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Original Paper

Citizen Perspective on the Development of Sustainability Indicators—A Case Study based on the West Bund, Shanghai

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Abstract

Sustainability indicators are essential technical tools for monitoring and managing sustainable urban development. The challenge of developing sustainability indicators in the urban context lies in the lack of a participatory approach that integrates the bottom-up perspective of citizens. Therefore, taking the 14th Five-Year Plan development indicators in the West Bund of Shanghai as the case study, this paper provides policy recommendations for the readjustment and iteration of the local indicators for the Xuhui District Government by identifying the local citizens' viewpoints and investigating its differences with the policymakers' views. Totally ten local participants were involved in the structured interviews. Holistically, the perspective of local citizens presents the features of actively intervening in community governance, prioritising community benefits, and trusting the decision-making of local policymakers. This paper then argues that policymakers in a dominant position with preferences in economic indicators should take the initiative to provide an increase in facility-based indicators, effective feedback channels, and professional training in sustainability for local citizens in a secondary position who focus on the improvement of their living experience. The outcomes contribute to the materialisation of the West Bund's governance goals and the further refinement of integrated solutions for sustainability indicator development.

Keywords

sustainability indicators, sustainable urban development, citizen participation, thematic analysis, community benefit

1. Introduction

The coupling of urbanisation and sustainable development concept in the new century has put forward a broader application of sustainability indicators (SIs), covering the evaluation of complicated and

intractable issues in urban planning. Since then, debates have emerged about the selection of SIs (Pires et al., 2014), arguing that many of the indicators are marginalised due to the lack of contextual consideration at local levels (Feleki et al., 2020). Traditionally, the generation of SIs is typically viewed as a government-initiated and expert-based process (Turcu, 2013), with little regard for whether indicators resonate with the public. This thought of simplifying SI development to a top-down governance tool has been criticised for its lack of inclusion of social preferences and positions in open-ended urban systems (Scerri & James, 2010). In contrast, a growing number of studies advocate the involvement of a citizen-based participatory process in SI development (Fraser et al., 2006; Reed et al., 2006), emphasising the contribution of local professional knowledge to the "best judge" of SIs (Verma & Raghubanshi, 2018).

The development of SIs is also challenging in Shanghai, the mega city with the third largest population in the world. On the one hand, this city has incorporated SIs into policy planning through Five-Year Plans (FYPs) (Li et al., 2019a) since the slogan of "Better City, Better Life" was proposed at the 2010 World Expo (Semprebon, 2018). On the other hand, due to the conventional domestic top-down governance structure (Guttman et al., 2015), the effectiveness of participatory governance was questioned, and citizens were considered to lack substantial influence in SI development (Li et al., 2019a). These phenomena are notably reflected in some significant functional areas in Shanghai, especially the West Bund. The local government has established ambitious goals and indicators with drastic spatial and economic measures for the West Bund to support its 2035 goal of becoming a "globally excellent waterfront" (Den Hartog, 2019; Xuhui Government, 2022). Though a mission of "collaborative governance" including local participation has been proposed (Qiu, 2019), whether the enormous number of local citizens are ideally involved in the development of SIs and their attitude towards the current SI development mode remains unexplored.

Therefore, this paper will rethink SIs for the 14th FYP (2021-2025) in the West Bund from the bottom-up perspective of citizens. The paper aims to generate policy recommendations for the Xuhui district government to reassess and adjust its SI system for the West Bund to meet the desire for citizen participation. To materialise this goal, it is vital to identify the citizens' views on local SIs, in particular how their preferences and positions in developing SIs differ from the policymakers' views in the West Bund. This paper is expected to assist the West Bund in fully leveraging the value of local knowledge to achieve its goals of constructing a "governance practice pilot area" and a "residential ecological demonstration area" in 2025 (Xuhui Government, 2022). It also contributes potential implications for research design to explore the interaction between citizens and policymakers in the SI development in significant functional areas in other Chinese cities.

The rest of this paper is structured as follows. First, chapter 2 reviews the research on challenges in SI development faced by global and Chinese cities and how they are embodied by urban actors, including citizens and policymakers. A methodology chapter then describes how a qualitative structured interview is designed. After that, followed by the thematic analysis, the key findings are presented in chapter 4.

Eventually, discussions of the findings combining interview results and relevant literature and recommendations for policymakers are included.

2. Literature Review

2.1 Conceptualise Sustainability in Urban Development

As a popular subfield of sustainability research, sustainable urban development (SUD) is broadly identified as maintaining and enhancing the quality of life of all urban populations in literature (Steffen et al., 2015; Cohen, 2017; Mirzoev et al., 2022). The original concept of sustainable development can be dated back to the 1980s, defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland Commission, 1987). Since then, the thought of sustainability has rapidly extended to the urban context and was closely associated with the "Triple Bottom Line" (TBL) principle in the 1990s (Roy, 2009), which in practice highlighted the close interaction among economic, social and environmental development in cities (Foliente et al., 2007).

For the past two decades, though the TBL principle constituted the conventional view of SUD, there was no unified explanation for merging "sustainability" with "urban development" (Turcu, 2013; Cohen, 2017). For example, in those ecocentric interpretations, the capability of sustainable cities to self-regenerate, self-sustain and adapt was emphasised (Chaudhary et al., 2018; Eme et al., 2019). In contrast, the anthropocentric view regarded the governance and allocation of space and resources as equally significant dimensions in sustainable development as they thought the cities were developed for "human needs" (Forman & Wu, 2016; El Bilali et al., 2019; Hailemariam et al., 2019). Moreover, biases exist in the frequent use of the ever-enriched concept of the "sustainable city" with various features in the academic and policy literature. As observed by de Jong et al. (2015), the boundaries between the use of "sustainable city" and other urban concepts such as "low carbon city" and "eco city" have become blurred. Hence, Zeijl-Rozema and Martens (2010); Verma and Raghubanshi (2018) indicated that the concept of SUD is more likely a normative choice rather than a well-defined consensus.

2.2 Measure Sustainable Urban Development—The Indicator Approach

2.2.1 Debates over Measurability

Though various instruments have been created, whether SUD can be measured remains controversial (Hassan et al., 2015; Hansson et al., 2019). Some criticised the concept of "sustainable cities", arguing that urban areas always acted as consumers of resources and degraders of the environment (Guan et al., 2011). On the other hand, post-positivist scholars pointed out that every social measurement has different types of errors and biases (Turcu, 2013). Due to the concern of different urban interest groups (Shiau & Chuang, 2015), measuring SUD is inevitably a political and social issue (Turcu, 2013). Nonetheless, it is still the mainstream opinion that measuring urban sustainability is essential in detecting whether progress has been made in meeting the objectives of SUD understood in its broadest sense (Roy, 2009; Mega & Pedersen, 2012; Cohen, 2017).

2.2.2 Urban Sustainability Indicators

Urban SIs are one of the most popular approaches to measuring SUD (Turcu, 2013). It is considered to have double functions: the "report card" that presents the progress and performance of the SUD goals (Dameri, 2017), and the "management tool" that provides the basis to formulate strategies and allocate resources for sustainable urban governance (Holman, 2009; Hansson et al., 2019). Urban SIs can also reflect significant trends and preferences in cities across time and space responding to the sustainability principle (Pires et al., 2014; Tran, 2016). In the global urban studies, it has been pointed out that cities in the global North presented significantly different concerns in indicators for public health, housing (Cohen, 2017), and ageing problems (Kim H.W. et al., 2020) than those in the global South. Overall, urban SIs play an irreplaceable role in reflecting a city's past achievements and future focus on sustainability.

2.3 Challenges in Developing Urban Sustainability Indicators

Though the indicator approach has become a standard technical tool for sustainability governance, a common indicator framework has not yet been formed. According to Joss (2015), the modern demand for accelerating urbanisation, standardising sustainable city concepts and industrial development has driven global cities to pursue a generic urban SI framework to stimulate strategic innovations in SUD. However, due to the lack of universal appeal, hundreds of SI frameworks have been developed (Zhou et al., 2012; Ameen et al., 2015; Huovila et al., 2019). The scale of these frameworks ranged from specific communities to a transnational level, most of which were designed city-wide (Turcu, 2013; Lynch & Mosbah, 2017). Therefore, it has been a popular research trend to integrate and standardise these SI frameworks at different geographic scales (Turcu, 2013).

On the other hand, the development of SI frameworks serves localised use. However, obstacles arise in the local practices of SI frameworks. Even though the *"United Nation's Millennium Development Goals"* indicators first attempted to bring global countries into the same SI framework (United Nations, 2015), their inconsistencies with many local development policies and priorities have been revealed (Michael et al., 2014; Hansson et al., 2019). Thus, the existence of different preferences and viewpoints in cities challenges the local selection of frameworks and indicators (Turcu, 2013), which are categorised as follows:

Due to the loosely defined conceptual basis (Verma & Raghubanshi, 2018), the different understandings of SUD characteristics affect the preferences of local SI framework selection (Tran, 2016). An "encoding-decoding" framework illustrated how these differences in interpretation transformed into distinct practical outcomes (Figure 1.): the specific sustainability concepts were identified as principles in the local SI framework in the "encoding" process and then implemented within a particular urban governance context to achieve practical outcomes in the "decoding" process (Joss et al., 2015). Moreover, Cohen (2017) criticised some local conceptualisations of SUD for being too structurally dependent on the TBL principle. Consequently, indicators were developed separately according to the three dimensions with little interdependence, resulting in the silo effect in governance (Hansson et al., 2019).

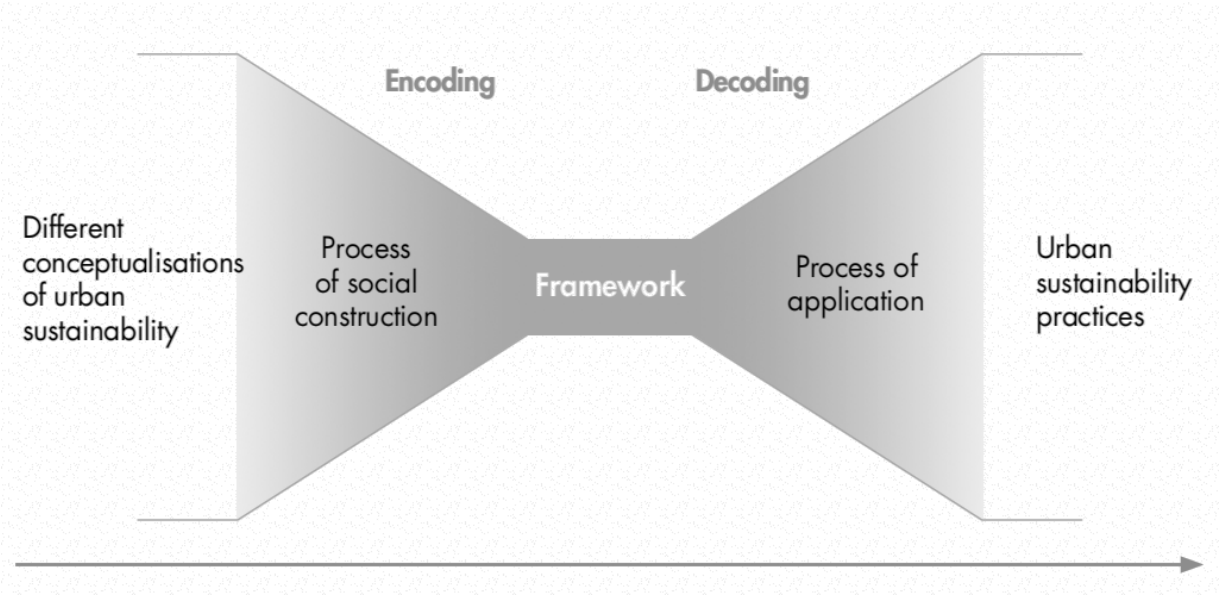

Figure 1. The Framework of Encoding Understandings of SUD into Local Frameworks and Decoding into Practical Outcomes (Joss *et al.*, 2015)

On the other hand, the preferences are reflected in the selection indicator criteria. First, the SIs are applied to measure different stages of a SUD programme. Some SI sets prescribe substantive outcomes and allow for localised decisions about the precise implementation process, while others focus on regulating the step-by-step process of materialising urban sustainability (Joss, 2015).

Also, SIs vary in their targets of measurement (Turcu, 2013; Tran, 2016). Astleithner and Hamedinger (2003) described the tension that existed between objective and subjective targets in SI selection: on the one hand, SIs were required to be accurate, measurable, and "reflective of local conditions". On the other hand, SIs were derived from the choices already in the minds of the designers, reflecting an "indicator of preference".

Moreover, debates arise in balancing the trade-off between understandability and measurability for the presentation of indicators. The simple-explained indicators with fixed-value for measurement were criticised for reducing effectiveness due to dynamic background changes or unexpected events (Pires et al., 2014; Hansson et al., 2019). However, Rinne et al. (2013) argued that simplifying and quantifying SIs make the indicators more understandable and convenient to measure.

The above matters reflect the complicated and dynamic urban context for localising SIs. In this context, the sustainability issues measured by the indicators were essentially "moving targets" (Turcu, 2013). Therefore, developing local SI was considered an iterative process with changing preferences (Verma & Raghubanshi, 2018), that was, the selection of current, reliable indicators by continuous revaluation, readjustment, and reupdate.

2.4 Participation Paradigms in Developing Urban Sustainability Indicators

The challenges in developing urban SI also emerge in the tensions among participants who develop the indicators. Two participation paradigms were introduced by studies (Reed et al., 2006; Turcu, 2013). First, the expert-led "top-down" model, or called the government model, attempted to define local sustainability agendas through "scientific" or quantitative indicators (Turcu, 2013). However, the top-down model was still seen as lacking responsiveness to indicator evolution over time (Hansson et al., 2019) and ignoring marginalised groups in society (Ballerini & Bergh, 2021). The gap between experts and policymakers in the top-down model has been narrowed since policymakers' use of expert knowledge has gradually shifted from a rationalist view that emphasises the application of science to a "more participatory and context-specific production and utilisation" (Rinne et al., 2013, p. 36). Therefore, this paper treats experts and policymakers as a group with unified viewpoints.

In contrast, the citizen-led "bottom-up" model, or called the community model, tended to measure "soft indicators" or issues related to individual behaviours (Turcu, 2013). Proponents of the bottom-up model believed that the activities and interactions of people in cities had a non-negligible impact on the urban system (Cohen et al., 2015). A pragmatic benefit of this model is to circumvent the "irrelevant" indicators selected by experts who lack local knowledge while helping the community build capacity for resolving future problems (Fraser et al., 2006). Both organisations and citizens are critical bottom-up stakeholders, but they typically show different concerns and claims about local sustainability (Staniškienė & Stankevičiūtė, 2018). This paper will specifically focus on the citizen perspectives.

Citizen participation has been identified as an integral part of SUD and a means to achieve it (Doody et al., 2009). In this sense, indicators served as a pragmatic and rational tool that simplified the complex concept of sustainability to a set of criteria that citizens could develop and monitor (Pannell & Glenn, 2000). In practice, Fraser et al. (2006) pointed out that the rise of bottom-up programmes stemmed from the failure of past top-down approaches. Moreover, Scerri and James (2010) contribute to a specific two-stage process of citizen participation in developing local SIs: initially, sustainability knowledge was input to assist citizens in determining self-assessments within the local sustainability framework; after driving citizens to become active participants, they were further involved in learning about and negotiating over what constitutes the best practices for local sustainable development.

Studies also highlighted the bottlenecks of citizen participation in urban SI development. Criticisms concentrated on the unpredictable willingness of citizens to participate (Kim G. et al., 2020) and the lack of community power to steer behavioural changes towards sustainability (Turcu, 2013). Also, Huttunen et al. (2022) indicated that citizens' cognition of local knowledge and the handling of power relations were the main issues that aroused the debate on citizen participation. In literature, due to the varying difficulty of data collection and the nature of the top-down definition of sustainability concepts (Turcu, 2013), there are far more studies on the top-down model than those on the bottom-up ones (Dias et al., 2014; Verma & Raghubanshi, 2018). In addition, research on citizen participation in urban SI

development rarely involved policy formulation and adjustment (Harder et al., 2013). All these bottlenecks present potential breakthrough points for subsequent studies.

From a holistic perspective, the prior study has described the tension and opposition between the top-down and bottom-up models (Eckerberg & Mineur, 2003). As indicated by Verma and Raghubanshi (2018), the top-down model is more suitable for global sustainability research needs, while accompanied by the declines of regional scales, the localised issues continued to challenge the applicability of general expert knowledge, thus the bottom-up model is more appropriate for SI development at the local or regional level. Another viewpoint supported the integration of top-down and bottom-up models, calling for an approach that brings together science, policymakers, and all stakeholders in urban SI development (Fraser et al., 2006; Tran, 2016). However, there is no convincing finding that has figured out the appropriate scale of integration and the extent to which the two models can be combined (Turcu, 2013).

2.5 Practice of Sustainability Indicator Development in Chinese Cities

Cities in different parts of the world vary in research progress on urban SI development. European cities have accumulated relatively abundant experience in the practice of urban SIs (Mega and Pederson, 2012; Rinne *et al.*, 2013). In contrast, cities in East Asia, in particular China, because of the continued urban expansion and the late start of sustainability research (Zhang & Li, 2018; Li et al., 2019a; Kim H.W. et al., 2020), more studies are needed to evaluate the opportunities and bottlenecks for urban SI development in the unique urban context of China.

The policy practice of the SUD concept in Chinese cities took place in the new century (Liu et al., 2014; Li et al., 2019a). Since different levels of Chinese governments worked as critical players in all areas (Guttman et al., 2015) and the central government exerted a strong influence on regional administration (Zhang & Wen, 2008), the institutional features enabled Chinese cities to fit for top-down SI development. Typically, the central government incorporated national-level sustainable development goals and corresponding indicators into the FYPs and required subordinate governments to develop regional FYPs with indicators accordingly (Wang et al., 2014; Li et al., 2019a).

Meanwhile, the resistance of subordinate governments in formulating local-level indicators is observed. The dual leadership forced local environmental institutions to respond to the national standards while being vigilant to local governments' frenzied pursuit of economic indicators (Ouyang et al., 2020). This internal struggle among Chinese policymakers over whether to prioritise economic or environmental targets reflects a significant governance challenge in incorporating environmental issues into the pre-existing concept of economic-led development in Chinese cities (Flynn et al., 2016). On the other hand, citizen participation is seemingly weak in urban SI development in China. According to McCormick et al. (2013), public concerns about indicator development have focused on some indicators designed based on unrealistic political slogans, which led to partial implementation. Also, on the hard-to-perceive side for citizens, Li et al. (2019a) criticised the exclusion of communities in SI development for affecting policymakers' understanding of urban social structure. Consequently, the importance of citizen participation has been recognised by Chinese policymakers: the subordinate governments were

encouraged to look bottom-up for local SIs (Liu et al., 2014). However, no clear evidence shows that citizens have already been systematically included in the indicator determination (Zhan & Tang, 2013; Li et al., 2019a).

The Sino-Singapore Tianjin Eco-city, a typical example of urban SI development in China, is applied to reflect the above pros and cons. As a spectacular success, the Tianjin Eco-city has been praised for the superiority of its cross-border cooperation, the applicability of the indicators (Geroe, 2017; Liu et al., 2018; Zhan et al., 2018), and most importantly, the "replicable" and "scalable" standards for other urban practices (Joss, 2015, p. 220). Even though, the study (Li et al., 2019b, p. 67) criticised its use of "*carbon emissions per unit GDP*" as an indicator for reflecting a false premise that "you can continue to pollute if it creates enough growth". It is conceivable that the tension between the economic and environmental SI development will be more intense in those urban areas without policy support. Moreover, research pointed out the lack of social balance in the Tianjin Eco-city programme: the city served a small group of the upper-middle class, while the "new urban poor" congregated along the programme boundaries (Caprotti, 2014).

2.6 Research Gap

This chapter has reviewed studies on urban SI development at both Chinese and global scales. To conclude, citizens represent the social dimension of urban sustainability systems (Li et al., 2019a); however, they are marginalised in urban SI development (Dias et al., 2014; Verma & Raghubanshi, 2018). Up to now, research on citizen participation in SI development mainly contributes to the theoretical development of the citizen participation paradigm (Scerri & James, 2010; Turcu, 2013), with little focus on exploring the indicators of citizens' preferences and their positions to participate in specific urban contexts, in particular Chinese cities.

Therefore, based on an integrated development viewpoint (Fraser et al., 2006; Tran, 2016), this paper hopes to fill the research gap on the preferences and positions of citizens in the West Bund, thereby exploring the potential integration point with the policymakers' view to influencing local policymaking. According to the literature, the study plans to investigate local preferences and positions from three specific angles:

First, as local knowledge of sustainability is considered vital to SI development (Verma & Raghubanshi, 2018), while citizens' understandings of SUD affect their preference for indicators (Tran, 2016), it is necessary to explore citizens' versions of local sustainable development.

Then, since the local viewpoints of power relations can reflect their position on citizen participation in SI development (Huttunen et al., 2022), it is essential to learn their positioning for the role of local citizens in SI development.

Moreover, the local viewpoints of specific indicators can reflect their differences in preferences with indicator developers in detail, thereby helping the iterations of local SIs through their current opinions (Turcu, 2013). Hence, the last critical angle detects citizens' preferences on the current SIs in the West Bund.

3. Methodology

3.1 Study Area

The West Bund covers an area of about 9.4km^2. It is located on the west bank of the Huangpu River in the east of Xuhui District, Shanghai, including the entire 11.4km waterfront and its surrounding areas (Figure 2.). The core area of this long and narrow space, which served as an essential industrial base in Shanghai in the last century, has undergone an ambitious regeneration after the 2010 Shanghai World Expo (Semprebon, 2018). Since the 12th Five-Year Plan (2011-2015), the West Bund has been included in the city's significant development areas (Xuhui Government, 2022). So far, the waterfront of the West Bund has almost been built into a well-connected public green space (Den Hartog, 2019).

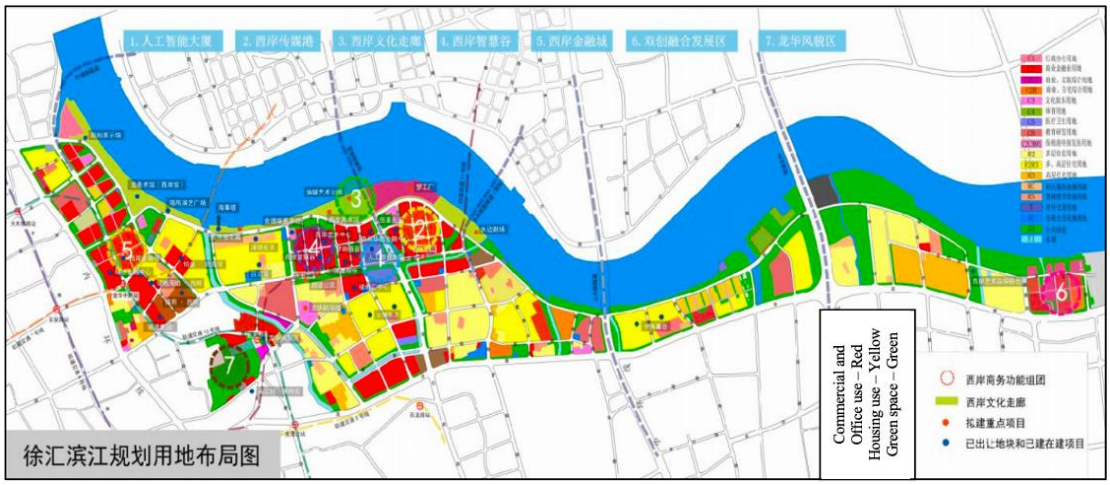

Figure 2. The Map of the Administrative Boundary and Land Use Planning of the West Bund (Xuhui Government, 2022)

3.2 Study Indicator Set

The study is based on "*Indicators of the Sustainable Development of the West Bund during the 14th Five-Year Plan Period (2021-2025)*". As released in early 2022, this SI system described eleven expected and two mandatory targets to reach in 2025, which integrated the dimensions of economic, social, cultural, environmental and governance (Table 1.). The development of this regional SI system has referred to two higher-level SI frameworks: the municipal-level "Shanghai Index" and the district-level "Excellent Xuhui" (Jian, 2021; Xuhui Government, 2022).

Table 1. Indicators of the Sustainable Development of the West Bund during the 14th FYP Period (2021-2025) (Xuhui Government, 2022)

No.	Indicator	Type
1	Reach 1 trillion RMB in total regional tax revenue	Anticipatory
2	Increase 2 million square meters of new industrial carrier scale.	Anticipatory
3	Reach a 6% growth rate of regional output per unit area.	Anticipatory
4	Reach a 20% average annual growth rate of the total output of artificial intelligence and its related industries.	Anticipatory
5	Reach a 10% average annual growth rate of the total output of the life and health industry.	Anticipatory
6	Reach a 10% average annual operating income growth rate from cultural and related industries.	Anticipatory
7	Increase five new Regional Headquarters of multinational companies.	Anticipatory
8	Increase 20 new cultural and art venues.	Anticipatory
9	Reach an average annual number of 200 cultural activities.	Anticipatory
10	Attract 5 million tourists annually.	Anticipatory
11	Reach 90% Satisfaction rate of *Waterfront Convenient Station.	Anticipatory
12	Increase 25 hectares of new public green space.	Constraint
13	Increase 3 kilometres of newly added waterfront runs through the riverbank.	Constraint

*Waterfront Convenient Station: A chain service brand for citizens and tourists, providing them with services along the waterfront, including hygiene, consultation, rest, exercise, storage, and emergency.

3.3 Research Design

This study identifies citizens of the West Bund as ideal participants for the interviews. An inclusion and exclusion criteria are set (Table 2.) to ensure that all participants have lived in the West Bund continuously with a proper frequency of access before the unconventional period of the COVID-19 pandemic so that they may have sufficient local dwelling experience to contribute meaningful personal knowledge, observations, perceptions and experiences to this study. Also, it reduces the risk of participants providing invalid responses for personal reasons in the interviews.

Table 2. Inclusion and Exclusion Criteria for Local Citizens

Inclusion Criteria	Exclusion Criteria
• Adults above 18 years old. • Live in the West Bund no later than Jan 2019 until now. • Join in activities or visit sites in the West Bund no less than once a month.	• Never heard of the concept of sustainable development. • Have current plans to move out of the West Bund. • Refuse to give participation informed consent.

Using the snowballing method, this paper recruits ten local participants of different ages, occupations, and residential durations in the West Bund ranging from 4 to 15 years. The interviews start with two separate seed participants to avoid repeating interviews with citizens of the same age groups and neighbourhoods. Table 3. presents the demographic information of all the participants.

Table 3. Demographic Information of the Participants

Participant ID	Gender	Age Group	Residential Years	Occupation	Frequency of local activities
YM1	Male	below 30	6	Student	2-3 times a week
YF1	Female	below 30	9	Student	Two times a week
YF2	Female	below 30	15	Student	Three times a week
MF1	Female	31-60	11	Community Officer	Almost everyday
OF1	Female	above 60	7	Teacher (Retired)	Almost everyday
OM1	Male	above 60	4	Businessman (Retired)	Almost everyday
OM2	Male	above 60	9	Worker (Retired)	Almost everyday
YM2	Male	below 30	5	Programmer	Every weekend
MM1	Male	31-60	8	Teacher	Almost everyday
MF2	Female	31-60	5	Accountant	Every weekend

This paper selects structured interviews as the qualitative research method. The interviews are structured in four sections. As an introduction, the first section collects further demographic and behavioural data on residential practice in the West Bund from the participants. The other three sections are designed according to the three specific angles as concluded in the literature chapter. Participants are asked about their perceptions of sustainable development in the second section. Then, the third section identifies participants' views on the indicator approach and indicator developers in the West Bund. Lastly, in the

fourth section, participants are encouraged to transfer their knowledge to the assessment of the existing SIs.

Then, the interviews are conducted online. Most participants have agreed to join interviews via the Zoom Cloud Meeting APP, while some older participants who cannot use the platform are met by WeChat video call. The average time spent on the interview is around 20-30 minutes. Each interview is conducted in Chinese and the entire process is recorded. It is then transcribed into a Chinese transcript and later translated into English for subsequent analysis. According to Li et al. (2019a), since there are some implicit expressions in Chinese, this way of translation is beneficial to restoring the original Chinese meaning to the greatest extent. For ethical considerations, to avoid creating unnecessary tension and stress on participants (An et al., 2021), a verbal consent form is sent to them before the interview to protect their right to know and choose during their participation. In the analysis period, participant information is anonymised, held on a private computer, and deleted within one year after the end of the study.

4. Results

This paper employed an analyst-driven deductive thematic analysis to identify critical themes from the interview data. As a fundamental and flexible approach, thematic analysis benefits the building of a potentially rich, detailed and complex data account (Clarke & Braun, 2013). A thematic map is plotted for this chapter to display how each theme is organised (Figure 3).

Firstly, for theme 1, citizens' "self-assessment" of local sustainable development can reflect their priorities and concerns according to their individual knowledge and living practices, which essentially represents measurements of local preference (Turcu, 2013). They can then be aggregated into a "report card" for local policymakers to review the performance of existing SIs and governance outcomes.

Secondly, based on the general approval of the indicator approach for measuring SUD, theme 2 presents participants' views on the power structure for SI development in the West Bund. To avoid the drawbacks of the participatory approach proposed by Reed et al. (2006), this paper has not directly substituted an entire citizen-led perspective on SI development. Instead, it has explored what participants perceive as the ideal interaction between citizens and policymakers.

Lastly, theme 3 presents participants' comprehensive perceptions of the SIs expected to be achieved in the West Bund by 2025. Participants are encouraged to articulate the specific indicator they prefer or question based on their understanding of the sustainable development status in the West Bund. Consequently, this paper can draw a viable "integration point" between current top-down indicators and citizen opinions for policy recommendations.

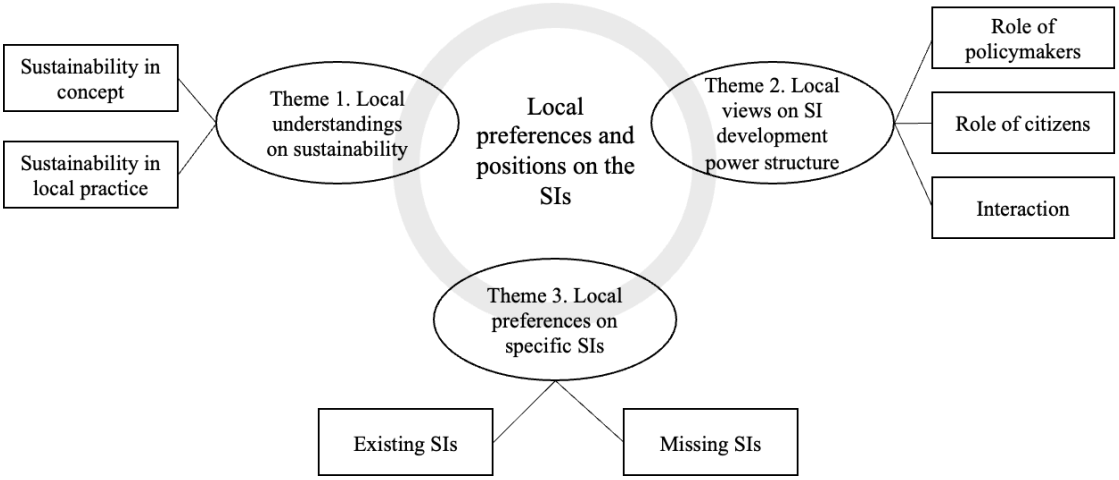

Figure 3. The Thematic Map for Studying Local Preferences and Positions

4.1 Local Understandings of Sustainable Development

4.1.1 Conceptualised Understandings

The participants conceptualise sustainable development by giving definitions or enumerating dimensions. Similar to the original definition from the Brundtland Commission, a common focus of the participants' definitions highlights the "development of the present without sacrificing the development of the future" (YM1). A few definitions even contribute to the localised meanings of sustainable development:

> "Sustainable development, in a Chinese proverb, is that merit is at present and profit is in the future". (OF1)

Another explanation lists different dimensions of sustainable development. Though none of the participants directly mentioned the TBL principle, most of their answers overlapped. In addition, some participants simply link sustainable development to "environmental protection" (YF1, MF2). Though it cannot cover all meanings of sustainable development (de Jong *et al.*, 2015), it reflects a recent trend of emphasising environmental development in the Chinese sustainable development discourse.

According to Turcu (2013), individual understanding of sustainability mainly drew on their professional experience. Therefore, this paper explores the potential links between demographic characteristics and differences in participant understanding. It is found that most participants who announced the "plan for future" function of sustainable development belong to the middle-aged and elderly group. Most of them frequently join in local activities with their children or grandchildren, which is why they are more inclined to think for the future generation. Moreover, occupation is regarded as another influencing factor. For example, OM1, formerly a businessman, firmly believes that the development of the local economy has leveraged the improvement of the environment and social living standards.

4.1.2 Practical Understandings

When asked what changes in the West Bund reflected or violated sustainable development, a typical response points to increases in green space and vegetation. Some further acknowledge the positive impact of this change on the ecosystem of the West Bund:

> "From the waterfront, you can see aquatic birds that used to be difficult to see in the city, and we rarely see this scenery before… The ecology has greatly improved." (MF2)

Also, as one of the well-known regenerated areas in Shanghai, the relocation of factories and the transformation of industrial heritage in the West Bund waterfront are impressive to participants (Xuhui Government, 2022). Figure 4 shows an example site of transformation. Den Hartog (2019, p. 40) described this process as "a transition of industrial waterfronts into recreational waterfronts". Likewise, participants frequently mention this set of codes and group it with the increase in green space and recreational facilities:

> "The relocation of the factory has brought great changes to the local ecological environment. In addition, by transforming the abandoned factory, the cost is relatively low, and this change has effectively helped the surrounding residents to improve their quality of life." (OM2)
>
> "The abandoned dock factories and industrial facilities have been transformed into some landmarks and activity platforms, which can be said to be the most economical, green, and creative for waterfront construction." (MM1)

Figure 4. The Oil Tank Park in the West Bund Waterfront—Transformation from a Dock Storage to an Industrial Heritage Park (photo by the author in May 2019)

Notably, it is detected that participants use similar words to describe the transformation process, showing their familiarity with this local event. It not only reflects the citizens' appreciation for sustainable practice in both process and outcomes of the change, but also reflects the success of local place promotion: the

transformation of industrial heritage has become a hallmark of sustainable development in the West Bund waterfront (Li et al., 2020).

Another remarkable built environment change refers to the connection of surrounding waterfront areas. A general affirmation of this change is detected from participants, who acknowledge it for bringing convenience to commuting and sightseeing and "cross-regional leisure and consumption activities" (MM1).

Then, changes are extensively perceived in infrastructure. Many comments praise the addition of recreational facilities as well as cultural and artistic venues. Some participants even propose higher expectations, such as "accelerating commercial construction" (OF1) and "adding food and beverage services to the waterfront area" (MF1). Similarly, the improvement in transportation is considered a manifestation of sustainable development. However, since the process of transport construction usually results in road occupation, while traffic congestion has become a common complaint of Shanghai's citizens (Chang et al., 2022), a few participants think that "endless" transport construction is contrary to the original intention of sustainable development:

> "The renovation of Longwu Road… It is always under construction, maintenance, and expansion [see Figure 5]… This lengthy construction period caused inconvenience to the locals." (OM1)

Figure 5. As a North-south Main Road in the West Bund, Longwu Road Has Long-termly Been Under Maintenance (photo by the author in August 2020)

On the other hand, participants' evaluation of housing infrastructure appears to be negative. One view criticises the inappropriate selection of housing sites from a planning perspective, arguing that it

"occupies other land spaces, especially parks and green spaces" (MF1) and "destroys the continuity of the front-line riverside landscape" (YM1). Another view expresses concern about the rising level of local living standards accompanied by housing development and therefore believes that housing is a development that damages local interests.

Moreover, a similar opinion arises when looking at changes in the population flow in the West Bund. Some participants criticise the impact of population (tourist) growth on local resource allocation and environmental carrying capacity:

> "There are more people, the shopping experience in the mall is worse, and more garbage is produced, which increases the cost of handling them." (YF1)
>
> "For example, the cherry blossom forest in front of the Long Museum… local people enjoy the cherry blossoms every year, but in recent years, because of the large number of tourists coming here [see **Figure 6.**], our viewing experience has been affected." (YM2)

Figure 6. The Cherry Blossom Forest in Front of the Long Museum is "Occupied" by Tourists in Spring (photo by the author in March 2019)

Brida et al. (2010) once described the fostering of diverse local opinion groups when facing tourists, including protectionists and development supporters. In the West Bund case, the vigilance of local protectionists extends from tourists to all external comers, including house buyers and candidates. Meanwhile, some participants who hold the development supporters' viewpoint regard the entry of people as an opportunity for future development:

> "I found that the sustainable development of the West Bund has an obvious latecomer advantage over the Bund and Lujiazui [i.e., other central waterfront areas in Shanghai]. It has only been developed in recent years, and some very mature planning theories and development techniques have been applied here, thus attracting more people to come here to play, buy houses and find jobs, so that the local economic growth will be faster, and its overall development ceiling will be higher." (OM2)

Lastly, all participants acknowledge that the overall changes in the West Bund are aligned with their expectations for sustainable development. It reflects citizens' satisfaction with the past sustainable governance outcomes in the West Bund.

4.2 Local Views on the Power Structure of SI Development

4.2.1 Perceived Role of Policymakers

Participants explicitly proposed that policymakers should act as overall planners of SIs. The specific descriptions of the "planner" function are divided into two parts: First, some discourses recognise the division of labour in domestic planning within different levels of policymakers:

> "I think it should be the Shanghai government... first to announce... sustainable development initiatives, then the district government to make some deployments, and then to the local environment institution to conduct professional adjustments. It is necessary to rely on governments at all levels, from the city to the district as the main force." (YF2)

Also, as all participants emphasise that policymakers should "comprehensively consider citizen opinion and then propose a final plan" (YM2), the planner function essentially involves collecting and integrating external opinions. Notably, this argument acknowledges the need for citizen participation in planning SIs. The necessity for this "integral planning" (MF2) is further explained:

> "They are residents of this place; they are part of the community. If [policymakers] plan this community in a way they cannot understand or make sense of community unrecognisable, it's definitely not good." (YM1)

On the other hand, participants' concerns extend to the implementation of SIs, pointing out that policymakers should play the role of coordinators of social resources and be responsible for monitoring indicators:

> "[The formulation of plans and indicators] is only a premise and a goal, and the specific application and implementation are the vital process. Policymakers must also lead builders from all walks of life to implement them together. All these depend on [policymakers], so their roles are particularly critical." (MF2)

Some participants explained their reasons for supporting policymakers to undertake these significant roles. It is because policymakers possess an "overall view" (YM1) and can obtain "professional advice from expert teams" (MF1). However, Saich (2007); McCormick *et al.* (2013) criticised that Chinese urban policymakers are typically more concerned with their own interests (performance) and are too

formalistic in the formulation and implementation of SIs with ignorance of actual problems. Similar critiques also emerged in participants' discourses:

> "A bit more focus should be on the people, not GDP, not the political achievements and face programmes [i.e., unrealistic programmes built for political performance] of the leaders... When many indicators are implemented from top to bottom, to the specific fields, they will appear more rigid, more eager for quick success, and then it is not practical to implement." (OM1)

4.2.2 Perceived Role of Citizens

Though it is generally acknowledged that citizen participation should be incorporated into SI development, participants disagree on to what extent citizen participation affects indicator setting. The majority view (YM1, YF1, YF2, OF1, OM1, YM2, MF2) is that citizens play a secondary role compared to policymakers: citizens' opinions should be "conditionally considered" (YF2) and even "should not be given too much weight for participation" (YM1). It is due to participants' concerns about the operability and generalisability of citizens' opinions:

> "The residents have shortcomings, such as a lack of professional ability, and their vision for development is not long-term. Therefore, it may be difficult to clarify the direction of future development and cause confusion in implementation." (MF2)
>
> "When the common citizens have some ideas of their own... it leads to difficulties to formulate the overall indicators... [the indicators] cannot satisfy most people." (OM1)

Consequently, many participants believe that citizens cannot voluntarily drive the development of long-term SIs, which is consistent with Turcu's (2013) criticism of the bottom-up model.

On the other hand, the minority view (MF1, OM2, MM1) believes that citizens play a critical role as well as policymakers, affirming that citizens' living practices contribute to the identification of local SIs:

> "Community indicators like 'the last kilometre programme' were initially introduced based on residents' views, ensuring that the community within one kilometre from the metro station was covered by public transportation... Many times, it was because of the expansion of local demand that promoted the corresponding indicator coverage." (MF1)
>
> "The local people know what they need clearly, and the indicators formed by this are more likely to hit the key points of the current development because they are in the local area at that time. They are very clear about the development situation." (MM1)

In essence, there is no contradiction between the two different perceptions of the role of citizens. Even participants who hold a "secondary view" of citizens acknowledge the need to "focus on opinions that reflect the needs of the majority of the citizens" (OF1). Both views are primarily based on participants' judgements on the capability of a part of the citizens with whom they frequently contact during their individual living practice. In contrast, the features and behaviours conveyed by policymakers of the West Bund are fixed, thus participants can form a more unified perception of them.

4.2.3 Interaction between Citizens and Policymakers

In the interaction between citizens and policymakers in the SI development, all participants agree that policymakers should be more proactive. On the one hand, policymakers are suggested to collect public opinions on the indicators through "community visits and public satisfaction surveys" (OM1), and views that are in the interests of the majority, as described in the former section, are adopted and "reflected in the iterations of the indicator planning" (MF1).

On the other hand, when conflict occurs between citizens and policymakers, participants choose to call on policymakers to organise field investigation:

> "If there is a conflict, I think it is necessary to listen to everyone's opinions, to analyse it many times, and to verify it repeatedly, rather than saying that one party must be right. It is needed to let experts come to the scene to study and see how to coordinate, or there will never be a consensus." (MF1)

Another concern for participants is the disclosure of planning details and investigation results by policymakers. This is considered a vital stage to enhanced citizen participation in SI development, as it helps citizens understand "how the government is dealing with issues" (OM1) and then allows for "targeted feedback and appeals" (OM2). According to Zhang *et al.* (2016), Chinese urban policymakers still face the challenge of improving the availability and quality of information disclosure.

4.3 Local Preferences of Specific SIs

4.3.1 Preferences on Existing SIs

The Xuhui Government (2022) claimed that the current 13 SIs in the West Bund integrate concerns from economic, cultural, social, environmental and governance dimensions. However, it is unclear how these indicators are characterised and quantified due to a lack of explanatory documents. For example, similar to the issue raised by Li et al. (2019b), indicator 6 in the West Bund reflects economic-led inertial thinking that "as long as the income of the cultural industry is higher, the cultural development will be better", which problematically measures the performance of cultural sustainability by cultural industry growth. Moreover, over half of the indicators (indicators 1-7) are related to the economic targets, including regional taxation, industry development and improvement of the business environment, which leaves some participants with the impression that "policymakers mainly focus on economic interests" (MF1).

Consequently, few responses mention indicators 1-7, as participants typically "only care about indicators related to the local lives" (OM2). In contrast, participants tend to comment on indicators 8-13, though with different opinions. Figure 7 visually presents whether the code identified by indicator numbers is present in each participant's response. Since indicators 8-13 reflect development targets in different dimensions, this paper analyses them according to the codes of indicators or indicator groups widely identified by participants.

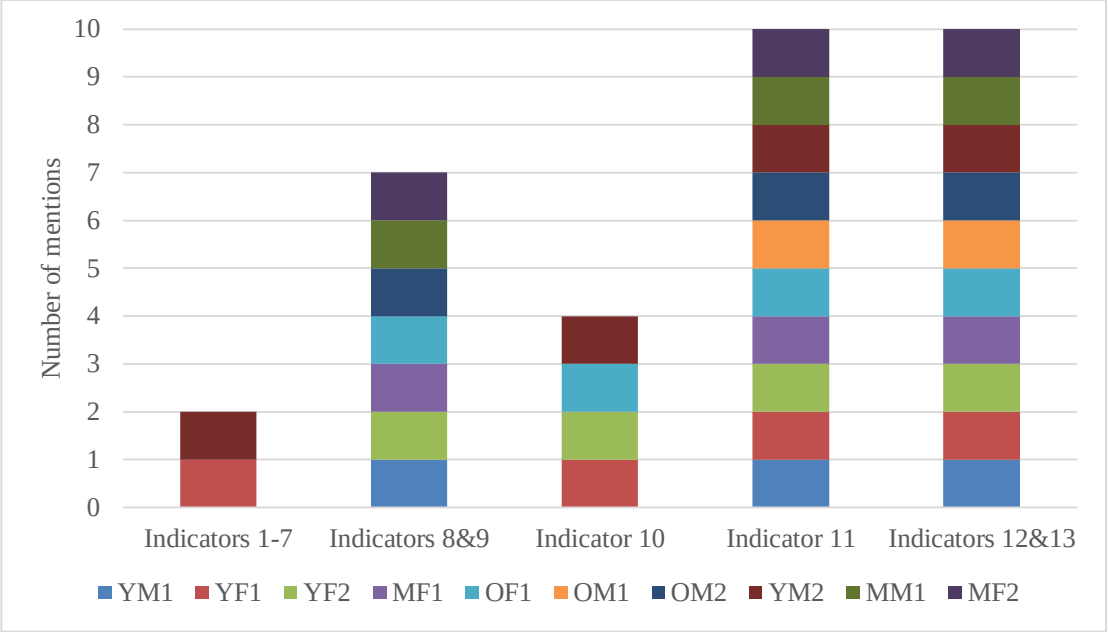

Figure 7. The Distribution of Mentions on the Indicators/Indicator Groups by Participants

Firstly, indicators 8 and 9 are perceived to "bring better cultural services for locals" (OF1). Many participants appreciate these indicators for improving temporal and spatial accessibility of cultural activities. However, participants vary in their perceived benefits of cultural activities. For example, all three student participants (YM1, YF1, YF2) expressed interest in watching exhibitions, while OF1 emphasised the leisure opportunities that activities created for the elderly. Therefore, critiques generate from the types and content of cultural activities that are not stated in the indicators:

> "The number of new venues will reach 20, so what role do the 20 venues play?… For indicators of cultural activities, what is the type of activity, what are the requirements for the time span, and whether it is close to local residents?" (MF1)

Secondly, comments on indicator 10 seem more negative. As mentioned in section 4.1.2, a few participants have a negative attitude toward the arrival of tourists, so here some of them question the purpose of measuring tourist growth, arguing that it is contrary to the sustainable development principle:

> "[The growth of tourists] may bring some negative effects, for example, throwing garbage, crowding, more pollution of the environment, etc. So, we need to consider the development of tourism, the growth of tourists, and whether the result is good or bad." (YM2)

Thirdly, indicator 11 obtains attention from all participants. It is because the participants recognised the "Waterfront Convenient Station" as a significant part of the waterfront leisure experience to provide them with great convenience for "breaks and supplies on the way" (MM1), since all participants have the habit of walking and jogging at the waterfront area. Moreover, the measurement based on "satisfaction" of indicator 11 is perceived to align with the approval of the top-down satisfaction survey of participants as mentioned in section 4.2.1, bringing a sense of participation for locals:

> "Though I have not been asked for this [my satisfaction], in my opinion, the result will be compelling." (OF1)

Lastly, indicators 12 and 13 are also noticed by all participants. These indicators are widely praised for "reflecting the characteristics of the West Bund's emphasis on environmental construction" (YF1). Participants can quickly identify and highlight the two indicators from the indicator set because of their sensitivity to changes in the built environment of the West Bund, such as the increase of green space and the connection of the waterfront area, as discussed in section 4.1.3.

Moreover, in the only two comments on indicators 1-7, indicator 4 is mentioned for "work-related reasons" (YM2). Indicator 7 was questioned as "the location of a company's headquarter is irrelevant to sustainable development" (YF1).

4.3.2 Perceived Missing SIs

From the participants' perspective, two types of indicators are widely identified as missing from the existing indicator set of the West Bund. First, some participants emphasised the need to measure governance outcomes, arguing that citizen satisfaction with policies should be included in the indicator set (YM2). It reflects their concern about the development of formalistic indicators by policymakers:

> "About the governance team, their self-monitoring mechanism and the evaluation of the effectiveness of the entire policy implementation should also be reflected in this indicator system… In many situations, the decision-making of the governance team conforms to the procedure and the law, but it does not conform to the actual local development." (OM1)

On the other hand, like the focus on infrastructure construction in section 4.1.2, the relevant indicators are highlighted by participants for their reflection on community benefits. However, the number of facility-based indicators in the current indicator set does not meet the expectation of participants. Thus, indicators include the completion rate of transportation construction (OM1), the coverage of commercial complexes (YF1) and the number of hospitals (YF2) are proposed. It is worth noting that the enthusiasm of citizens for the "school indicator" observed by Turcu (2013) does not appear in the West Bund, which may be because fewer participants in this study directly face the educational pressure of their children, or they may satisfy with current educational resources. In contrast, a concept of "fit-for-the-elderly" has been widely proposed, announcing that the infrastructure construction in the West Bund should consider more about the experience of the elderly (MF1). It reflects an ageing-oriented shift of the community benefits narrative of the participants in the context of an accelerated ageing society in Shanghai (Kim H.W. et al., 2020; Zhu et al., 2022):

> "Especially now that Shanghai has entered an ageing society. So, it is indeed necessary to carry out such a design for facilities that is more convenient and suitable for the elderly, for example, add some convenient seats on the bus, and build some barrier-free passages in the shopping mall." (MF2)

5. Discussion and Policy Recommendations

5.1 Discussion

The above findings of local citizens in the West Bund depict three salient features of the citizen perspective. Firstly, citizens are rich in knowledge about sustainability, and most of them are willing to share and contribute their knowledge to community governance. Secondly, though citizens' conceptualised understanding of sustainable development is close to the experts' definition in literature, they tend to perceive sustainability based on the influences on their living experiences in practice. Also, there is a clear demand for convenience-oriented policies, while easy-to-understand and subjective indicators are preferred by citizens in the formulation of SIs. Additionally, under the Chinese-style centralised governance system, citizens trust the government and experts in their professional decision-making of SIs and turn to appeal for more rights to know and supervise so that when there are conflicts between indicator planning and implementation levels, they can raise feedback in a timely manner.

To be specific, the citizens' concept of sustainable development is built around their community benefits. As conceptualised by Hemphill et al. (2004), community benefits refer to all factors in the local area that lead to improvements in the living standards of the resident population. In the West Bund case, environmental changes are observed to be broadly contributed to community benefits by participants, which, as classified by Turcu (2013), include changes in the natural and built environments as well as services and facilities. It is not only because of the impression created by the high-profile promotion of environmental development in Chinese cities (Liu et al., 2014), but also, as reported by Navarrete-Hernandez and Laffan (2019), due to the underlying positive link between green infrastructure and the wellbeing of surrounding residents. Therefore, increases in green space, the transformation of industrial heritage and waterfront areas as well as improvements in recreation and transportation infrastructure are highlighted in the participants' discourse.

On the other hand, citizens vary in their judgment of community benefits. Citizens in the West Bund are split into local protectionists and development supporters when facing the entry of external populations and the accompanying housing construction. Their debate focuses on the trade-off between environmental carrying capacity and economic development opportunities. However, according to the changes observed in the West Bund, existing governance actions are more consistent with development supporters' propositions. From the perspective of participatory justice, local protectionists' concerns also need to be involved in governance consideration to avoid the ignorance of some citizen knowledge exacerbating distributive injustice (Fredericks, 2012). Moreover, He (2007) has denoted that upgrading the environment and infrastructure and stimulating consumption demand for gentrifiers through policy intervention have become significant drivers of gentrification in central Shanghai. It is found that a similar process is taking place in the West Bund, leaving local protectionists at potential risk of displacement. However, this paper cannot confirm whether some local participants have faced specific challenges of gentrification and displacement due to the lack of essential data like participants' social class and sense of community.

This notion of pursuing community benefits also shapes the variations between the citizen perspective and the top-down perspective in indicator development. To sum up, the differences in the preferences of the citizens and policymakers for specific SIs in the West Bund exist in the priorities of both indicator types and targets of measurement.

For the indicator types, the existing indicator set corroborates the general pathway of Chinese policymakers to prioritise economic improvement and infrastructure optimisation in urban sustainability governance (Li et al., 2019a). Though the purpose of both priorities is to leverage social progress, the potential driving effect perceived by the two types of indicators from the citizen perspective is inconsistent. Participants are more likely to feel the upgrade in the living experience brought by infrastructure construction. In contrast, economic growth is difficult to resonate with participants, because the specific industries covered by the existing indicators do not involve the work scenarios of most participants. Therefore, citizens present a significant preference for those infrastructure-based indicators. Notably, participants mainly show disinterest rather than disgust with the existing economic-based indicators. It is because citizens acknowledge economic development as an essential component of sustainability in the West Bund based on a rational view of SUD. Moreover, the listing of missing indicators essentially reflects the insufficient representation of citizens' community benefits by existing indicators perceived by participants, indicating citizens' desire for more indicators they are concerned about being included in the indicator system.

For the indicator targets, citizens prefer using citizen satisfaction as the target of indicator measurement, particularly on the indicators that reflect their community benefits and participation willingness, like the "Waterfront Convenient Station" in indicator 11 and the further proposed indicator of governance outcomes. Olson's (2015) study has also regarded citizen satisfaction as a critical way to overcome the difficulties of measuring actual results in the public sector. However, quantified outputs are still the primary approach for policymakers to judge indicator measurement. It reflects a preference difference between a subjective, citizen-centric view and an objective, data-driven one in developing indicator targets.

Additionally, the study observed that some indicators have issues of understandability for citizens. It is due to the absence of policymakers' viewpoints: the rationale for the measurement of each indicator is not explained in detail in official documents. Though the indicator types are given, they are more like hints for planners than explanations for viewers. Therefore, participants can only judge these simply described indicators by their perceptions of community benefits. Consequently, some indicators with apparent benefits to the citizens become more identifiable from the participant perspective, such as indicators 10, 12 and 13. Then, when community benefits are insufficient to explain all the rationale for which an indicator is set, participants tend to comment that the indicator is irrelevant to sustainable development, particularly indicator 11. Therefore, citizen-oriented explanatory documents are needed to deliver the precise meanings of the indicators.

Ultimately, to confront this difference in preferences, policymakers in the West Bund must incorporate citizen opinions that reflect collective needs into indicator planning and establish reliable mechanisms for field investigations and information disclosure. In essence, the participation mode advocated by local citizens in SI development is not a redistribution of power and responsibility (Fredericks, 2012), but to carefully elevate citizens' influence power and channels under the leadership of policymakers. It is because participants held a pragmatic view of "let professionals do professional things" to the roles of citizens and policymakers. On the one hand, they understand that policymakers are critical actors in all areas with "unlimited responsibility" in the Chinese urban context (Guttman et al., 2015; Li et al., 2019a), and they generally acknowledge that past governance outcomes in the West Bund align with their expectations for sustainable development. Therefore, policymakers are in a proactive and dominant position in their mainstream narrative of the power structure. On the other hand, participants believe that citizens can at least precisely represent their community benefits. In other words, citizens are able to act as "professionals" in identifying indicators of community concern. In contrast, policymakers have the limitations of formalism and utilitarianism in formulating relevant indicators (Saich, 2007). Hence, most participants expect policymakers to preserve essential positions and channels for citizens to propose and declare SIs of their preferences and interests.

Therefore, the crucial challenges to materialise this ideal citizen participation lie in the response of policymakers and the operability of citizens' opinions. First, due to the heavy reliance on policymakers' self-adjustment of the SI development mechanism, the undefined responsibilities of the administrative institutions in the West Bund placed citizens at a disadvantage position as studied by Qiu (2019). Then, though insufficient participation willingness of citizens as pointed out by Kim G. et al. (2020) has not been observed, many participants in this study declare the limited ability of citizens to participate. Such restrained and rational thinking can undoubtedly reduce the confidence of citizen participation in SI development. Moreover, according to participants' perceptions, other stakeholders in the West Bund are considered to have limited influence on the interaction between citizens and policymakers. Though increasing stakeholder involvement in the "collaborate governance" of the West Bund is highlighted (Qiu, 2019; Xuhui Government, 2022), no other stakeholders are perceived and identified from the participant perspective in SI development. Therefore, this "collaborate governance" is more likely a unilateral relationship between policymakers and separate stakeholders, rather than a multi-dimensional communication mechanism. It is necessary to consider citizen participation totally within the interaction between citizens and policymakers.

5.2 Policy Recommendations

Two sets of policy recommendations are proposed for the district government of Xuhui. First, considering locals' sensitivity to environmental changes in their living experiences, the district government can increase the proportion of facility-based indicators in the iterative plan of SIs to reflect the improvement of green infrastructure and convenience service facilities in the governance targets. Also, it is needed to form an understandable indicator set for citizens, which could be a dedicated attachment to a government

report or even as simple as creating a category column for the existing indicator set in the West Bund, as citizens primarily hope to understand which indicators are relevant to their concerns of community benefits.

Second, the district government needs to enhance citizen participation in the top-down governance system. On the one hand, policymakers should be more open to citizens' opinions. Thus, they need to conduct frequent top-down satisfaction surveys with local citizens and retain enough bottom-up feedback channels. One possible option is to establish a citizen forum by the policymakers to encourage the exchange of attitudes and insights on indicators and other policy initiatives. Then, policymakers may conduct a summary of public opinion for further adjustment of their social policies. On the other hand, to empower citizens to provide precise and professional feedback, local policymakers need to disclose sufficient information to the public and provide local communities with professional training in SI development. This can help maximise the value of citizen knowledge.

The West Bund case could also lead to a rethinking of the trade-off of SI development by a broader range of local policymakers. According to the thinking logic of citizens on SIs elaborated above, it can be found that the concept of sustainable development of citizens is limited and perceptual in essence. However, policymakers, as the decider of local development policies, need to formulate indicators from a more macro and rational perspective, so they need to maintain a proper attitude of screening citizens' opinions rather than absolutely listening to them. To be specific, the node to refer to citizens' opinions exists in the process of formulating indicators and implementing indicators. Overall, a suitable SI development mode that incorporates citizen participation can help foster community resilience to sustainable development challenges and a comprehensive sustainable governance blueprint.

6. Conclusion

This paper uses the West Bund as an example to illustrate the local citizen's perspective on the development of SIs. In particular, based on the comparison with the traditional top-down SI development perspective in China, it presents the unique features and criticality of the citizen perspective. Citizens prefer indicators that reflect community benefits, are measured by citizen satisfaction, and are easy to understand. It is founded that environmental changes in the West Bund, including the natural and built environment and infrastructure, significantly impact citizens' living experiences. In contrast, the community benefits perceived from economic development are limited. Chinese policymakers typically leverage SUD by improving economic development and environmental infrastructure. However, they are prone to fall into an excessive pursuit of economic indicators. In this case, citizens expressed dissatisfaction with the lack of facility-based indicators. Then, based on the consideration of maintaining community benefits and the desire for citizen participation, citizens tend to measure the performance of SIs from the subjective satisfaction of citizens. In contrast, policymakers prioritise objective and quantitative criteria as the targets of indicators. Moreover, many specific indicators are difficult to

understand from citizen perspectives since policymakers have not developed citizen-oriented explanatory documents for indicator descriptions.

On the other hand, regarding the position of citizens, though there is an opinion that citizens and policymakers play an equal role in SI development, the majority believe that citizens are secondary actors. In consensus, the critical role of citizens in identifying collective community benefits is acknowledged. In contrast, policymakers play a dominant role in both government and citizen perspectives. From the citizen perspective, it is due to their understanding of the "unlimited responsibility" of the government in the Chinese urban governance system and their recognition of the policymaker's professional source of knowledge (Guttman et al., 2015). However, due to concerns about the policymaker's excessive pursuit of political performance and citizens' sensitivity to community benefits, there is a consensus that policymakers are required to include citizen participation in the SI planning. To be specific, the research participants proposed that local policymakers should take the initiative to provide citizens with policy information disclosure and channels for feedback.

This paper contributes to the refinement of an integrated solution for SI development, providing an approach to generalise the integration point based on a comparison of views found in bottom-up interviews with those reflected in the top-down literature. This approach can confront critical differences between citizens and policymakers in SI development preferences and positions. Considering the applicability of the bottom-up SI development paradigm and the complexity of the composition of urban stakeholders, this approach is applicable to research design for significant functional areas in other cities with large populations and centralised governance structures. Therefore, further research can explore the challenges of citizen participation in other cities and regions to compare with the experience in the West Bund. Another direction of further research can focus on the governance practices of SIs. In particular, studies can explore the specific roles of different urban stakeholders in driving the materialisation of the targets reflected in the indicators. It helps to systematically understand the application and implementation process of the indicator approach in SUD. In a word, this approach is further expected to be fully discovered to better contribute to "Better City, Better Life".

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