2015, Article 39bis). In tandem with the state's ability to retroactively accord "national project" status to urban development projects (e.g., Egyptian Cabinet Decree 6/2023 and 3/2020), this further removes projects from public scrutiny and participation.

During the early months of 2020, the Egyptian government announced a six-month freeze on all construction works in Cairo, Giza and Alexandria. Under Article 44 of Law 119/2008, governors have the authority to halt new construction projects for any national or planning concerns, but a blanket freeze on all construction works was hitherto unprecedented. As part of the state of emergency imposed by the Covid-19 pandemic, the government intended to mitigate the inevitable disruption of the housing market due to the expected sharp discrepancy between supply and demand. By presidential decree, this policy excluded NUCA-owned urban development projects, allowing them to continue unabated and giving them an advantage as the emergent housing supplier (Built Environment Observatory, 2021).

After giving NUCA construction a considerable head start, the Ministry of Housing, Utilities, and Urban Communities (MoHUUC) issued a decree adding new planning and construction regulations to the existing Egyptian codes. In 2021, Prime Minister Mustafa Madbouly declared the new regulations would be rolled out gradually, initially applying to construction works in governorate capitals. Following a two-month trial period, they would then enter into force in the rest of the country. The regulations put more stringent requirements on building height, land plot allocation, and the permitting process than those provided for in Law 119/2008. To acquire a construction permit, developers would henceforth need to obtain viability certifications from select public universities, and approvals from agricultural experts and the head of the Egyptian Engineers Syndicate (Ministerial Decree 410/2021). The adoption of this policy reportedly reflected the government's dedication to curbing informal construction and imposing a sound urban governance strategy. Despite this, the regulations were not accompanied by either an adequate system for monitoring violations or a sufficient solution to informal planning—the main reason for urban congestion—leaving the issue largely unresolved.

Rigorous regulations that slow down the pace of rapid, unplanned construction are a necessary step in the right direction. However, in September 2024, the MoHUUC repealed the new regulations and reverted to the more lenient structure of Law 199/2008, under the direction of the president

(Enterprise, 2024). The ministry cited the renewed commitment to accelerating the pace of construction as the reasoning behind the shift. Yet, the rollback of strict building regulations disregards Egypt's desperate need for a reformulation of its urban development strategy. Without taking into account the imbalance between housing vacancy due to unaffordability and housing density in informal areas, this policy will further entrench the shortcomings of urban development in Egypt.

Principles of design and regulations for construction and building works (Law 6/1964) and the Green Pyramid Rating System

Law 6/1964 is the foundational legal code for the regulation of construction projects in Egypt. Articles 1 and 2 specify that all construction and building works should abide by the principles and regulations put forth by a special committee under the leadership of the Ministry of Housing and Utilities (now MoHUUC). In developing Egyptian building codes, the committee should enlist the assistance of relevant research centers (Art. 2). This committee includes representatives from relevant ministries and government institutions such as the Ministries of Transportation, Education, and Defense as well as the Building Research Institute.

In 2021, the MoHUUC announced that it was in the process of formulating a "smart and sustainable city code" which would update the conditions for new city construction in accordance with the core tenets of sustainable development (Osoul Misr, 2021) and lay out guidelines for smart infrastructure (e.g., transportation, water consumption, digitization).

In 2021, the Ministry of Planning and Economic Development (MPED) issued a report titled "Strategic Framework for Green Recovery" which outlines the performance indicators, incentive schemes, and relevant Egyptian codes necessary to advance the agendas of Egypt Vision 2030 and the SDS. It further introduced a Green Pyramid Rating System (GPRS) as an assessment and evaluation instrument for green buildings in the national environmental sustainability plan (MPED, 2021). The GPRS was developed by the Egyptian Green Building Council (EGBC) in conjunction with the Housing and Building Research Center in 2010, to raise awareness of the importance of sustainable construction and to set environmental evaluation criteria for building works (Konbr & Lebda, 2019).

Evaluating Criteria	Weighted Points	Percentage
Sustainable Sites	10	10%
Energy Efficiency	50	32%
Water Efficiency	50	20%
Material and Resources	20	12%
Indoor Environment Quality	20	16%
Management Protocols	20	10%
Innovation and Added Value	10	Bonus
Sum	180	100%

Figure 1

Second Version of GPRS Criteria updated in 2017 (compiled by the author from Dev, 2017; Konbr & Lebda, 2019)

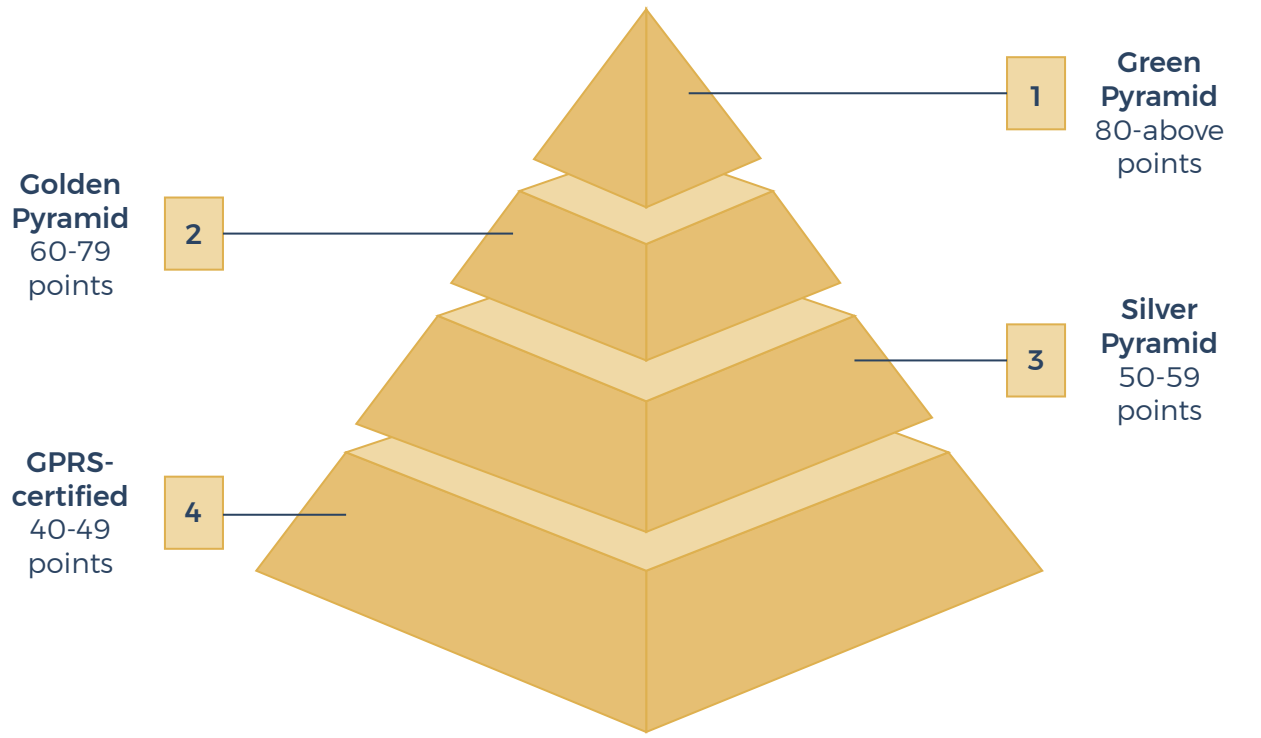

Figure 2
GPRS point-based certification tier system (illustrated by author from Daoud et al., 2018).

The GPRS identifies seven main criteria for evaluating building projects and thus issuing a rating certification (Fig. 1). The criteria are weighted with a points system, the sum of which allows the EGBC to classify buildings through a tiered system. Water and energy efficiency represent more than half of the weighted criteria, at a combined 52% of the possible points to be gained by a construction project toward certification. As illustrated in Figure 2, the EGBC awards the highest certification level (the Green Pyramid certification) to buildings that earn 80 points and above, while projects earning less than 40 points are uncertified by the EGBC (Eid et al., 2019). In June 2024, the MoHUUC issued a decree formalizing the use of the GPRS in the planning and construction of residential buildings (Ministerial Decree 322/2024, (Art. 1).

Although Articles 17 and 18 of the environmental law (Law 4/1994) task the Egyptian Environmental Affairs Agency and the Ministry of Finance with drawing up incentive systems for green construction, government incentives for developers to obtain a high GPRS certification remain insufficient (Altawansy, 2024; Ismaeel, 2016). Despite the formalization of the GPRS by ministerial decree, a GPRS certificate is not a prerequisite for construction works (EDGE & International Finance Corporation, 2023). In other words, developers who receive an 'uncertified' rating are not required by law to halt construction or change course. Ministerial Decree 322/2024 simply states that the MoHUUC will work to abide by GPRS guidelines, but it does not clearly stipulate any legal consequences in case of failure to apply said guidelines.

Moreover, Eid et al. argue that the Egyptian GPRS system was modeled after the American LEED[5] rating system and is thus not adequately adapted to the local environmental and social context (2019; see also Arafat et al., 2023). The GPRS also does not vary by region and therefore applies an inflexible set of rating criteria to construction works in areas with differing environmental, social, and economic realities within Egypt. As shown in Figure 1, social

5 The Leadership in Energy and Environmental Design (LEED) rating system was first developed by the US Green Building Council in 1998. Similar to the GPRS, it comprises seven evaluation criteria amounting to 126 points, based on which construction works can be classified into one of four certification tiers. Also similar to the Egyptian GPRS, the LEED system heavily focuses on environmental criteria rather than social and economic criteria (Awadh, 2017)

and cultural dimensions are all but absent from the GPRS evaluation criteria, which does not reflect a holistic understanding of sustainable development (Eid et al., 2019). Additionally, follow-up regulations after construction projects receive their EGBC certification are significantly lacking, which hampers a real assessment of their sustainability status over time (Altawansy, 2024). On the ground, developers' and architects' application of the GPRS guidelines is hindered by a gap in their knowledge of green construction requirements as well as the vague nature of the GPRS implementation guidelines (Moussa, 2019).

Environmental law (Law 4/1994, amended by Law 9/2009)

The current law regulating the use of natural resources and the protection of the environment is comprehensive compared to its predecessors (Mousa, 2016). However, the text of the law is limited in its provisions, focusing mainly on pollutant concentrations. The law would benefit from considering a wider scope of environmental impacts, to account for the cumulative effect of climate change variables and development projects over the years (Abdel Wahaab, 2003). The amendments of Law 9/2009 do include some significant advances, such as guaranteeing workers' entitlement to compensation should their workplace be shuttered by the government due to environmental violation as well as more stringent regulations on industrial pollution (EcoConserv and Finnish Consulting Group, 2010). However, long-term environmental impact planning is still not addressed by the amendments to the law.

Law 4/1994 established the Egyptian Environmental Affairs Agency (EEAA) (Art. 2) which is tasked, inter alia, with preparing drafts of environmental laws, establishing the necessary criteria for development projects to abide by to strengthen environmental protection, conducting environmental studies, and overseeing the compliance of said projects (Art. 5; see also Bampou, 2016). Article 5 requires development projects to obtain a compliance certificate based on EEAA criteria, which developers must observe during the planning and implementation phases. To obtain a permit to begin construction, the owners must conduct an environmental impact assessment (EIA) study according to the guidelines set by the EEAA and present it to the relevant administrative authority for initial examination (Art. 19). The administrative authority is then required to submit the study to the EEAA for approval (subject to appeal, in case of rejection) (Hegazy, 2017, p. 4). In the case of new cities, the preparation and submission of the EIA falls under the purview of NUCA, which is both the owner and administrative authority. Based on the EEAA's compliance assessment, the minister of HUUC (and chairman of NUCA) is the one authorized to issue the construction permit for a new urban community. It is clear, then, that with regard to new urban communities, the process of environmental monitoring and evaluation is heavily centralized, which diminishes the effectiveness of the EIA.

The EEAA guidelines specify the scope of the study to be conducted by the owners according to the project's potential environmental impact. This potential impact is classified into three tiers; white projects (category A, minimal impact), gray projects (category B, moderate impact), and black projects (category C, high impact) (Lotfy & Ismaeel, 2022). Any land reclamation for a construction project that exceeds 2,000 feddans is classified by the EEAA as category C, which would include new city development projects (EEAA Chief Executive Officer Decree 518/2023, Art. 118). As the highest tier of potential environmental impact, category C project developers are required to conduct a thorough EIA examining all possible environmental impacts and the measures required to mitigate them (Badr, 2009). The construction of new mega-cities also involves other substantial infrastructure (e.g., water desalination plants, power plants, roads, business, and commercial districts) which themselves are classified as category C projects requiring a thorough EIA (EEAA Chief Executive Officer Decree 518/2023). Along with potential environmental impacts and mitigation measures, urban developers are required to provide a detailed assessment of the physical, biological, and social environment relevant to the project. The EEAA also expects developers to conduct public consultation meetings for projects of this scope. These meetings should include governorate and local popular council representatives, as well as representatives from the affected nearby communities. However, project proponents are not mandated to incorporate the concerns of local parties into their plan but only to "seek their opinion." The EEAA also allows developers to conduct meetings with different

representatives individually, which dilutes the influence of local participants (EEAA, 2009).

In 2023, the minister of environment issued a decree establishing a special committee that is mandated to finalize any outstanding EIAs, to facilitate the process of construction permit issuance (Ministerial Decree 71/2023; Ministry of Environment, 2023). The ministry is more concerned with the pace at which permits are issued, rather than the thoroughness of assessments, which has been a consistent shortcoming of the EIA process in Egypt for decades (Hegazy, 2017; Badr, 2009).

Local administration law (Law 43/1979)

According to Eissa and Khalil, Law 43/1979 "set the guidelines for the country's administrative structure on the local level regarding authorities, hierarchy, and functions" (2021, p. 201). Governorates are the largest sub-section of Egyptian local administrative units, whose relative independence is a right codified in the Egyptian constitution of 2014 (Art. 176). The Ministry of Municipal Affairs (currently referred to as the Ministry of Local Development) acts as a liaison between national and local authorities, ensuring that the grand national and regional project plans are being adequately implemented by the relevant local authorities (Eissa & Khalil, 2021). With regards to day-to-day implementation and data collection, Article 10 of the law stipulates that it is the responsibility of a Local Popular Council, which should be created in every governorate through direct elections (Art. 75) and answer to their respective governor, who is appointed by presidential decree. As noted by the UN-Habitat legislative analysis report, despite constitutional overhauls and multiple amendments, "Law 43/1979 is still the current legal basis of the local administration system in Egypt [....] retain[ing] the same multi-level local administrative structure stipulated by its precursor" (2015, p. 2). Under Article 176 of the Egyptian constitution, local governors are granted executive powers, but the central government is responsible for setting and allocating their budget. This further restricts the independence of local administrative authorities and makes them heavily reliant on the central government for revenue (Abdelaal et al., 2021).

3.3 Egyptian climate mitigation strategies in the new cities

Within the framework of Egypt Vision 2030, the Ministry of Environment in 2022 developed the Egypt National Climate Change Strategy 2050 (NCCS) to lay out a national roadmap for the management of the effects of climate change. The main focus of the comprehensive plan is reducing greenhouse gas (GHG) emissions and expanding the use of renewable energy sources in the country's energy mix. One of the main policies nominally employed to this end by the Egyptian government was lifting the subsidies on fossil fuels. In FY2022/23, fuel subsidies represented 1.1% of GDP, compared to 6% in FY2012/13 (author's calculation from Abdelaty et al., 2023). Although this policy was mainly implemented in compliance with the IMF's loan disbursement conditions, the World Bank (2022) credits it as a positive step toward reducing Egypt's GHG emissions. However, in order to effectively wean the country off car dependency, the government should refrain from car-centric road investments and gear its policies toward mass transit (Hegazy, 2022).

In 2016, the Egyptian government allocated 93% of its investment in the public transportation budget to expanding the third line of the Cairo Metro (Hegazy, 2022). This policy was implemented in tandem with the construction of the light rail line which connects the NUCA Eastern desert cities to Cairo's city center through the metro system (Sims, 2022). This represents a positive shift from the transportation policies that accompanied earlier iterations of new urban communities, which were exclusively car-centric (UN-Habitat, 2015). However, the increasing prices of transit fares and the relative inaccessibility of transit stations undercut the potential social and economic dividends of the new transit system (Sims, 2022).

Egypt has also experienced a leap in the renewable energy sector, which witnessed a 340% increase in installed solar and wind power plants from 2016/17 to 2019/20 (Abdelaty et al., 2023). In its efforts to move away from fossil fuel dependence, the Egyptian government has relied on an incentives policy for investments in green projects, outlined in the Environmental Sustainability Guideline put together by the Ministry of Planning. The purpose of this guideline is to increase green investments in Egypt's development plans, which increased from 15% in FY2019/20 to 30% in 2020/21 (Abdelaty et al., 2023). While transitioning towards green renewable energy production is a step in the right

direction, the government should implement stronger policies to ensure that small-scale industries and vulnerable communities are cushioned from the growing pains of energy transition policies (APS, forthcoming).

In 2020, pursuant to Ministerial Decree 851, the minister of HUUC convened a national committee to prepare the Egyptian National Report on the New Urban Agenda. The committee included representatives from the state and private sectors, international organizations, and local civil society organizations as well as consultants with relevant expertise. Egypt's commitments under the New Urban Agenda encompass a wide array of principles and objectives aimed at fostering sustainable urbanization, enhancing resilience, promoting inclusivity, and harnessing technological advancements for smart city development. One key commitment is to prioritize affordable housing and inclusive urban planning to address the housing needs of all segments of society, particularly low-income groups and marginalized communities (UN-Habitat, 2015). However, this has not been reflected in the new smart cities, which are dominated by luxury units that are unaffordable for the majority of Egyptians (Loewert & Steiner, 2019).

Another commitment made by Egypt is to enhance urban resilience and disaster preparedness to mitigate the impact of natural and man-made disasters on urban areas (UN-Habitat, 2015). This involves strengthening infrastructure, implementing risk-reduction strategies, and integrating resilience considerations into urban planning and development processes. Furthermore, Egypt has committed to leveraging technology and innovation to drive smart city initiatives and enhance urban efficiency, sustainability, and quality of life (UN-Habitat, 2015).

4. Mapping of Stakeholders

4.1 Public sector

a. The Ministry of Housing, Utilities and Urban Communities

The MoHUUC is the overarching executive governing body of urban development in Egypt. It works with its subsidiaries and the Supreme Council of Planning and Urban Development (SCUPD) to develop the overall urban planning strategy for the country. In the new cities, it is responsible for providing a certain amount of affordable housing.

i. The Supreme Council of Planning and Urban Development and the General Organization of Physical Planning

The uniform building law provided for the establishment of the SCPUD and tasked it with overseeing the national strategic plans for urban development, coordinating with the various relevant ministries and bodies, and evaluating the process of implementation (Law 119/2008, Art. 3 & 4; see also Nada, 2014). Presidential Decree 298/2008 defined the membership of the SCPUD to include various ministries such as the Ministry of Defense and Military Production, the MoHUUC, and the Ministry of Culture as well as several experts, and named the prime minister the council head. Prime Ministerial Decree 1334/2020 expanded the membership of the SCPUD, bringing in the Ministry of Tourism, the Ministry of Environment, the Ministry of Agriculture and Land Reclamation, and the Ministry of Trade and Industry. This expansion reflects the broader global understanding that sustainable urban development requires the mobilization of every state sector along the four dimensions of urban sustainability.

The General Organization of Physical Planning (GOPP) is the state agency acting as the "technical secretariat of the SCPUD," reporting directly to the MoHUUC (Nada, 2014, p. 150). It is responsible for the preparation of development plans on the national, regional, and local levels (Abdelaal, et al., 2021), as prescribed in Article 6 of the uniform building law (UN-Habitat, 2015). According to Khalil, the GOPP spearheaded the formulation of plans in Egypt's SDS, which included "the reforming of the institutional and governance systems of urban development, planning, and management and linking the comprehensive investment plan to the national urban plan of 2052" (2019, p. 96). With regards to planning

new cities, the GOPP is in charge of designating a suitable location based on the plans set forth by NUCA (Reda, 2020).

ii. New Urban Communities Authority

Once the location of the new city is identified by the GOPP, the proposed plan must then be approved by the minister of defense and the minister of tourism and antiquities. Following that, the ownership of the designated land is transferred from the state to the NUCA by a presidential or prime ministerial decree (Reda, 2020). The NUCA is a subsidiary of the MoHUUC, established to oversee new urban development projects by Law 59/1979. Article 1 of Law 59/1979 states that the purpose of the new urban communities is to "achieve social stability and economic prosperity (in industry, agriculture, trade, and others) with the aim of redistributing the population by planning new attractive areas beyond the perimeters of existing cities and villages." More recently, the NUCA has broadened the scope of its purpose from simply attracting populations to "achieving a number of social and economic goals advocated by the revolutions of 2011 and 2013, in order to achieve social justice and guaranteeing a decent life for all citizens through providing urban and residential communities with integrated services that include housing units suitable for all social groups, as well as the associated utilities, in addition to educational, healthcare, cultural and entertainment services" (NUCA, 2020), echoing provisions in the new constitution. According to Law 59/1979, the governing authority over new city development projects is not the administration of the governorate in which they are located, but rather NUCA (Abdelaal et al., 2021). When such projects are declared complete, the new community is then brought under the authority of the nearest governorate (Khalil, 2023). As Khalil notes, however, the point at which the new city developments are considered complete is quite elusive, which further insulates the projects from the checks of local participation (2023). In fact, Shawkat reports that since the first new city began construction in 1977, no new cities have been handed over to local authorities by NUCA (2013). Article 46 of Law 59/1979 also "prohibit[s] any governmental organizations, local government units, public sector companies and/or any entities holding state lands to dispose of any desert or agricultural land outside the boundaries of existing cities for the purpose of subdivision or development without the permission of NUCA [...] The NUCA board is to set the rules for organizing the development of such lands." This demonstrates the rigid hierarchical structure of land allocation and the new city planning process.

In contrast to legal provisions regulating the EEAA, Law 59/1979 does not require local community consultation in the NUCA planning process (Alhowaily, 2023). Moreover, Article 31 of the law carves NUCA's budget out of the general state budget, further insulating the NUCA from public scrutiny. In other words, as new urban communities are constructed by private state funds, Egyptian citizens are not considered by the government to have a stake in mega-development projects (Loewert & Steiner, 2019).

iii. Urban Development Fund

In 2021, the Urban Development Fund (UDF) replaced the Informal Settlements Fund, which was established by presidential decree in 2008 to eradicate slums, mainly in Cairo (Ezz, 2018). Echoing the global shift from the MDGs era to the post-2015 policymaking landscape, the UDF oversees the protection of lands with historical significance or environmental value, and the rehabilitation of existing urban formations with the aim of improving quality of life (OECD, 2024). Within the urban development landscape in Egypt, the UDF collaborates with governorate authorities to undertake regenerative projects. The GOPP partners with the UDF at the local level to develop the former's plans and liaise with the private real estate sector to that end (Hesham, 2024). While the NUCA is primarily responsible for the development of new cities, its mandate extends to some projects within existing urban areas. The Egyptian Cabinet announced that the reconfigured UDF would cooperate with NUCA in rehabilitating parts of Downtown Cairo (OECD, 2024; Enterprise, 2021). Although the total funds allocated by the government to the UDF are unclear, the

Fund received EGP6 billion in private investments for the reconstruction of the Fustat area in Old Cairo, which is scheduled to conclude in 2025 (Hesham, 2024).

iv. Housing and Building Research Center

In 1977, the Building Research Institute was renamed the Housing and Building Research Center (HBRC) and was recognized as a public body affiliated with the MoHUUC by Presidential Decree 46/1977 (HBRC website). Previously acting as one member of the special MoHUUC committee mandated to formulate Egyptian construction codes per the uniform building law, the HBRC was elevated to the main state research body developing building codes. Article 2(d) of the presidential decree provides for the inclusion of representatives from relevant government ministries and academic experts in the HBRC, but it does not explicitly stipulate any direct participation by local community members. This is reflected in the current HBRC board of directors (HBRC website). The scope of HBRC authority was further expanded by Presidential Decree 63/2005. Article 11 of which recognized it as an entity with legal personality and a separate budget. The building codes developed by the HBRC, under the auspices of the MoHUUC, are binding on all construction works, be they publicly or privately owned (Law 6/1964, Art. 4). However, military structures and installations are excluded from the provisions of this law, according to Article 6. Furthermore, the HBRC seems to be leading the development of the smart and sustainable city code.

b. Ministries

Other than the MoHUUC, several ministries such as the Ministries of Electricity and Renewable Energy (MoEE), Transportation (MoT), Water Resources and Irrigation (MWRI), Agriculture and Land Reclamation, and Local Development (MLD) are responsible for their respective fields in the implementation of the new city plans. However, their roles are defined according to the already existing plans developed by the MoHUUC and NUCA (OECD, 2024).

The Ministry of Defense (MoD) plays a more independent and influential role, as the construction of new cities is conditional on its approval. Desert land reclamation for agriculture has been the province of the MoD since the 1950s. With the most recent iteration of new urban communities, the MoD undertakes the land reclamation required for their construction. It is also primarily responsible for road infrastructure through its subsidiary body, the National Company for Road Construction and Development (Sayigh, 2019). As a significant player in the Egyptian economy, the MoD enters into contracts with other ministries through its various subsidiaries.[6] In turn, the ministries sign contracts with the private sector to carry out NUCA plans. For example, the MoEE teamed up with Siemens and local partners such as Orascom and ElSewedy to build three renewable energy power plants in the new cities (MoEE, 2022). To construct the light-rail transit connecting the current city center to the new urban communities in the east, the MoT contracted with multinational and domestic private partners to carry out NUCA's transportation strategy (Arab Contractors, 2022). The MLD facilitates coordination between the GoE and local communities, which has witnessed much-anticipated improvement in the past few years (OECD, 2024). The Ministry of Agriculture and Land Reclamation is responsible for fulfilling the NUCA plans for smart irrigation techniques on newly formed agricultural fields (General Authority for Investment, 2024a). The respective ministerial plans often intersect and require inter-ministerial collaboration, but they rely heavily on private-sector investment.

4.2 Private sector

A chief goal of the latest iteration of new mega-cities in Egypt is attracting private investments, which has been the government's direction since the 1970s (Almqvist, 2024). This priority is reflected in the legal incentives and lax regulations afforded to investors by the investment law (Law 72/2017). Article 11 of the law affords a 30% discount on investment costs for strategic and national projects, as well as investment projects involved in waste recycling, renewable energy, and smart technology

6 The National Service Projects Organization comprises Ministry of Defense-owned companies working in infrastructure, such as steel and cement production, telecommunications services, and agro-industry (Sayigh, 2019, pp. 92–93).

(Enterprise, 2022).

In the last decade, Egypt has signed multiple contracts with the private sector in pursuit of its new smart cities. According to a report produced by the General Authority of Investments and Free Zones (GAFI), Egypt is encouraging investment in all sectors (including transportation, industry, real estate, renewable energy, healthcare, and ICT) (2022). The government offers both the domestic and foreign private sector tax exemptions, custom tariff reductions for imported technological equipment, and smoother bureaucratic processes for land allocation (Law 72/2017, Arts. 45–46). Moreover, the government no longer shows preferential treatment for the domestic private sector, and foreign investors are permitted to own 100% of their projects on Egyptian land (GAFI, 2022, p. 14).

To further promote Egypt as an attractive destination for foreign investors, the GAFI is touting public free zones (PFZs) in the new cities (GAFI, 2024). These zones, established on land owned by the Egyptian state, are subject to exceptional tax, customs, and financing rules.[7] Prime Minister Mustafa Madbouly and the NUCA have proposed 11 potential sites for PFZs in Egypt's new cities. One advantage extended to investors by the investment law is the permission to transfer the capital and profits of their project outside the country (GAFI Report, 2022). This incentive will likely encourage speculative investment, which will do little to resolve Egypt's long-standing foreign currency crisis. Furthermore, it disproportionately prioritizes palliative cash injections over working to secure a context-specific urban sustainability plan (Almqvist, 2024, p. 43). Investment thus becomes the end in and of itself. The deputy chair of NUCA revealed that Egypt had received USD22.82 billion in total investments for new cities as of September 2023 (Ahram Online, 2023b).

In 2014, the Egyptian Cabinet passed a law that severely restricted citizens' ability to challenge state contracts in court (Law 32/2014). After the Egyptian Center for Economic and Social Rights sued to have the law overturned, the Supreme Constitutional Court affirmed its constitutionality in 2023, citing the country's delicate economic situation and the importance of facilitating the government's efforts to attract foreign investment (al-Ahram, 2023). The law effectively excludes any form of public participation and accountability in matters of public investment, further entrenching centralized decision-making in urban development.

4.3 Civil society organizations

Civil society organizations (CSOs) are virtually absent from decision-making and assessment. Their knowledge production and advocacy efforts are independent and do not have a significant impact on overall urban planning strategies (Alternative Policy Solutions, 2024). The same applies to residents and community members, who along with CSOs are seen as mere information pools from which to draw performance reports. In their survey of the existing relationship between governmental entities and CSOs, Maged et al. (2023, p. 802) report that there is little overlap between the two groups' priorities. According to their findings, CSOs and other groups producing academic knowledge highlight the importance of improving the sustainability of the already existing built environment, while the government favors new, grandiose urban development projects, in effect neglecting the knowledge gathered by CSOs regarding the importance of public participation (Maged et al., 2023). Official urban sustainability reports, like the ones discussed above, all assert that government policies are people-centric and involve CSO representation. On the ground, however, urban development planning and decision-making in Egypt remains largely immune to public input.

4.4 Stakeholder engagement

As mentioned above, the glaring lack of transparency in knowledge sharing and results assessment make it quite difficult for observers to accurately glean the impact of CSO participation on the ground (Alternative Policy Solutions, 2024). This also extends to the tender processes and investment deals relevant to urban sustainability. Centralization and lack of political participation confine decisions about budget allocation for new city mega-projects to an extremely narrow circle, calling the sustainability of these projects into question.

7 In 1975, the first free zone was established in Port Said under President Anwar Sadat, as one of the most notable features of his government's Open Door Policy.

David Sims (2014) argues that new city projects often leave local communities and prospective residents out of the equation. Maged et al. (2023) find that CSOs, despite their limited resources, attempt to liaise between the government and these groups. Significant investments to finance urban sustainable development in Egypt have come from the government, international donors, and the private sector. It is essential, however, to critically analyze the flaws and shortcomings in the current financing landscape. The influence of international organizations and donor countries in shaping development priorities and projects raises concerns about a neo-colonial agenda (Mahfouz & Sobeih, 2019).

The dependence on external funding limits Egypt's autonomy and may hinder the development of context-specific and locally driven sustainable urban initiatives. The government's efforts to attract private sector investment in sustainable urban development projects are often driven by profit motives, rather than a genuine commitment to environmental and social sustainability. The focus on financial returns leads to the prioritization of projects that cater to high-income communities and disregard for the needs of marginalized populations (Wiedmann & Salama, 2019). The profit-driven nature of private-sector investments can perpetuate socioeconomic inequalities and exacerbate the exclusionary nature of urban development. With the construction of new smart cities in Egypt enmeshed in a web of centralized planning and development, and a less than transparent investment system, the social sustainability dimension is left behind.

5. Concluding Remarks

This paper has aimed to highlight the blind spots in Egypt's sustainable urban development landscape. The Sustainable Development Strategy and Egypt Vision 2030 outline the government's commitment to sustainable urban development. Egypt's journey towards sustainable urban development, while ambitious, still faces significant challenges. The current focus on smart city initiatives exhibits an overemphasis on economic growth and technocratic solutions, which often overshadows essential aspects of sustainability, such as social inclusivity and environmental stewardship. The disconnect between the real needs of the population and the priorities of these large-scale projects is glaring, particularly when considering that housing in these new cities is unaffordable for the majority of Egyptians.

The adoption of 4G cities, while lauded as a progressive move by international donors, are of questionable sustainability. The data indicating high vacancy rates and the absence of meaningful public participation in urban planning highlights the limitations of Egypt's approach. The NAC and other smart city projects, despite their green rhetoric, have so far failed to adequately address the socioeconomic disparities that plague Egypt's urban landscape. This reinforces the need for a shift in focus toward a more holistic model of urban development, one that balances economic, social, and environmental sustainability.

Moreover, as this paper has highlighted, Egypt's vulnerability to climate change necessitates urgent action. Sustainable urban planning should not only cater to immediate economic objectives but must also incorporate long-term resilience strategies. By refocusing its efforts on inclusive, regenerative development, Egypt has the potential to mitigate the effects of climate change, reduce urban sprawl, and ensure that its urban future is one that meets the needs of all its citizens, not just the affluent few. An urban development strategy which is oriented toward climate mitigation, and the improvement of Egyptians' quality of life necessitates integrating rural development into the national urban strategy, to ensure that both environments benefit symbiotically from infrastructure and resource planning. A recalibration of policies toward social equity, environmental resilience, and participatory governance is critical to ensure that Egypt's urban development aligns with its commitments to global sustainability standards. Only through such a comprehensive approach can Egypt hope to build cities that are inclusive, resilient, and genuinely sustainable.

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