POLICY IMPLEMENTATION AND INSTITUTIONAL MECHANISM FOR URBAN GREEN SPACE

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ABSTRACT
Ulaanbaatar City of Mongolia has faced rapid urbanization, especially after adopting a market-oriented economy in 1990. Amid the escalating urban congestion and growing concerns over pollution, the concept of urban green space (UGS) began to gain more attention. In 2014, the national government introduced the Green Development Policy to set aside 30% of the total city residential area as green space by 2030. The Ulaanbaatar City General Development Plan 2020 and Development Trend for 2030 similarly set goals to increase per capita green space to 30 m^2. However, meeting these goals met many challenges in the implementation process. This paper examines these challenges by analyzing policy documents and institutional arrangement for UGS. We also conducted personal interviews with specialists at the Ulaanbaatar City government. As a result, we found four main challenges: (1) actions to increase green space were weak; (2) actions plans were not clearly laid out for government officials to follow; (3) where stakeholder coordination was needed, administrators did not have sufficient resources and framework to do so, and (4) promised plans were not financially feasible.
Keywords: urban green space, Ulaanbaatar City, Mongolia, institutional arrangement, policy implementation, general development plan.

1 INTRODUCTION

Past studies and international organizations showed that UGS plays an essential role to achieve a sustainable city [1], [2]. In particular, it is expected to respond to the 3rd (good health and well-being), 10th (reduced inequalities), and 11th (sustainable cities and communities) targets of the UN Sustainable Development Goals for 2030 [3]. UGS can also be considered as an investment local authorities can make for the well-being of residents [2].

Some past studies emphasized the importance of institutional factors (e.g., policy formulation, implementation arrangement, human resource capacity, monitoring) in discussing about how UGS can be more available and accessible [4]–[7]. Zhou et al. [7] argued that well-developed policy documents are important for adequate UGS implementation. Eshetu et al. [5] contended that UGS should be prioritized in the urban development policy. It can be designed in a way that meets diverse societal needs [8].

So far case studies focused on large cities in developed countries with a relatively low population growth rate, compared with those in developing countries. Urban green space studies have not sufficiently highlighted how rapidly growing cities in developing countries have dealt with green space needs while responding to disappearing green/open space and increasing informal settlements with chronic poverty and pollution issues [9].

Ulaanbaatar City, the capital of Mongolia, shows clear evidence of public space shortage, including parks and green space [10]. The city government recognizes two types of residential areas: *ger* and apartment/built-up areas. The *ger* area expands without much planning on hill slopes in northern fringes of the city center. The apartment area covers both the city center and newly expanding southern parts of the city with relatively new high-rise buildings. City's urban parks are mostly located near the city center. For *ger* area residents, these parks are far from their homes. With heavy traffic congestion and poor public transit services, parks are not easily accessible for them. *Ger* residents live in traditional round-


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shape dwellings or small wooden houses without access to tap water, and heating and sewage systems. Ishjamts et al. [11] found no green spaces or public places for social, cultural, and recreational facilities in the *ger* area (Fig. 1).

Figure 1: A view from Ulaanbaatar City office, looking at the apartment and *ger* areas.

There are some past studies that examined green space policy documents and institutional mechanism in Mongolia. However, these focused on UGS classification and accessibility [12] and a possibility of increasing UGS in Ulaanbaatar City [13]. We still need much more studies to understand why Ulaanbaatar does not yet have sufficient UGS [14]. Why is it so difficult to increase green space in rapidly growing urban areas in developing countries? Considering this gap, this paper aims to examine Ulaanbaatar City's policy implementation and institutional arrangement.

2 MATERIALS AND METHOD

We conducted a systematic review of government documents and academic papers. Ulaanbaatar City's policy documents reveal its green space policy visions, including planning and implementation coordination. Based on past policy analysis papers [15], [16], our analysis focused on (1) the importance of green space, (2) relevant actions, (3) policy implementation coordination, and (4) financial feasibility. Our data sources included the Law on Urban Development of 2008, city's sustainable development concept paper (2016), General Development Plan of Ulaanbaatar City for 2020 and Development Trend for 2030 (2013), General Development Plan for 2040 (2019) and Green City Action Plan (2019) that were all made available by the Municipality of Ulaanbaatar and Urban Planning and Research Institute, which is locally owned business settlement enterprise.

Also, we conducted several field visits and informal interviews with three officials. The interview with two of them was conducted by online on 25 February 2022, and 28 February 2022 respectively. We interviewed the third person in person on 22 December 2021. One was working as a landscape specialist for City Mayor's Office. Another was a UGS

inspecting specialist of an external auditing NGO. The last one was the head of the Division of Policy Implementation at Ulaanbaatar City's Department of Housing Infrastructure (currently the Department of Housing Policy) to gain in-depth insights on city's green space policy challenges.

3 RESULTS

3.1 What is urban green space, and importance of green space

Mongolia's legal framework for urban planning took shape in 2004. It established that per capita public green space must be at least 15 m^2 for big cities, including Ulaanbaatar [17]. It also instructed how parks can be designed for children's playground, sports, zoo, and botanical garden. This document acknowledges that Mongolia's cities had very limited green space, but it was silent about how policymakers may prioritize purposes of green space.

Ulaanbaatar City has similarly responded to urban green space goals without clarifying what types of space would be needed for the city. Instead, the urban development plan of Ulaanbaatar City for 2020 set a goal to increase green space per person to 15 m^2 by 2020 [18]. As mentioned above, this goal has not been achieved yet.

In 2016, a year before this goal was established, the city authorities used the online platform to receive public opinions about city's general development. They found a growing need among the residents for "a healthy, safe green city". They also expressed that Ulaanbaatar should become "a city with a favorable living environment" and "a well-governed city based on the participation of citizens and the private sector" [19].

In October 2021, the city government conducted a similar survey among citizens through both online and in-person in order to create the general development plan for 2040. The results found the following priority areas for the citizens: public area and green space expansion (29.4%), air pollution mitigation (27.3%), soil pollution alleviation (14.5%), waste management (13.6%), noise pollution measures (7%), wastewater treatment (2.5%) and others (5.7%) [20]. Here UGS turned out to be the most important issue for the residents.

So far, we found 25 policy and legal documents that are directly and indirectly relevant to UGS. This shows that policymakers and government administrations have paid substantial attention to green space expansion. For this paper we selected six most significant and relevant documents.

3.2 General Development Plan for 2020 and Development Trend for 2030 (2013) and its action plan (2016)

The General Plan of 2013 identified five development pillars: (1) a safe, healthy, and green city that is resilient to climate change; (2) a livable environment through appropriate land use planning, infrastructure, and housing; (3) city with good governance and a legal framework; (4) the promotion of establishing settlements outside the limit; and (5) the establishment of internationally competitive business center [21]. In addition, it included a goal to expand green space per person to 15–20 m^2 by 2020 and 30 m^2 by 2030 [18]. The action plan was approved three years after the general development plan was approved [19].

The action plan listed 90 projects, of which 43 were to fulfil the first priority, the establishment of a "healthy, safe and green city". Only one project was proposed to improve existing urban parks and increase a number of parks. For this plan, the city allocated the budget of about 70 billion tugrug (≈US$23.5 million) [19]. The City Mayor's Office, which is generally responsible for all major urban services, became the main body for the

implementation. When Mayor's Office laid out its action plan for 2016–2020, however, it considerably downscaled the national target of per capita green space. It now aimed to have 2.5 m^2 by 2017, 3 m^2 by 2018, 4.5 m^2 by 2019, and 5 m^2 by 2020. Our informant, who was a landscaping specialist at the City Mayor's Office, said in our interview that the city planned to increase a share of UGS per capita up to 8 m^2 by 2024.

3.3 Sustainable Development Concept of Mongolia for 2030 (2016)

This concept paper expressed Ulaanbaatar's policy goals for sustainable development, including water resource management, climate change adaptation, and ecosystem conservation. It also says that the cover of UGS in the residential zone would be 15% by 2020 and 30% by 2030 [22]. In 2020, this 15% goal did not reach. Our informant, who was the landscaping specialist at the Mayor's Office, said in our interview that the actual percentage of UGS in the residential zone was 1.8% instead.

3.4 Green City Action Plan (2019)

In 2019 Ulaanbaatar City formulated the Green City Action Plan with a vision to create a green city by solving major environmental issues. It points out its growing concerns over city's worsening air, soil, water quality and stagnating UGS expansion actions. It also touched on biodiversity loss and climate change as the major problems. Then, this document highlights 14 actions to solve these problems. One of them is to develop multipurpose green areas. Critical challenges to expanding green space were attributed to (1) unclear responsibilities of the municipality and city governor regarding land use and regulation, and (2) insufficient financial support. At that time, per capita UGS coverage was 0.12 m^2 for the entire city.

To expedite UGS expansion policy, this document recommends that the city take several approaches to achieve a goal of having 2.4 m^2 of green space per person. Given challenges to acquire new land for green space, for example, the city would create approximately 2000 m^2 of green roofs a year. It will also acquire 100 hectares of land for green space and 60 km long green cycling lane by 2023 [23]. Schoolyards and parking lots can be used for planting trees. Here we found some discrepancy in terms of policy goals among three different documents. These documents are (1) master plan for 2020 and development approaches for 2030, which was designed by the Urban Planning and Research Institute, (2) Working Plan 2017–2020, which was created by the City Mayor's Office, and (3) Green City Action Plan, which was formulated by the City Governor's Office. These documents set the target of having 15 m^2, 5 m^2 and 2.4 m^2 of per capita green space by 2020 and 2023, respectively. This 2019 goal further scaled down the goal to 2.4m^2. This was even lower than the goal to be achieved by 2017 (2.5 m^2).

3.5 General Development Plan of Ulaanbaatar City for 2040 (drafted in 2021)

In 2021, the city drafted this General Plan for 2040. Prior to this drafting, it reviewed the status of its past policy implementation and found only about 30% of accomplishment [24]. Therefore, this new general development plan increased its emphasis on policy implementation feasibility. The previous policy plan aimed at increasing UGS to 30 m^2 by 2030, this draft reduced it to 25 m^2. By 2040, it sets its goal to reach 35 m^2 [25].

To reach the projected goals of UGS growth, four strategic directions and six principles were put forward. Strategic directions are (1) to improve the legal environment with an effective implementation system, (2) to create a sustainable source of funding for urban

greening, (3) to introduce appropriate technology to protect and expand UGS, and (4) to enhance public awareness. The six principles are (1) to organize law enforcement actions to safeguard the quality of living; (2) to improve tree inventory and ecological assessment with land classification and registration; (3) to clarify the responsibilities of citizens, business entities and organizations for expanding green space; (4) to solve problems by mobilizing domestic resources and capacity; (5) to incentivize private sector initiatives, and (6) to use collaborative and participatory approaches at all levels.

Fig. 2 shows Ulaanbaatar's commitment to increasing UGS in the *ger* area and the southern fringes of the Tuul River that runs through the city from east to west. In particular, valleys and watersheds are targeted for new UGS areas. During the short summer season, rainfalls occasionally cause floods, and the watershed protection with more trees and shrubs is also considered important for flood protection. The watershed area is also relatively more feasible for the city government to acquire land for green space as private ownership is not contested here.

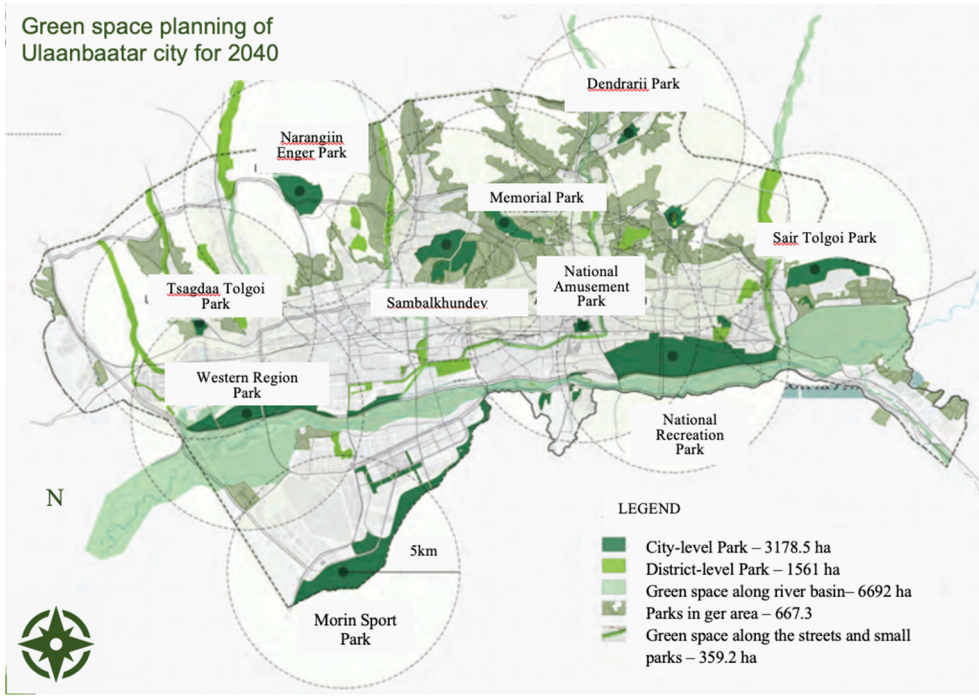

Figure 2: UGS planning in General Development Plan until 2040 [25].

In the past ten years, in more active collaboration with international organizations, Ulaanbaatar has intensified its actions to improve living conditions of *ger* area residents. The establishment of UGS has been incorporated into this effort. In particular, the Ulaanbaatar Green Affordable Housing and Resilient Urban Renewal Sector Project was launched for the *ger* area with financial backing from the Asian Development Bank (ADB). This on-going project has attempted to create 10,000 housing units for *ger* area residents by the end of 2027 [26]. Bodikhand [13] even goes further and suggests that 77.6% of the total ger area can become green.

3.6 Vision-2050 of Mongolia (2020)

In May 2020, the Mongolian government issued Vision-2050, its long-term development policy. Among its nine goals, the second goal for "human development", the seventh goal for "peaceful and safe society", and the ninth goal for the establishment of Ulaanbaatar's satellite cities are relevant to UGS. These goals aim to create a healthy, comfortable, safe, and favorable environment that meets the needs of life and provides guaranteed food. In doing so, green space standards will be introduced, and UGS will be increased. No specific per capita UGS goal was laid out here. However, it mentions a need for cities to reuse rain water and greywater for irrigating plants and trees of UGS [27] as Ulaanbaatar often suffers from surface and groundwater shortage [28].

3.7 Feasibility of financial situation for urban greening and gardening

Finally, in order to understand the delay in UGS expansion, we looked at budget allocation of Ulaanbaatar City as much of funding for urban greening has come from the city budget. In general, the amount of budget allocated to green space was low compared to other issues of the city. For instance, the breakdown of the budget for the general development plan until 2020 showed that 1% of the city budget was allocated for the following actions: (1) maintaining or establishing 27 city and district level parks, (2) 155.6 pieces of boulevards and alleys, and (3) 242 ha of pocket parks [29]. This resulted into only 10% of plan completion. On the other hand, the time-bound goals for vehicle roads and airport were 50% and 70% completed, respectively [30].

To achieve the UGS per capita coverage goal under the Green City Action Plan, approximately US$61 million will be needed, which is 140 times more than the annual budget of Ulaanbaatar City [23]. So then, it is apparent that the city set out the goal that cannot be fiscally feasible on its own. It needs to engage with international funding organizations, private sectors, and volunteer groups. Currently, no international aid organizations provide support to UGS development in Ulaanbaatar. Instead, the city pays more attention to the redeveloping *ger* area by exempting land in accordance with the legal framework, including three approaches. One is to move *ger* residents to another area, which is currently undertaken under *ger* area land readjustment programs. Another one is to move *ger* residents on land to apartments, which is also being undertaken as part of *ger* area replanning projects. The third approach is to provide monetary compensation to those who decide to leave their land. Currently, the *ger* area replanning approach is dominant. For this, the Asian Development Bank, European Investment Bank, and some others have provided fundings [31].

4 DISCUSSION AND CONCLUSIONS

The paper has investigated how Ulaanbaatar City has implemented UGS policies. In particular, we looked at (1) how city's plans placed importance on green space, (2) how authorities took actions, (3) how they coordinated among stakeholders, and (4) the extent to which promised plans were financially feasible.

Despite frequent changes in leadership for city governance in the last ten years or so, city policymakers and administrators persistently emphasized the importance of creating more UGS, especially in the *ger* area. This indicates a recognition among city residents that more UGS is essential for their quality of life. However, plans were laid out without much consideration to feasibility. The per capita UGS mentioned in the 2004 urban general development plan was $15m^2$ by 2020. This goal was later scaled down, but still the city

government could not reach. Today, even 5 m^2 goal seems impossible to be achieved in the near future as planned in the Green City Action Plan.

In order to reach its UGS goal, we found that the city spent only a small proportion of its budget although it will require the fund that is more than city's whole budget, according to one estimate. The city has constantly emphasized the importance of community participation, but no substantial public engagement has been done, especially among *ger* area residents. Community volunteer and other types of cooperation like fund raising may reduce the cost of the city to create and maintain UGS in the future. For example, community gardens are popular in many countries. Roof gardens are being promoted in Dhaka [32] and other rapidly expanding cities of developing countries. Also, as the city must increase the number of kindergartens, public schools and other social infrastructures in response to its burgeoning population, these educational and cultural places can help increase UGS.

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