Guided organic growth: a paradigm shift in new city making

Heba Elhanafy

Urban Researcher, Charter Cities Institute, 601 I St, NW, Washington, DC 20001, USA.

Abstract. Planning is a discipline of shifting paradigms, from the functional modern city to the rational-comprehensive approach, to the current return of place. But how has (or will) the discipline shift in response to the rise in recent decades of new city building around the globe? With at least 100 new cities in conception or under construction in India; dozens more under way in each of Southeast Asia, the Middle East, sub-Saharan Africa, and Latin America; and over 600 new cities currently either being designed or being built in China—the answer to this question will affect the lives of potentially millions of individuals. As it stands, most new cities built recently or currently being developed are over-planned. Currently, urban plans often follow either the Chinese-grid planning paradigm or an American-suburban model. Those approaches leave little to no space for local adaptation, emergent market forces, and the agency of residents to shape their cities over time. New cities can be an excellent opportunity to inject urban economic vibrancy, solving market failures, and unlocking innovation. However, until a deliberate shift occurs in the planning paradigms of these new city developments, they will continue to suffer from common challenges. This paper aims to rethink new city making in the Global South and suggests a definite need for a paradigm shift.

1. Introduction

The Global South is urbanizing at an extraordinary pace. The United Nations (UN) projects that the world's urban population will increase by over two billion people by 2050, with 90 percent of that increase concentrated in Africa and Asia [1]. 900 million urban dwellers reside in slums and lack access to basic municipal services and economic opportunities [2]. The scale of the challenge facing urban governments in providing even the most basic services is evident in countries like India and Nigeria. These countries are expected to see 416 million and 189 million new urban residents, respectively.

Insecure property rights limit capital formation in slums, a necessary precursor to sustained economic development. Resources dedicated to health and education in slum communities are minimal, limiting the human capital

formation residents could use to access better economic opportunities [2]. The list of challenges facing cities in the Global South is daunting and requires a litany of complex reforms and investment, including the ability of developing world cities to plan for and effectively accommodate rapid urban growth.

The effects of both under-planning and over-planning have been on full display in existing and new cities developed throughout the Global South. Governments have either failed or have been unable to engage in urban planning that enhances service provision in rapidly growing megacities. Some cities have outgrown their fixed boundaries, so planning on a metropolitan scale becomes increasingly fragmented, increasing the difficulty of coordinated action. In these unplanned environments, the economy and the housing stock are largely informal, limiting growth. Although emergent informal governance structures arise in slums in the absence of formal arrangements to provide

essential services, these are often woefully inadequate to support sustained growth and reduce poverty.

At the other end of the spectrum are new cities, most of which are over-planned and inaccessible to most populations. Brasília, developed in 1960 as the new Brazilian capital, is a classic example of an over-planned city that ignores the emergent nature of cities and the role that markets play in their development [3].

2. Planning: A science of shifting paradigms

Planning is a discipline of shifting ideas and paradigms, from the functional modern city to the rational-comprehensive approach to the current return of place. Ideas have always shaped the production of space and city making; functionality, order, and health shaped the modernist planning approaches, while technological advancements and scientific thinking shaped the comprehensive approach.

In *Tomorrow: A Peaceful Path to Social Reform* (1898) Ebenezer Howard wrote on the need for healthier urban spaces and the problem of rural depopulation and overcrowded cities. The need for improvements in the quality of urban spaces has led Howard to devise The Garden City. The Garden City principles manifested in creating a series of small, planned cities in the countryside, combining the countryside's nature and the city's amenities [5]. Those principles have shaped the development of new urban areas all over the world that include Käpylä in Finland and Canberra in Australia.[1]

Modern planning viewed the planner's role as a "healer of the city" from its industrial problems. It resulted in the production of high-speed highways inside cities, separation of functions, and buildings and public spaces that are not human scale friendly [6]. Modern planning also shaped the urban form of entire new cities like Brasilia in Brazil and Chandigarh in India.

Urban practitioners and planners have become more aware of the importance of equity, sustainability, and participatory practices in planning processes and outcomes. The rise of placemaking and participatory planning movements in recent years attests to the 'return of place'. However, most

new city developments still follow an overarching master plan that controls development in a top-down manner, with little to no participatory practices and few opportunities for community and market forces to influence the city's development.

3. New City Making: Planning Paradigms

3.1 Current planning paradigms of new city making

Most new cities are static, over-planned, and rigid with master plans that place too many top-down restrictions on their emergent development. According to Keeton and Nijhus, new cities urban plan often follows one of three models: (i) the *Chinese-grid planning model*, (ii) the *American-suburban model*, or (iii) the *Dubai/ Singapore model* that emphasizes the use of reputed international architecture firms and styles [7].

The Chinese grid is a hyper-functional setup dominated by its matrix arrangement and is the dominant approach of all new Chinese city projects. It consists of three main ingredients. First, a broad road system (50 to 60 meters wide) resulting in a massive motorways grid. Second, large square blocks that are a few hundred meters wide are relatively closed off. Third, the separation of functions with every block representing a mono-function [3].

An American suburb design is characterized by single-family detached housing, strict zoning, and the separation of residential and commercial functions. The strict zoning often denies the development of any other residential types, and the streets are designed with a rigid hierarchy. Among other things, the American suburb model is often considered the birthplace of the cul-de-sac [8].

Another model that is common with new city developments around the globe is the Dubai/ Singapore futuristic model. With hopes of reaching a similar level of success, new city developers all over the Middle East, Asia, and Africa try to emulate or outright copy the architecture and aesthetics of Dubai or Singapore: tall glass buildings, wide streets, and international architecture. This practice is so common that both Dubai and Singapore have firms that many new city

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[1] Howard's Garden Cities inspired the creation of many cities but most importantly inspired the creation of the Radburn community

in New Jersey, which shaped many public housing and suburban initiatives in Northern America.

developers hire to replicate the master plan, buildings, and various other factors of these two cities [9].

3.2 The effect of the paradigms

With at least 800 new cities currently in conception or under construction [2], the American suburb, the Chinese mono-functional grid, and international architecture seem to be shaping our urban futures. While the longer-term effects of those paradigms are still too recent to fully appreciate, it is clear that they leave little to no space for local adaptation, emergent market forces, and the agency of residents to shape their cities over time.

The main commonality between these three paradigms is the master planning element. All new city developments follow a defined master plan that envisions the city's different development phases. Those master plans are often rigid, with very little appetite for deviation, and developed by external planning companies that often put either no or very little effort into understanding prevailing local conditions and culture [4].

Master planning lays out a plan for the delivery of essential infrastructure—like water, sanitation, and energy—over the phases of the new city project. As in any real-life project, not everything goes to plan. Yet these master plans leave no space for such emergent phenomenon and corresponding leeway for course corrections. When the amenities and offerings *demanded* by the city's local residents and businesses (revealed by their disaggregated, individual choices) begin to become mismatched from the *supply* of amenities and public goods laid out in the city's master plan, course correction needs to occur to ensure supply *responds* to revealed demand in a timely manner. An overly restrictive master plan, in the face of unexpected (yet inevitable) deviations, often means that the new city fails to adequately respond to the expressed needs of its community. That is, the master plan that supplies the new city's amenities and the community that demands amenities become increasingly disconnected over time as the city develops.

The disconnection of communities from decision-making processes is harmful to the development and overall attractiveness of the city. For example, overly restrictive adherence to the zoning bylaws written into a city's original master plan that fail to adjust to changing housing demands can lead to unaffordability and the formation of slums on the city's periphery. In short, the failure to incorporate

bottom-up feedback and voice alienates local residents and businesses, who often end up lacking a sense of belonging to and agency within the city.

The large upfront financing requirements that are implicit in the master plans of new city developments is another key issue. New city developers often finance their projects from a combination of debt, equity, land-based financing, and (later) user fees from the initial tenants. Because the financing required to build the city's master-planned infrastructure is typically monumental, recouping these investments to pay back investors (and maintain high creditworthiness for later phases of the build) is a high early priority [6].

In sum, the main problems of new city making projects can be broken down into two main components. First, the central, top-down planning of these new city developments is too often unresponsive to the dynamically changing needs of its residents and businesses. Second, the upfront capital needed to finance the initial infrastructure for these new city projects is substantial, and such high capital costs typically mean that new cities are relatively expensive and therefore inaccessible to low-income residents.

4. Guided Organic Growth

New cities can be an excellent chance for urban economic vibrancy, solving market failures, and unlocking innovation [2]. However, until a deliberate shift occurs in the planning paradigms of these new city developments, they will continue to suffer from a set of common challenges. The need for a paradigm shift is clear: new cities need to be rethought, from top-down, master planned projects to organic and bottom-up phenomena—like all cities throughout history. In essence, new cities must be reformulated as emergent labor markets where people move for better economic opportunities and, in turn, for an improved quality of life for themselves and their family. This new paradigm should aim to create functional, affordable, and sustainable growth. And importantly, the new paradigm must be responsive to all stakeholders involved, especially residents and businesses.

The paradigm discussed in this paper assumes a charter cities framework that allows for decentralized, local control over governance and planning. By devolving powers to the city level, the city authorities can shift away from traditional planning paradigms towards a more growth- and human-centric approach. Such a shift also allows for increased

experimentation, for innovation, and for the creation of governance and planning systems that genuinely respond to the city's evolving needs.

4.1 The paradigm main three principles

4.1.1 Principle One: New city making as a shared responsibility between the urban developer, the host country governments (national, regional, and/or local), and the community.

Governments, investors, and citizens have differing *resources* and *incentives* for developing the urban environment. First, city governments in the Global South are typically not allowed to raise own-source revenues or issue municipal debt at the levels necessary to deliver essential urban infrastructure and services—often being prevented legally or practically incapable [10]. This means these urban governments lack the *resources* to support urban growth effectively.

Second, the private sector possesses the *resources* and, within the charter cities framework, has the *incentive* to invest in the streets, parks, infrastructure, and local community. This is because under the charter cities model, sufficient authority and autonomy is devolved to the local level via a public-private partnership (PPP) between the host government and the urban developer [9]. In exchange for delivering urban infrastructure and public services, the PPP concession allows the developer to profit from the appreciation in land values within the boundaries of the concession. Because land values increase as economic activity increases, the developer's incentive is to attract as many residents and businesses to the city as possible, thereby aligning the long-run interest of the city with the particular *incentives* faced by the urban developer.

Third, residents in developing world cities too often lack *both* the resources *and* the incentives to participate in shaping local affairs. While it's intuitive as to why the average individual in a city of the Global South lacks *resources* (relatively low incomes), what's less intuitive is why they lack the *incentives* to engage in political voice. This is mainly because these city dwellers "may realize that individual [local] politicians do not actually have the power needed to carry out their promises…. The inability of urban politicians to act alone is greatest in settings with little political and fiscal decentralization. [W]here power remains highly centralized and local governments lack autonomy to pursue their own policy agenda, urban politicians do not

have the latitude to experiment with new policies" [10]. Due to this credibility problem, urban residents in developing world cities, realizing their local politicians either cannot or will not carry out policies in line with their preferences, often simply choose not to participate in local politics and decision-making. This lack of political voice that is today's status quo among too many urban residents must be remedied.

The hierarchical relationships between different stakeholders have failed countless cities for decades, with citizens often excluded in city making processes [4]. Investors' and developers' incentives are not always properly aligned to produce socially beneficial outcomes through their projects. As a result, governments end up bearing much of the responsibility for city making, but, as noted above, these governments often lack the resources or fail to incorporate the level of community input necessary (and normatively desirable) to adequately execute city making processes.

New cities provide an opportunity for rethinking the organization of relationships between stakeholders in the urban environment. Inviting and encouraging bottom-up participation in the city making process can help developers achieve their objective of creating successful new cities, while more fully meeting the needs of the community.

Implementing the principle of cooperative new city making in a new greenfield site is an achievable goal. For example, in the early stage of a charter city, providing major infrastructure like a central public park would be the responsibility of the city developer. At the same time, the communities that settle in the new city could be given the responsibility of establishing smaller public spaces that do not require large capital expenditure or technical expertise. These projects could include community gardens and other relatively small spaces. Private investors, the city developer, and the city government can all play a role in supporting the execution of plans created by community units with financial or technical assistance as needed.

Distributed responsibilities in city making processes help make cities more resilient and sustainable. European and North American new towns have demonstrated the vulnerability of depending on just one institution for city making. At the same time, informal settlements in Cairo have proven to be more resilient, sustainable, and pro-growth when citizens, governments, and investors are all included in the city making process [12].

4.1.2 Principle Two: New city making as a combination of top-down and bottom-up processes

Restricting market and community forces from shaping cities can negatively impact their economic growth and cultural vibrancy. Each of the new cities planning paradigms discussed above (American suburb, Chinese Grid, or international form) follows a top-down, master-planned approach to new cities. Those comprehensive planning approaches have resulted in overplanned cities that leave very little space for market or community dynamics. Top-down master-planned processes limit growth and community formation.

Bottom-up approaches on their own are not suitable for greenfield development. The intensive upfront capital requirements, infrastructure planning, and urban management of these projects require a coordinating hand. However, the total absence of bottom-up involvement in new city making results in the creation of cities conceived by a singular designer's aspiration to be consumed as an end product, not as something to be built and shaped by residents.

Comprehensive planning approaches are needed to coordinate efforts at the beginning of the process to raise capital, provide infrastructure, attract investment, and establish governing frameworks. While bottom-up approaches are needed to ensure citizens have an active role in the city making processes, the responsivity of the city to market forces will help ensure long-term growth and sustainability. Combining those two approaches in planning, and specifically in new-city making, is the paradigm shift new cities need.

The creation of public spaces in a greenfield site offers an instructive example of how a combination of bottom-up and top-down planning approaches can be implemented. The demarcation of public spaces in a new city should be planned in advance of development to ensure an equitable distribution of public spaces across the city. This is a top-down process, with location and sizing decisions being made by the city developer in coordination with planned infrastructure. Concurrently, co-creation and community participation should lead the development of small public spaces in accordance with the larger urban plan. The top-down approach will ensure the equitable distribution of public spaces, and the bottom-up process will ensure the development meets the needs of the community that settles nearby.

4.1.3 Principle Three New city making is a short- and long-term process

All the planning paradigms discussed earlier operate on a short-term basis. Everything about the city is master-planned upfront, and this plan is followed at all stages of execution and development. New cities developed under this model see the planning and construction of the entire project completed in a short period of time, rather than gradually over time in response to changes in demand, economic factors, resident sentiment, or other feedback mechanisms.

The highly over planned approach to new city making has resulted in rigid cities that are both extremely capital-intensive and unresponsive to market and community forces. Cities planned and executed in their entirety before residents even arrive result in high prices for residents, leaving the cities inaccessible to the middle and lower classes.

The incremental nature of informal settlement development offers key lessons for new cities. Gradual wealth accumulation allows residents to affordably construct their houses over time. However, master plans and building regulations often limit and even criminalize incremental growth.

Considering city-building in terms of time affects several implementation decisions. For example, while cities should strive towards efficient and dense land use as a longer-term goal, low-cost short-term housing options like self-built housing are desirable even if this results in initially lower densities. As the city becomes more successful and land values increase, density and land use efficiency will naturally increase naturally without overbearing regulation.

4.2 Opportunities for implementation: the future charter city

New cities in the Global South and North follow the same planning rules and regulations used in existing cities that have excluded communities, controlled growth, and centralized planning powers in the developer's hand. The same rules and regulations result in the recreation of same patterns of exclusion, segregation, and unaffordability in new cities.

The three principles discussed above demand substantial changes to the planning systems and processes that shape

our cities. These principles redefine the planner's roles as a respondent to community and market needs, redistribute planning responsibilities according to interests and in recognition of power between communities, developers, and governments, and moves away from the centralized planning modes that have controlled new city making for decades

For these principles to be executed effectively, the city must possess the authority and autonomy to determine what is built, not a higher level of government. Planning decisions should be made in response to local considerations, not what is required by national or other laws elsewhere in the country. The city needs the space, planning tools, and governing capacity to continually build and adapt as it grows.

Dar es Salaam's Sites and Services projects represent a similar approach to greenfield site planning as outline above. Sites and Services projects laid the ground for 12 new neighborhoods in the city. The project planners adopted a less centralized approach to the development, providing the 12 sites with three main amenities: water access, unpaved roads, and formal plots. In some cases, the sites were also provided public buildings like schools and clinics. Everything else was left to market forces and the incoming communities to develop [13].

The Ethiopia Urban Expansion Initiative is a 2-year pilot project to extend infrastructure for the new urban expansions in cities. The Initiative is organized as a collaboration between New York University (NYU) and the government of Ethiopia. The project advanced the idea that, if given the opportunity, communities will develop themselves if given the right to do so. The Initiative followed a simplified and decentralized plan where both top-down and bottom-up decision-making could be implemented. Road grids and public spaces were established in advance of new urban settlement, but remaining development was left to future inhabitants [14].

5. Conclusion

Social, political, and economic outcomes vary significantly across new city projects. This paper focused on a key factor that significantly affects these outcomes: the master plan of a new city development. New city master plans, as they stand today, commonly come in three main forms: (i) an American suburb, (ii) a Chinese grid, or (iii) a city focused on international architecture and shiny buildings attempting to look like a new Dubai or Singapore. All three models share common and detrimental flaws. First, their master plans are overly rigid and restrictive. Second, the high cost of upfront capital results in unaffordability that often crowds out low-income residents. Third, and most importantly, their exclusionary decision-making processes fail to adequately and quickly respond to community demands.

The need for a paradigm shift in new city making is clear. New cities need to be affordable, inclusive, and responsive to their markets and communities. The only chance for these cities to achieve sustained economic growth and contribute to human flourishing is to rethink the master plans that undergird them. New cities represent a promising window of opportunity to develop sustainable cities with vibrant economies and thriving communities [19]. To seize on this promise, planning processes must align with both community aspirations and the economic requirements of rapid urban growth. This requires a paradigm shift.

The paper offers a more decentralized, bottom-up planning paradigm to new city developments through the principles of Guided Organic Growth (within a charter cities framework). By better delivering on (i) the urban growth needs of a new city, (ii) community inclusivity, and (iii) overall affordability, the Guided Organic Growth paradigm stands as a marked improvement over the current status quo.

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