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# What Residents Tell us about Urban Redevelopment Projects in Tokyo: A Comparison of Residents' Feedback and Government Narratives using Google Maps Reviews

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## 1 ABSTRACT

Digital applications are becoming more and more important for public participation, consultation and surveys, making use of digital twin platforms and interactive Geographic Information Systems (GIS), among others. The most well-known and widely used web-GIS tool with interactive elements is surely Google Maps, which allows users to rate and comment on points of interest (POIs), such as businesses, public services and infrastructure. Akkaya et al. 2024 made use of this extensive collection of user experiences and demonstrated that Google Maps reviews provide valuable feedback on public services and infrastructure, such as public parks. However, regarding living conditions and residential environments, there are no POIs that can be rated or commented on. Condominium complexes and large housing estates, on the other hand, often do have POIs and therefore can be evaluated. Since the 1990s, the Tokyo Metropolitan Government (TMG) has been determinedly promoting the redevelopment of central areas, leading to the construction of a large number of high-rise, mixed-use buildings and condominium complexes. This policy is justified by the revitalization of inner-city areas, increased disaster resilience and the creation of public open spaces, among other things. While the TMG's objectives are set out in various strategies and brochures, the voices of current residents of these developments are notably less prominent. This paper first analyses the feedback and experience of residents of redevelopment projects shared on Google Maps, using qualitative content analysis. It then compares these findings with the narratives on the need for redevelopment of the TMG. Building on this, it demonstrates the extent to which tools such as Google Maps can be used to crowdsource the evaluation of urban development projects and policies.

Keywords: Urban Redevelopment, Public Participation, Crowdsourcing, Narratives, Flexible urban planning system

## 2 INTRODUCTION

### 2.1 Digital Planning Tools

New technologies are shaping not only urban form and planning processes, but also how developments, successes and failures are presented. The widespread use of the internet enables local governments to share a wide range of urban development-related materials with the general public, including goals, plans and policies as well as to make project and policy evaluations easily accessible (Tejedo-Romero et al., 2022). Digital tools like smart city applications provide a variety of instruments and opportunities for citizens to participate in urban development processes. On the other hand, other platforms – social media in particular – offer city residents the chance to share their opinions independently of municipal channels and present them to a wide audience, thereby enabling them to join the public discourse on urban development (Ouyang & Bai, 2025). This discourse takes place on various platforms and is characterized by the heterogeneity of communication patterns and channels used by the participants (Radtke & Saßmannshausen, 2025), although the materials on the desirable urban form and its evaluation published by local governments on their websites, in brochures, or on social media posts come from a single source in a coordinated manner. On the other hand, there is "the public". Apart from civil society organizations, citizen assessments of urban form and policies are usually not recorded in writing, or are scattered across many platforms (ibid.). Nevertheless, they contribute to the public discourse and have a significant influence on the development of cities and their neighborhoods (Payne, 2018). Through citizen participation, only a cross-section of citizens' opinions on specific topics at specific times is compiled and made visible.

Digital tools for information, evaluation, and participation are already significant and will continue to grow in importance in the future. Digital twins and web-GIS based tools are among the technologies being used. One well-known example is Project Plateau in Japan, which provides municipalities with digital twins. The

project's website presents use cases, many of which dealing with citizen participation (MLIT, n.d.). Companies such as Maptionnaire offer comprehensive, map-based tools with functions such as map-based surveys for stakeholder consultation and community asset mapping (Mapita Oy, n.d.). These instruments provide an opportunity to collect feedback from citizens and engage them in urban development to varying degrees, though usually only within a specific spatial and temporal context. Conversely, gathering citizens' opinions on urban development processes or evaluating abstract urban policies over a longer period of time receives less attention. However, urban development is an ongoing process, not a spatially or temporally defined event, suggesting potential for new data sources and digital instruments that could complement current approaches to civic participation and evaluation.

In recent years, a number of publications have addressed the use of crowdsourcing to collect citizens' opinions for participation processes and to access and evaluate new data sources (Nummi, 2018), particularly social media platforms (Driss et al., 2019), as well as other platforms that rely on user-generated content. However, these approaches primarily address specific questions defined in terms of space and time. Alizadeh et al. 2019 argue that passive crowdsourcing, in addition to classic active crowdsourcing (i.e., outsourcing a task to a decentralized community or network to answer a specific question (Howe, 2006)), is gaining attention. Passive crowdsourcing utilizes existing content and is particularly suitable for analyzing opinions (Alizadeh et al., 2019) and for compiling fragmented statements scattered across the internet to make them visible.

### 2.2 Utilizing user-generated data

Social media platforms on which a large number of opinions are expressed, e.g. Twitter, are particularly well-suited for this type of "passive crowdsourcing" (Alizadeh et al., 2019). However, other platforms also collect opinions, such as dedicated review portals (e.g. TripAdvisor). While interactive maps and web-GIS, such as Maptionnaire, have proven effective for active crowdsourcing in citizen participation, there are also web-GIS offerings from private companies that rely on user-generated data and are suitable for passive crowdsourcing.

The best known and most widely used of these platforms worldwide as well as in Japan is Google Maps (Kutikomi, n.d.). Google Maps is a geographic information system that allows users to rate and review places of interest. For almost 20 years, it has offered a platform for expressing opinions (Goldman, 2007).

In addition to the map and navigation tool, the web application offers many other functions, most notably 360° street view images, aerial images, terrain models, and various POIs. Users also have the option of submitting reviews and ratings of 1-5 stars for those POIs. The ratings of businesses, public services, tourist attractions, etc., as well as the navigation function, play an important role in many people's everyday lives and choices (Chen and Chang, 2024).

The data underlying the platform is collected and generated at multiple levels. "Classic GIS data" such as the road network, is supplemented by passively collected data from mobile device tracking, among other sources. Through the affectionate and collective labor of its users writing reviews, Google adds an "extra layer of local information" (Tarr & Leon, 2019) and creates a "digital sense of place" (ibid.). Even though the trustworthiness of these ratings and reviews is increasingly threatened by fake accounts and fake reviews (Gryka, Janicki, 2023), they still represent a large pool of user feedback and opinions and are successfully utilized for research on public facilities, such as libraries (Borrega & Navarra, 2021; Khan & Loan, 2022; Chen & Chang, 2024) and parks (Akkaya et al., 2024). Akkaya et al. 2024 show that POI ratings on Google Maps can be a valuable data source for communities and research in the field of participation in urban planning. In their study, reviews on public parks in Istanbul were evaluated using machine-learning applications, thus making good use of the vast user-generated collection of opinions.

Since neighborhoods or residential environments do not have POIs, no data is generated by users for this purpose and is therefore not available for evaluation. In many cases, however, POIs exist for condominium complexes, which will be examined in this study. An evaluation is rather difficult in most cities due to the low number of POIs. However, the redevelopment policies of Japan's national and Tokyo's prefectural governments, combined with Tokyo's high population, have led to the construction of many condominium complexes, most of which are marked with a POI on Google Maps.

# 3 URBAN (RE-) DEVELOPMENT IN TOKYO

## 3.1 Phases of urban (re-) development

Like other cities in post-war Japan, Tokyo experienced enormous population growth (Heinrich & Yamashita, 2017) and, due to the control of the US occupation administration and the lack of guidance from national and local governments, rapid and uncoordinated urban growth (Pernice, 2006). The need for coordinated development and the voices of citizen movements were later taken into account by the City Planning Act, which introduced a development permit system and comprehensive zoning in 1968 (Yorifusa, 2006). The Redevelopment Act of 1969 first introduced the redevelopment of urbanized areas into law with the aim of intensifying land use and, in the current version, renewing urban functions (Art. 1 Urban Redevelopment Act). In 1980, the City Planning Act was updated and the district planning system was introduced, giving citizens influence over zoning and the design of livable neighborhoods (Yorifusa, 2006). During the bubble economy, the central wards of Tokyo experienced significant development in terms of office space, while the population of the 23 central wards declined, with many people opting to live in the suburbs (Machimura, 2021).

After the bubble burst in the early 1990s, land prices fell, and national and local governments increasingly promoted the redevelopment of inner city areas into (super) high-rise buildings by deregulating height regulations and floor-area-ratios (FAR) (Ilunga et al., 2024). For the provision of open or vacant space and the introduction of urban functions, developers are rewarded with generous FAR bonuses (Kubo, 2020). The Urban Renaissance Special Measure law of 2002 (amended 2011) reinforced this trend by largely abolishing planning regulations in the nationally designated Special Urban Renaissance Districts, paving the way for the explosion of super high-rise buildings in Tokyo (Yorifusa, 2006). Due to increased availability (Abe et al., 2018) and the fall in land prices following the bursting of the bubble economy (Machimura, 2021), many people, particularly (female) singles and childless couples, have moved into the condominium complexes springing up in the core city since the 1990s, and especially since the 2000s (Abe et al., 2018). The desire for a detached house in the suburbs is increasingly giving way to the desire for city center living with shorter commutes and the accommodation of smaller household sizes and diversifying lifestyles (Kubo, 2020).

## 3.2 Objectives of the national and local government regarding redevelopment

In the period following the bursting of the bubble economy and the push towards redevelopment, quality-of-life issues also became a more prominent part of politics and public discourse (Waley, 2007). Though researchers often highlight the stimulation of the economy as a major driver of Tokyo's redevelopment (Abe et al., 2018; Machimura, 2021; Waley, 2007), the national and local governments cite a variety of reasons for urban renaissance and redevelopment.

The current renaissance policy is justified by the need to adapt to the rapid advancement of information technology, internationalization, and the aging population (Art. 1 Urban Renaissance Special Measures Act). These challenges are intended to be overcome by enhancing urban functions, improving urban residential environments and simultaneously promoting disaster prevention with the aim of facilitating the transformation of socio-economic structures and contributing to the sound development of the national economy and the improvement of people's lives" (Art.1 Urban Renaissance Special Measures Act).

As this paper deals with the residential environment of condominium complex residents, the following section focusses on the 'improvement of peoples lives and neighborhoods'.

### 3.2.1 National Government

The strategy "How should urban regeneration be carried out in response to new trends in the 21st century, such as internationalization, information technology, aging, and population decline?" clearly outlines the objectives pursued by urban redevelopment policy. The central measures for responding to the most pressing trends of the 21st century, such as internationalization, information technology, aging, and population decline, are the encouragement of private urban activity, development and investment, referring to the Urban Renaissance Special Measures Act, and the elimination of urban areas that are densely packed with wooden buildings, that pose fire hazards (TMG, 2003). Private urban activity refers primarily to investments by private developers, but also to the participation and collaboration with local businesses and residents.

In regard to the residential environment, the sustainable city sets the basis for the promotion of walkability, the concentration of, most notably, both residential and commercial as well as various urban functions around stations (TOD Transit Oriented Development) and the creation of green and open space through redevelopment with a distinct "division of roles between the core city and the sub-centers of metropolitan areas to further promote the accumulation of urban functions" (ibid.).

Though "beautiful urban spaces" is not defined by the Ministry of Land, Infrastructure, Transport and Tourism (MLIT), it is closely linked to the creation of public space and gathering places by integration of private building activities into the urban development process as well as the integration of the buildings and the open space on privately owned land into the public space. It is to be noted that the success of the redevelopment and revitalization is linked to the well-behavior of the citizens and future residents (ibid.)

As Japan is highly prone to earthquakes (Rikitake, 1991; Ferraes, 2003), the strategy puts great emphasis on disaster resilient buildings, whereas densely populated areas are the primal focus of redevelopment in regards to disaster resilience, due to the risk of fires. Safety and security also covers crime prevention. And though Japan is one of the safest countries in the world (World Bank, 2023), the MLIT not only speaks of strengthening, but of "restoring" public safety in the sense of crime prevention (MLIT, 2003).

#### 3.2.2 Local Government

With the release of the "Tokyo vision 2000", the Tokyo Metropolitan Governments focus shifted from the designation of (business) subcenters in the 1980s to the formation of a circular Megalopolis strategy (Waley, 2007), responding to the outflow of people and the decline of urban functions in the city center and intensified the promotion of high-rise residential buildings in the city center (TMG, 2020). The 'New city planning vision for Tokyo', formulated in 2001 and revised in 2009, specified the desired urban structure and renewal of urban functions through redevelopment and easing land use as well as height and floor are ratios (ibid.).

Following the circular megalopolis structure, the TMG divides the role of the city center and the sub-centers, prioritizing business, commerce and culture in the city center, while focusing on the accumulation of complementary functions in the sub-centers by promoting compact mixed use redevelopment. To create vibrant neighborhoods and attractive residential environments, residential functions should be accumulated around train stations by developing mid- and high-rise residential buildings (TMG, 2009). The transit oriented development approach is meant to shorten the distance between residential areas and jobs, as well as promoting walkability and the use of bicycles (ibid.).

The promotion of urban vitality and vibrancy in city centers and sub-centers primarily involves the redevelopment of extensively used areas by private developers and the relaxation of floor area ratios. The expansion of public transport and the redevelopment of sub-centers are also intended to accommodate the diversification of employment patterns and lifestyles. The urban functions that are supposed to be introduced are only roughly outlined, but childcare, education and culture, and retail are mentioned in particular (ibid.).

The creation of beautiful urban spaces is mainly described for the surroundings of "stately" and representative buildings such as the Marunouchi Station Area and the area around the National Diet Building, as well as the waterfront. For the residential environment and beautiful streetscapes though, the goal is to create unique homes and walkability, while at the same time creating an attractive cityscape by establishing a unified skyline and preventing the subdivision of plots (ibid.).

The increase in green spaces and greenery in recent years is largely attributed directly to redevelopment projects. For this reason, the main focus for the future provision of green spaces lies on private land and the further redevelopment of urbanized areas and the planting of roadside trees as part of redevelopment projects along main roads (ibid.).

### 3.3 Surveys on Tokyo's high-rise residential buildings

Several surveys have been conducted to determine the relocation motivations of the new residents since the population in the city center began to rise again. Akabayashi et al. 1994 conducted a survey on housing preferences, living conditions and reasons for relocating in 9 high-rise mixed use apartment buildings. The most common reasons for purchasing an apartment were the neighborhood, the cost of living and the commute time. Less prevalent was the desire for a "better living environment (surroundings, management,

safety, etc.) compared to detached houses" (Akabayashi et al, 1994, 62). As reasons for not moving back to a detached home, respondents stated the "safety of apartment complexes", "good management" and the "convenience of apartment complexes". The main reasons for potentially moving back into a single-family home were the proximity to green spaces and nature, and to a lesser degree the worry about noise in the apartment complex as well as the independence of a detached home (ibid.). The survey of Munakata et al. 1998 revealed that the convenience for commuting to work or school was the most prevalent reason for occupying a unit in a high-rise building. Other reasons stated were "'trust in the developer', 'security', 'real estate value', 'desire to own a home', 'safety', 'comfort', 'floor layout', and 'nearby facilities'" (Munakata et al., 1998, 68-69).

## 4 RESEARCH QUESTION

The urban renaissance policy of the national and prefectural governments led to the construction of an abundance of condominium complexes, which in turn led to feedback from residents through various channels. The question now arises as to whether user-generated content on web-GIS applications, such as Google Maps reviews, can be used to evaluate public discourse on redevelopment and residential environments. If so, which discrepancies arise between the government's redevelopment goals and residents' perceptions of their residential environments?

## 5 METHODOLOGY

To this end, this paper first summarizes the main objectives and reasons for redevelopment found in national and prefectural plans and policies. The residents reviews on the selected condominium complexes that were implemented as redevelopment projects from Google Maps will be compiled and evaluated using qualitative content analysis. These findings will then be compared with the identified governments objectives. Finally, it is discussed whether the platform considered here is a suitable data source for conducting research, public participation, and policy evaluation of the residential environment.

### 5.1 Content Analysis

For this study, inductive qualitative content analysis (QCA) according to Mayring 2022 was chosen as the research method. The aim of QCA is to reduce one or more texts to a compilation of key results and, in a second step, to abstract the results into categories and themes (Erlingsson & Brysiewicz, 2017). In inductive QCA, the key results are compiled using open coding, whereby headings and descriptions are noted while reading through the texts (Elo & Kyngäs, 2008). QCA is currently used in a wide range of disciplines, including urban studies (Sheydayi & Dadashpoor, 2023).

### 5.2 Sampling

The selection of redevelopment projects is based on the table of redevelopment projects in Tokyo Prefecture published by the TMG (TMG, 2024). Projects in neighboring prefectures in the metropolitan area were not considered. The TMG did not specify when the projects were initiated, and also the time spans between the city planning decision and the construction completion notice vary significantly. Since this paper aims to analyze projects that were created in the spirit of deregulation that began in the 1980s, only projects that were completed between 2000 and 2023 and contain n>49 residential units were considered. Since the majority of the aerial images and Street View content from Google Maps was last updated in 2023, no projects completed at a later date were considered. The TMG lists a total of 309 projects, some of which consist of several construction phases or buildings (buildings n=398). In this study, the entire projects were considered, and in the case of complexes with several building components, the reviews were considered collectively. After evaluation based on the above criteria, 122 projects were selected for this study.

The source of the data is the review section of Google Maps. All buildings contained in the subset were identified on Google Maps, and the reviews, ratings, and number of reviews were extracted into a table. This study deals with the residential environment, therefore only the feedback of users who can be associated with the residential function will be analyzed. Only in very rare cases, the author of the reviews indicated their relationship to the building, which made sampling significantly more difficult and necessitated subjective sampling. The use of a multi-layered filter is therefore intended to ensure that the selected reviews actually originate from the residents of the condominium complexes.

After compiling all reviews (n=1455), those that were irrelevant in terms of content and clearly had no connection to the building or the residential environment, e.g. restaurant-reviews, were first sorted out. A major challenge was distinguishing between residents and other authors. Authors with a high number of reviews often posted similar-sounding reviews for other buildings as well. Although this means that only a subpopulation is represented, in the next step all contributions from authors who had written more than 100 reviews were disregarded. In addition to distinguishing between residents and authors with no affiliation to the building, the problem of identifying 'fake reviews' arose. Even if fake reviews cannot be completely eliminated, very positive reviews that made a specific recommendation for renting or buying a condominium, or highlighting the developer were removed. After applying the filter, 108 reviews remained, spread across 49 buildings. To minimize sampling bias, a subset was cross-checked by both authors.

| **Building** | | **Environment** | |
|---|---|---|---|
| 20 | Noise | 22 | Proximity to Station |
| 15 | View | 21 | Residents (Behavior) |
| 12 | Cost | 18 | Proximity to Supermarkets |
| 8 | Cleanliness | 16 | Security |
| 8 | Presence of a Concierge | 10 | Common areas and facilities |
| 8 | Helpfulness of the Manager | 10 | Location in (Sub-) Center |
| 7 | Availability of Amenities | 9 | Proximity to Shops |
| 7 | Security Guards (Behavior) | 8 | Convenience |
| 6 | Quality of Interior Design | 7 | Comfort |
| 6 | Odor Nuisance | 7 | Proximity to Convenience Stores |
| 4 | Reliability of Deliveries | 7 | Characteristics of Neighborhood |
| 4 | Provision of Elevators | 6 | Quality and Quantity of Parking |
| 4 | Entrance/Lobby Design | 6 | Proximity to Restaurants |
| 4 | Garbage Disposal | 4 | Biking Infrastructure |
| 4 | Visible Vacancies | 4 | Green Spaces |
| 3 | Adequate Living Space | 3 | Proximity to Café |
| 3 | Pet-Friendliness | 4 | Children (Behavior) |
| 3 | Quality of Building-Services | 3 | Disaster Prevention Center |
| 2 | Building age | 3 | Earthquake Resilience |
| 2 | Internet Connection Speed | 3 | Quality of Exterior |
| 2 | Building Maintenance | 3 | Proximity to Medical Facilities |
| 2 | Oppressive House Rules | 3 | (Lack of) Privacy |
| 2 | Staff (Behavior) | 2 | Availability of Playground |
| 1 | Quality of Building Materials | 2 | Quality of Public Space |
| 1 | Building Layout | 2 | Quality of Public Transport |
| | | 2 | Availability of Taxis |
| | | 1 | Proximity to Airport |
| | | 1 | Quantity of Leisure Facilities |
| 138 | Total | 187 | Total |

Table 1: Number of Codes.

### 5.3 Unit of Meaning

The unit of meaning can vary greatly in scope in QCA, but must always allow for the extraction of meaning, while on the other hand, it must be chosen in such detail that only one interpretation is possible (Elo et al., 2014). In any case, the nature of the underlying content should taken into account (ibid.). Based on the available content, which ranges from half-sentences to short paragraphs, the unit of meaning 'word' was

selected. After the first pass in the coding process, it was checked whether the chosen unit of meaning also captured the meaning of the longer paragraphs.

### 5.4 Categorization and Coding

In preparation for the coding process, the statements in the longer reviews were first summarized. The collected material was reviewed in its entirety and summarized in headings. During the second review of the material, the headings were checked and adjusted if necessary (cf. Mayring, 2022). The adjusted headings (n=325) were transferred to the coding sheets (cf. Cole, 1988). At the end of this process, there were 63 unsorted codes. In the second step, duplicate codes were deleted and the wording of the codes was standardized (cf. Mayring, 2022), leaving 53 codes. The evaluation was to be carried out at different levels of abstraction in order to analyze features of the buildings and the residential environment, as well as overarching goals. Two abstraction steps were therefore carried out, with each code being assigned to only one category and each category to only one main category. In the first stage, the codes were grouped into 13 categories and in the second stage into 6 main categories.

## 6 RESULTS

A total of 53 codes were assigned. For clarity, the codes were divided into two themes: the broader environment and building features. The environment category accounts for 58% of the headings, while building features account for 42%. Most codes (n=22) relate to “proximity to a station”, followed by “residents (behavior)” with n=21. The two most frequently assigned codes thus relate to the spatial and social environment and not to features of the building. Similarly, “proximity to supermarkets” ranks fourth. With “noise” (n=20), there is only one code in the top 5 that refers to features of the building.

This is also reflected in the abstraction level of the categories. In terms of the residential environment, “proximity of high-rise residential buildings to transport infrastructure” and “accumulation of urban functions” are by far the most important categories. “Safety and security” and “residents (behavior)” follow with almost half as many codes assigned.

When it comes to building features, “noise” is the most frequently assigned code (n=20), followed at some distance by “view” (n=15) and “costs” (n=12). The top three places are thus occupied by “apartment features”, while the following ranks are predominantly occupied by service and staff-related codes. Significantly fewer codes were assigned for structural aspects.

| **Building** | | **Environment** | |
|---|---|---|---|
| 52 | Apartment features | 47 | Proximity of Residential Buildings to Transport Infrastructure |
| 27 | Management | 47 | Introduction and Accumulation of (Supporting) Urban Functions |
| 25 | Staff | 25 | Safety and Security |
| 25 | Building features | 25 | Residents and their behavior |
| 9 | Independence | 17 | Community and Neighborhood |
| | | 15 | Convenience and Comfort |
| | | 8 | Provision of Green and Open Space |
| | | 3 | Quality of Exterior |

Table 2: Number of Codes: Categories.

| **Building** | | **Environment** | |
|---|---|---|---|
| 77 | Built environment | 105 | TOD |
| 52 | Service | 67 | Social interaction |
| 9 | Independence | 15 | Convenience and Comfort |

Table 3: Number of codes: Main Categories.

The apartment features “noise”, “view”, and “cost” carry a lot of weight in this study. Living space, which is another important feature for resident satisfaction (Wuppertal Institut, 2021), was only mentioned three times. The floor plan was not mentioned at all, and the ‘layout of the building’ was only mentioned once.

In addition to specific features, the overall impression of the building and its surroundings was also described. The terms convenience (n=8) and comfort (n=7) were used for this purpose, either individually or in combination. These two terms also stood out as frequent descriptions of other aspects.

## 7 DISCUSSION

### 7.1 Residents' feedback on redevelopment

Condominium complexes represent but a single facet of neighborhoods; nevertheless, a considerable number of reviews extend beyond the site of the building and shed light on the residents' perception of their residential environment. Although the opinion of residents and the main government objectives largely coincide, the details of the latter are not reflected in the feedback from residents.

With regard to the accumulation of urban functions and transit-oriented development, which are particularly emphasized by the government, there are many similarities between the government's stated objectives and resident feedback. Apart from apartment-specific features such as noise insulation, the top three factors in the evaluation are proximity to a train station (n=22), walking distance to a supermarket (n=18) or convenience stores (n=7), and building security (n=16). Although the government only give a rough outline of which urban functions are to be accumulated and strengthened, childcare, education, and culture, which indeed are explicitly mentioned, are not found in the reviews, whereas retail, in this case shops (n=9), is clearly represented. Similarly, public gathering places are neither mentioned in the reviews, as is the 'vibrancy' of the neighborhood only of minor importance. This is also evident in the provision of open spaces and greenery on private land as a major reason for redevelopment. Considering the low proportion of open and green spaces in Tokyo (Hwang et al., 2025), one would have expected a much greater emphasis on private or public open spaces (n=2) and greenery (n=4), but this has received little attention in the reviews.

Similarly, against the backdrop of increasing awareness of mega-disaster risks, e.g., earthquakes (Guo & Li, 2016), and although it is used as justification to erase neighborhoods, disaster resiliency is less prominent in the reviews (n=3), presumably due to the technical nature of earthquake-proofing buildings. Increasing awareness is also evitable in regards to security, especially regarding break-ins and encounters on public spaces and common areas (Suzuki et al., 2025). This is also reflected in the results, security (n=16) being one of the main concerns of users, regarding overwhelmingly the existence of security guards and the accessibility to the residents hallways but also the income and social status of the other residents. With n=21, other residents and especially their behavior is a major concern of residents, linking 'lower' rents in older and more peripheral towers with 'uncivilized' behaviors and also security concerns. Interestingly, the 'civility' of the residents is also mentioned in the MLIT's strategy, as it is listed as a prerequisite for the 'creation of beautiful urban spaces' with efforts being made at all levels.

Notably, the study confirms the key findings of Akabayashi et al.'s 1994 survey. The main reasons for purchasing an apartment in a high-rise building, as stated in the survey – environment/location, price, and commuting – are reflected in this study, albeit with a greater emphasis on security and safety (n = 16). In contrast to "worry about noise," the desire for "exposure to nature" is less pronounced in this study. Although the study by Munakata et al. 1998 shows similar correlations, it should be noted that nearby facilities are given comparatively low priority.

### 7.2 Utilizing Google Maps reviews

The study showed, that although the reviews were submitted for individual buildings, they mainly referred to the surrounding area. Thus, conclusions can be drawn about residential environments and neighborhoods. Passive crowdsourcing promises to access new data sources not tied to specific projects. But despite the benefits of free and easy access, using Google Maps reviews in urban planning (research) comes with a number of methodological challenges.

Passive crowdsourcing leverages existing data sources to conduct broad-based opinion surveys (Alizadeh et al., 2019), although it can only account for the user group of the platform in question. As 86% of Japan's population is considered to be regular internet users (Statista, 2025), and a Google account is the only requirement for participation, the platform potentially allows for broad participation. On the other side, Google users that are not affiliated with the building in any way are not excluded from reviewing, making it challenging to identify residents. Therefore, the sample is highly susceptible to sampling bias and depends

heavily on the researcher's judgment. Participation processes, especially those involving crowdsourcing, are subject to self-selection bias. Reviewing on Google Maps requires intrinsic motivation to actively share one's opinion with both the municipality and the general public, amplifying the bias. Therefore, it can be assumed that significant aspects of everyday life are not shared with the public, resulting in the omission of minor concerns.

Although this study aims to provide an overall view, only a fraction matched the sampling criteria, meaning only few or in many cases no voices are heard per condominium complex. In addition to being insufficiently representative, longer reviews can significantly influence the results of a study as longer reviews are given greater weight. In particular, fake-reviews generated by business owners can strongly influence the results if they are not recognized during sampling. Furthermore, the proportion of owner-occupied and rental apartments is not obvious for all buildings, which makes it difficult to estimate the number of potential users and determine representativeness. In the restaurant industry, the trustworthiness of Google Maps reviews is questionable, as user experiences are heavily influenced by 'stealth marketing' and sabotage from competing restaurants (Frischknecht et al., 2021). This study also noted some overly enthusiastic reviews. Since most reviews consist of only short sentences or keywords, they are difficult to classify as real or fake.

Although Google Maps reviews do not allow for a representative assessment of redevelopment policy, they nevertheless represent part of the public discourse despite issues of small numbers, representativeness, and authenticity. Due to the large number of redevelopment projects, citizens' preferences regarding the residential environment become apparent. Previous studies, such as that of Akabayashi et al. 1994, focused on individual buildings. The results of this study confirm the findings of previous surveys and provide feedback on a large number of projects. The difficulty with abstract issues of urban development is that citizens tend to become more involved as the planning becomes more advanced (Hirschner, 2017). As the study shows, passive crowdsourcing of additional sources of opinion provides snapshots that complement the overall picture of public discourse on urban development.

## 8 CONCLUSION

Digital tools, including instruments for informing and engaging citizens, are currently receiving a lot of attention. While the development of new tools for citizen participation is emphasized, public discourse receives less attention. However, the evaluation of urban policies and public opinions through passive crowdsourcing suggests great potential. Taking advantage of the large number of redevelopment projects in Tokyo, this paper first highlights the similarities and differences between the government's urban redevelopment goals and residents' feedback on Google Maps regarding their residential environment. The paper then demonstrates that passive crowdsourcing of user-generated content on web-GIS platforms can supplement the evaluation of general discourse on urban development and be integrated into the decision-making processes. The study reveals a high degree of consistency between residents' feedback and the objectives of national and local governments, particularly with regard to the accumulation of urban functions around stations, walkability, and the need for physical safety. Other key goals and reasons for redevelopment by the government, such as the provision of open spaces and greenery, play a lesser role for residents or are not perceived at all.

Despite these findings, the results of this study are only indicative. The target population in the condominium complexes could not be sufficiently isolated. Fake reviews could not be excluded, and the compiled reviews were not representative of the target population. However, user-generated data from private-sector web-GIS applications can complement traditional surveys in the field of residential environment evaluation, as it provides an additional source of citizens' opinions on urban development gathered over an extensive period of time that would otherwise remain unavailable. Using reviews of condominium complexes as a data source to evaluate residential environments and urban redevelopment policies is only the first step in making citizen opinions more visible. Nevertheless, this approach demonstrates the potential of using passive crowdsourcing from web-GIS applications for urban planning and research.

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