

Towards sustainable urban transition: A critical review of strategies and policies of urban village renewal in Shenzhen, China



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ABSTRACT

Urban villages are typical informal settlements in Chinese cities where rural villages were gradually surrounded by urban built environments during urbanisation. In the era of urban renewal, these “urban enclaves” have been systematically demolished due to their “chaotic” building layouts and “backward” appearance. Existing policies related to the redevelopment of urban villages mainly follow a “demolish-rebuild” orientation, while lacking sufficient consideration of the mechanisms behind their environmental aspects and performances. In the long run, such a direction of urban redevelopment will hinder the achievement of sustainable development goals. This paper reviews the major municipal-level policies that relate to urban villages and urban renewal in Shenzhen through the adoption of systematic literature survey and content analysis. An analytical framework of “Three Contents and Six Instruments” is established to examine the highlighted and overlooked aspects of these policies. Results reveal that Shenzhen’s implemented policies aim to formalise, modernise, and consequently homogenise urban villages into “urban-like modern communities” through the following upgrades: urban infrastructure development, improvement of sanitation conditions, and building façade beautification. However, these approaches for “environmental enhancement” were not primarily based on identifying and understanding the real causes of the exhibiting “environmental problems.” Meanwhile, the inspiration and inheritance of informal rules, especially the involvement and participation of residents for the rehabilitation of urban villages have been entirely overlooked. These two overlooked crucial aspects should be introduced in policy-making and integrated with existing adopted strategies to match local contexts and resolve specific issues. The paper advocates to extend the connotation of the concept of *environment* from an infrastructural consideration to a mechanism-based and performance-orientation thinking during the making of urban renewal policies. It suggests that *environment* could be utilised as an inclusive medium to efficiently frame and link multiple aspects in the policies.

1. Introduction

1.1. Informal settlements, urban renewal, and land use management

Informal settlement is a ubiquitous living scenario that is commonplace in the context of speedy industrialisation and urbanisation; it is a worldwide phenomenon. Today, an estimated 25% of the world’s population (around 1 billion) live in various types of informal settlements (UN-Habitat, 2020). In China, the urban village (or “village in the city”, *chengzhongcun*) is a representative type of informal settlement in city districts comprising several traditional rural villages gradually surrounded by built-up urban areas in the process of urbanisation (Wang et al., 2009). These “urban enclaves” include *high-density mid-rise*

building blocks with diverse morphological patterns; and due to their central location, affordable rent, abundance of employment opportunities, as well as diverse land-use types and dynamic neighbourhood atmosphere, numerous people have opted to settle in these areas. From a global perspective, China’s urban villages and informal settlements in other regions and countries in the world share some similar characteristics in terms of neighbourhood dynamics, cultural and institutional informality, building form and spatial patterns, and economic diversity (Wang et al., 2009; Saunders, 2010; Dovey and King, 2011; van Oosterom, 2020; Wang, 2020; Taubenböck et al., 2018). On the other hand, most residents of China’s urban villages are not poor; rather, they originate from different regions of China (and even other countries) and possess diverse socio-cultural backgrounds. The resident mix include

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indigenous villagers (with rural *hukou* and collective rural land ownership), migrant tenants (both rural areas and lower-tier cities and towns in China), newly-graduated youths, and some international business operators (Li, 2002; Bach, 2010; Ren, 2018).

In 2011, China's urbanisation rate reached 51.27%, indicating that over half of the country's population live in cities (Zheng, 2018). However, there remains a large number of migrant workers who have not obtained their urban *hukou*, yet they live and work in cities; and most of these workers opt to reside in urban villages. Currently, over 80% of the urban villages are distributed in China's relatively developed cities, the regions that attract most migrant workers (ChinaIRN, 2020). According to the *Guiding Opinions on Promoting Redevelopment of Old Urban Neighbourhoods in Cities and Towns*, reconstruction plans for the year 2020 included 39,000 old urban neighbourhoods, which affect the settlement of seven million urban and town households (General Office of the State Council of the PRC, 2020). In the era of urban renewal, China's urban villages have been criticised by both media and academia as being "dirty-messy-bad" (*zang-luan-cha*) and having a "backward" appearance. These negative stereotyped labels have been reinforced year after year, resulting in total demolition in the process of urban renewal (Pan, 2019). With the absence of new available urban land for further development, these urban villages, as well as other types of informal settlements and old urban areas (*lao chengqu*), have become major land resources to sustain urban development in many Chinese cities. Local governments frequently expropriate the Home-Based Land (*zhai-ji-di*) of urban villages, and transform it to state-owned urban land to attract market investments and new commercial construction. To match and achieve this economic purpose, local governments have implemented many urban renewal policies related to urban village redevelopment during the past three decades (Hui et al., 2016; Pan, 2019; Du, 2020). These policies mostly advocate a "demolish-rebuild" method, and significantly influence urban land use management and planning, urban function and landscape, local economic growth, affordable housing supply, and socio-environmental heterogeneity/homogeneity (Lin, 2014; Ren, 2018; Chen and Wu, 2020; Pan, 2021). However, most buildings in urban villages have an average life span of approximately 30 years, and radical demolition leads to huge economic and ecologic waste. Of note, the average life span of a building in Britain is 132 years; and in the United States, it is 74 years. In contrast, Many buildings in China only have a life span of less than 30 years (Wang, 2010), which is a consequence of "urban planning" (for demolition and reconstruction), rather than an issue of "poor quality" (Wang, 2014; Wu, 2019). In this regard, "urban renewal" provide us an opportunity to reflect the emerging urban issues and adjust land use policies as they significantly influence directions of spatial and spiritual development of our cities (Glaeser et al., 2021). At the same time, informal activities related to rehabilitation in many Chinese cities, particularly Shenzhen, have played an effective role in the amelioration of environmental quality in urban villages. This has prompted the local government to change its attitude towards urban villages, shifting its plans from promoting demolition to advocating rehabilitation in recent years.

1.2. Existing concerned aspects of urban villages and knowledge gap

Since the late 18th to early 19th centuries, urban environmental quality has received widely attention with the vision that building health and sustainable cities (Howard, 1833; Vlahov et al., 2004; Upton, 2008; Cowell, 2013). In contemporary China, *environment* is among the most important themes to be considered and emphasised during urban planning and policy-making (Xu and Chung, 2014). Since the 1990s, studies on Chinese urban villages have focused on political, institutional, socio-cultural, economic, and spatial dimensions; whereas investigations on the environmental aspects, ecologies and roles within the city ecosystems, and internal adaptability and spatial dynamics of urban villages have been relatively overlooked (Pan, 2019). Current

scholarly works mainly focus on morphological evolution and spatial structure (Wu, 2014; van Oostrum, 2020), folklore and ethnography (Li, 2002), migrant workers and affordable housing (Bach, 2010; Wu, 2016a; Wu, 2016c), informal economy and capital (Smart and Lin, 2007; Zhang, 2011; Lin et al., 2011), land use patterns and property rights (Tian, 2008; Hao et al., 2012; Nightingale et al., 2012; Wang and Wang, 2014; Yuan et al., 2017; Huang et al., 2020), spatial production and illegal construction (Zhang et al., 2014), politics and governance (Schoon, 2014; Tong et al., 2021), and gentrification and urban renewal (He, 2015; Liu et al., 2018; Jiang et al., 2020; Gu and Zhang, 2021; Zhan, 2021). In recent years, both media and academia have highly recognised the socio-cultural and economic values of China's urban villages, which have also been acknowledged in many local urban renewal policies in Chinese cities (Liu et al., 2017b; Li and Xu, 2018; Yuan et al., 2021). In comparison, beyond the criticism, the environmental value of these informally growing urban villages remains generally overlooked. There is a critical gap between the policymakers and urban practitioners' focus on "problems of the 'chaotic and unmoden' physical environment" of urban villages and the researchers' preference to credit and emphasise these neighbourhoods' "socio-cultural values". This has led to a phenomenon where policy-making efforts focus on criticisms related to the exhibiting "environmental problems" of urban villages, whereas the recommended renewal strategies fail to understand the causes and mechanisms behind these "environmental problems." Without a systematic investigation of the multiple issues that plague mature developed urban areas (i.e. urban villages), the implementation of related urban land use management and planning during urban renewal policies may result in problems that are, in the long term, beyond remedy.

In this paper, discussions concerning the theme of *environment* of urban neighbourhoods (urban villages) do not refer to infrastructure, road pavements, amenities, and sanitation conditions; rather, the focus is on the "environmental performances" and "effects" on cities (e.g. urban heat island effect, humidity, ventilation, daylighting, acoustic, and air quality). Although several urban renewal policies have mentioned urban villages' living environments and put forward a few countermeasures for repair, focus has limited to the following: urban infrastructure upgrades, improvement of sanitation conditions, and building façade beautification. Moreover, existing published reviews of urban village policies have provided insights of the development and structure of implemented policies (Liu et al., 2017b, 2017a; Zhu, 2020; Yuan et al., 2021), but still lack sufficient discussion of the environmental aspects, which is fundamental and crucial in achieving sustainable urban renewal under the current background of global climate change and radical urban transformation. At the same time, some of the existing academic studies and most urban renewal practices follow a "making it new and modern" ideology that focuses on formulisation, modernisation, and beautification, ultimately leading to urban homogenisation. Of note, as the fundamental pillar of sustainable development goals (United Nations, 1987; Elder and Olsen, 2019), the *environments* of cities and urban neighbourhoods should not only concern hardware and infrastructural elements but also the performances and influencing mechanisms of these *environments*.

1.3. Objectives and structure of the study

After identifying the knowledge gap in existing literature, this paper underscores the relevance of highlighting the value and issues of the *environment* of urban villages (and informal settlements) during the policy-making process. Based on an overview of the emerging concepts and strategies of urban renewal in China, and taking Shenzhen as a case study, this paper quantitatively analyses the highlighted and overlooked aspects of urban renewal policies that are currently in use, and subsequently aims to discuss potential directions that enable the adoption of policies for greater inclusion and systematic efficiency.

This paper is divided into the following three parts: "PART (A) Research": First, this study provides an overview of existing urban

renewal concepts as well as academic focal points and strategies in China and Shenzhen, which serve as a research background for the main focus of this paper, namely, “PART (B) Policy”: the review and analysis of the major municipal policies of urban (village) renewal in Shenzhen. “PART (C) Practice”: With the findings from policy analysis, a few representative design entries of urban village renewal are collected and analysed in terms of adopted strategies as well as the impact of implemented policies on these design entries. PART (B) is the main focus of the paper, and the purpose of incorporating the three correlated parts (as a feedback loop of “Research-Policy-Practice”, “Policy” functions as a crucial medium to link and integrate the “Research” and “Practice”) is to provide a circulated pathway of impact that can inform policy-making for sustainable urban redevelopment as well as the inclusive governance of urban villages and old urban areas confronting similar situations. Regarding PART (B), the paper initially establishes an analytical framework based on the contents of the analysed policies (see 5.2). This analytical framework is beneficial to the formation of specific policies, and it can be used to review and evaluate urban renewal policies in other cities that confront similar situations. Due to the complexity and the significant role played by urban villages in Shenzhen, the review and analysis in this paper are not only limited to urban renewal policies. In addition, the study also involves the major policies and regulations that relate to the governance and rehabilitation of urban villages. The paper’s findings will not only highlight directions that improve existing urban villages and urban renewal policies, but also provide guidance for inclusive and sustainable urban renewal practices in China as well as other cities in similar situations all over the world.

2. Theoretical framework

2.1. Sustainable development goals (SDGs) and urban renewal

Sustainable development refers to “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” Three crucial factors of this support the establishment and achievement of sustainable development goals (SDGs) - social, economic, and environmental (United Nations, 1987). Generally, social sustainability refers to the process of creating sustainable and inclusive places promoting wellbeing, by understanding people’s needs for the places in which they live and work (Palich and Edmonds, 2013); economic sustainability refers to practices supporting long-term economic growth without generating negative impact to socio-cultural and environmental aspects of the communities (Basiago, 1999); and environmental sustainability refers to the protection and maintenance of environmental resources for future generations (Morelli,

2011; Younis and Chaudhary, 2017). While they cater for different demands, these three dimensions are interlinked and are based on the support of the “environment.” From these basic concepts and demands, the three pillars for SDGs can be further developed into several sub-dimensions, including societal, cultural, political (social sustainability), economical, infrastructural (economic sustainability), climatic, ecological, environmental, and spatial sub-dimensions (environmental sustainability) (Fig. 1). From the late 19th century until the modern-day, many parts of our planet have experienced unprecedented industrialisation and urbanisation and are now entering an era of urban redevelopment. Urban renewal has now become newly added content that must be addressed in order to achieve SDGs (Zheng et al., 2014; Yi et al., 2017; Ye et al., 2021).

The original concept of urban renewal referred to the revitalization of shrinking urban zones through the implementation of various urban redevelopment, rehabilitation, and conservation strategies in western countries (Zipp, 2012). Due to limited financial support, real estate and market development had gradually dominated most urban renewal programs. As a result, urban renewal programs had become platforms for local governments and capitalists to manipulate the game of capital power, with the aim of achieving a quick investment return rather than specifically addressing cities’ increasing housing crisis and socio-ecological issues (Nourse, 1966; Hyra, 2012; Shamai and Hananel, 2021). Ameliorative development in cities is currently geared towards regularising and even gentrifying existing urban habitats to force people to adhere to “modernity,” which is “an unexamined and possibly dangerous supposition” (Kwinter, 2010). As a consequence, this generally results in homogenization of the urban landscape and degeneration of social and cultural complexity (Jacobs, 1961; Fainstein, 2005; Monson, 2008; Pan, 2019). In addition, the impact of climate change and occurring epidemics (e.g. the recent coronavirus pandemic) has prompted reflection on the radical mode of “demolish-rebuild” for urban (re)development. A more inclusive, resilient, and sustainable development path must be found through careful evaluation of the balance of social, economic, and environmental components within city eco-systems. In these circumstances, urban renewal, as an opportunity and a reflective instrument for urban governance and planning (Zheng et al., 2014; Zhang et al., 2016a; Zhang et al., 2016b; Shamai and Hananel, 2021), has helped out ecologically by responsibly resolving a variety of emerging issues and crises in cities.

2.2. Ecological Urbanism

Since the 1980s, researchers from multiple disciplines have started viewing human communities as an organic part of urban ecologies and

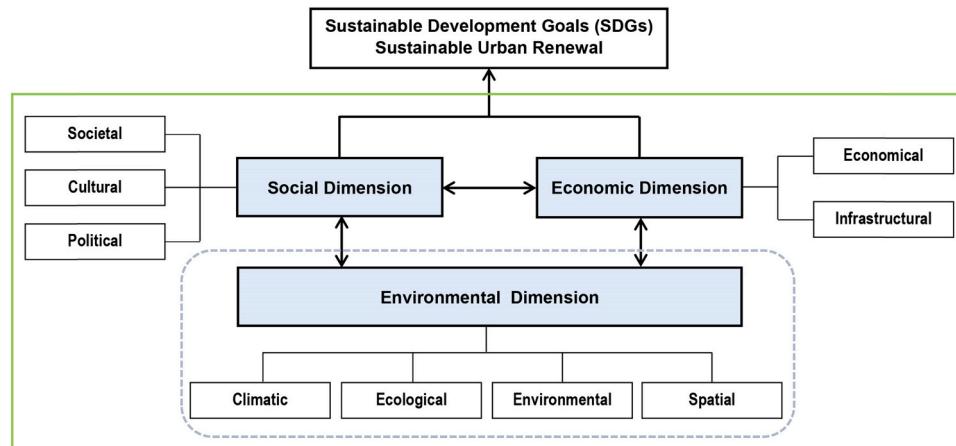


Fig. 1. The three fundamental pillars (dimensions) supporting achievement of sustainable development goals (SDGs) and sustainable urban renewal and the related sub-dimensions

Source: drawn by authors.

have advocated human behaviours which respect and comply with a balanced circulation of materials and resources. In direct response to this reflection, a conference called *Ecological Urbanism* (ECU) was held in 2009. The purpose of this conference was to debate, explore, and establish an integrated urban planning and design framework with the ability to effectively function with specific contexts rather than a homogenous paradigm (Mostafavi, 2010; Gandy, 2015). Without limiting focus to physical and artificial elements within cities, ECU holistically considers both socio-economic and environmental impacts and their interrelations. ECU advocates a system-oriented perspective which evaluates cities' status (*ecologies*) and makes corresponding decisions for urban (re)development. We must think "ecologically" in order to understand the systems of our living environment and be concerned about the fluidity of natural resources, elements, and population (Geddes, 1949; Kwinter, 2010; Shane, 2011; Evans, 2019; McPhearson et al., 2021). This idea, developed from Felix Guattari's philosophy of *Three Ecologies* (social ecology, mental ecology, environmental ecology) (Guattari, 2000), later inspired a resonance between urbanists, planners, architects, landscape designers, and social reformers.

Learning from ECU's key concept and thought, the governance of urban land use, particularly during the process of implementation of urban renewal strategies, should cherish and discover the values of every piece of urban land with attached social, cultural, and environmental values. This paper argues that the city is a complex self-organised system where the co-existence of multiple types of urban neighbourhoods with different characteristics enables the sustainable operation of the system and enhances its resilience when confronted with various changes and shocks, including social differentiation, pandemics, environmental deterioration, and climate change. Therefore, city managers and planners must systematically first understand various types of urban neighbourhoods' performances and then specifically clarify their advantages and problems within the city ecosystems. Based on this, a systematic evaluation of the trade-off between the social, economic and environmental elements should be performed during urban renewal policy-making and implementation. In order to achieve this goal, an integrated mechanism of policy-making, namely a *research-based* and *practice-oriented* process, is incredibly important.

3. Materials and methods

3.1. Background information on the case study area - Shenzhen City

Shenzhen is included in China's first batch of special economic zones (SEZs). The city was established following the reform and opening up, and became a model metropolis in contemporary China. During the past four decades of urban development, Shenzhen has formed a city landscape comprising multiple urban forms and neighbourhoods with diverse functions, land use and land covers, and building types. Additionally, multiple types of socio-economic structures co-exist and co-develop within Shenzhen's urban areas (Ye et al., 2017; Pan, 2019; Fig. 2). Shenzhen is also among China's first group of cities that launched urban renewal programs, promulgated urban renewal legislation, and implemented integrated urban redevelopment plans (Yi et al., 2018). In fact, Shenzhen is not a so-called "instant city" that evolved from a *tabula rasa*. Rather, this city is renowned for its long history, with roots that trace back to former rural villages (namely current urban villages) and small towns (Hase, 1990; Du, 2020). In 1979, Shenzhen's total population was only 0.31 million. As of 2018, the city's population dramatically increased to 20 million, with approximately 12 million people (mainly migrant residents) living in urban villages (SSB-NBSSOS, 2020; Du, 2020). In the new era, Shenzhen will and should continually function as an "experimental field" for urban renewal. To some extent, the experiences and lessons from Shenzhen may be generalised and applied to various contexts including other Chinese cities and similar rapidly transforming cities worldwide.

There are currently more than 1000 urban villages that are evenly

distributed throughout the city areas of Shenzhen (Du, 2020; Fig. 2). Throughout the past 40 years of rapid urbanisation, these villages have been transformed from "low-rise and traditional building forms surrounded by large areas of farmlands" to "high-density mid-rise patterns surrounded by modern building blocks." Today, some of the village buildings even have 10–20 floors equipped with modern and smart facilities. Urban villages have provided Shenzhen and its citizens with many welfare benefits such as affordable housing, employment opportunities, social infrastructure, grey economies, industrial development, community networks, and innovative cultures. However, one matter of urgency is the fact that nearly half of Shenzhen's land has been already developed, with another half zoned as "ecological protection areas" (*jiben shengtai kongzhixian*) (SZMUPLRC, 2013).¹ One study demonstrated that from the years 1979–2005, Shenzhen's urban construction land dramatically increased from only 3 km² to 939 km². In 2014, Shenzhen's built-up urban areas had reached 968 km², accounting for 48% of the city's total land area (1997.47 km²) (Qian et al., 2016). This was a consequence of the pursuit of investment-driven economic growth and the opening of land markets, in which the city's land resources were quickly consumed during this period. Currently, a very urgent land crisis looms over the future of Shenzhen. Accordingly, those urban villages have become the main target for urban redevelopment (Lai and Zhang, 2016). Of note, most of Shenzhen's launched and planned urban renewal programs were related to the redevelopment of urban villages (from the years 2005–2018). As of 2017, there were 644 demolition-oriented urban renewal programs (on-going and planned) in the city, covering a total area of 50.15 km². Notably, 482 of these 644 programs were related to village collective-owned land (as part of urban villages), accounting for 48% of the total volume of urban renewal programs (He, 2018; Xu, 2018). Undoubtedly, urban villages have exhibited a very close relationship with the (re)development of Shenzhen since the 1980s. They have been the most typical "old urban areas", and an essential part of Shenzhen's urban renewal (Fig. 2). Without the support of these informal urban villages, the city's operations would be in a state of paralysis. Therefore, carefully dealing with these dominating informal settlements during urban renewal is critical, as it causes significant short- and long-term impacts on the operations and sustainability of the entire city ecosystem.

3.2. Methods

This paper takes systematic literature survey and content analysis as the main investigation methods. Literature survey and content analysis are widely used but very effective methods to narrow down research problems and formulate a specific research question (Manganello and Blake, 2010; Erlingsson and Brysiewicz, 2017). Through keywords searching and indexing via some reliable literature databases and visualizing the data of literature by statistical software, it enables researchers to quickly capture the origins, development, and frontiers of the research field, as well as the related topics, so as to identify the knowledge gaps (Qiu et al., 2005; Nightingale, 2009). Regarding content analysis, many urban and social science researchers have pointed out that "the language used in the literature is not a neutral medium for describing the urban phenomena, but that its use is caught up in ideology and power relations" (Hastings, 2014). The backgrounds, attitudes, and positions of the authors imply the information about how the authors framed their research and writing, which analytical strategies did they use, and why they drew such conclusions. The review and

¹ In 2005, the Shenzhen government delineated "ecological protection areas" (*jiben shengtai kongzhixian*) that included first-order water source protection areas, nature reserves, farmland protection areas, and forests, in addition to country parks, mountains, rivers, reservoirs and wetlands, ecological corridors, and green spaces and islands, with a total of 974 km² of land excluded from the scope of permitted urban development (Qian et al., 2016).

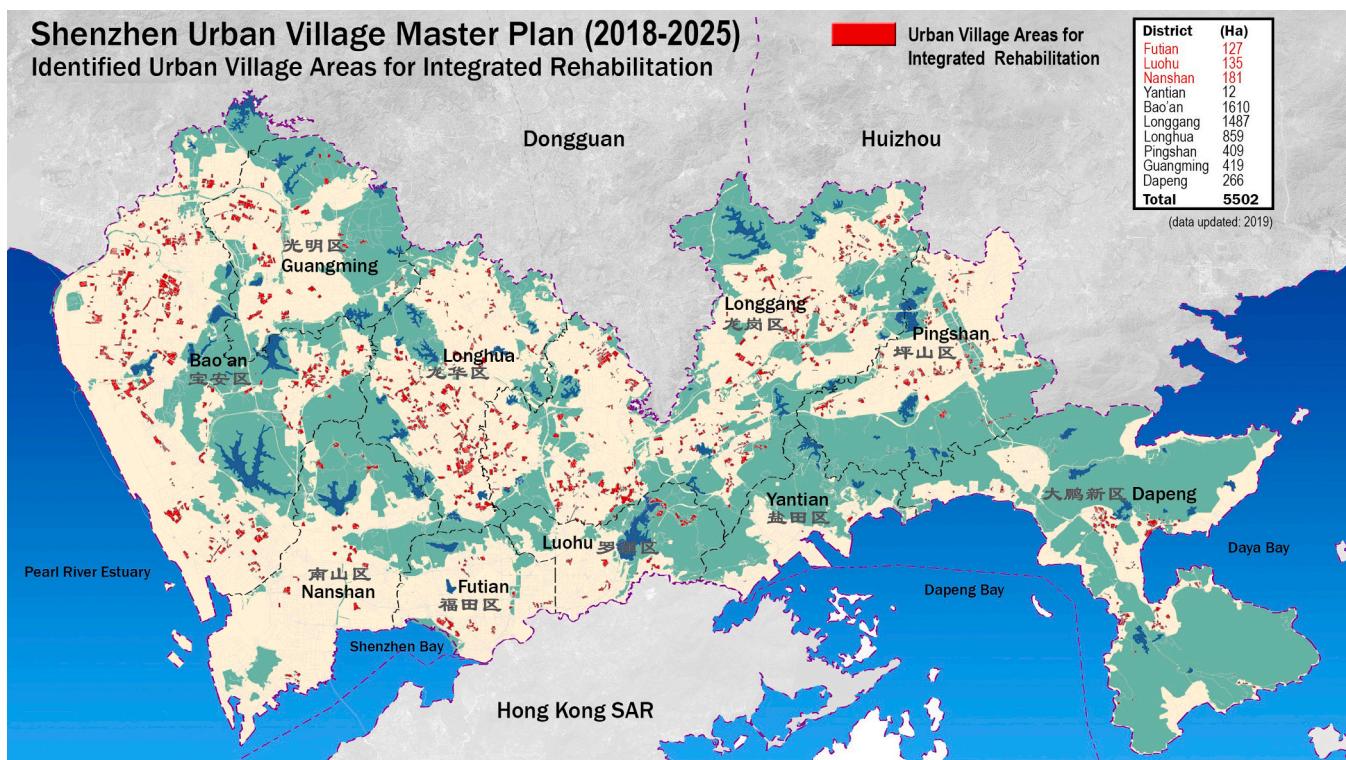


Fig. 2. Current built-up areas (areas in light yellow) and spatial distribution of urban villages in Shenzhen, potentially for integrated rehabilitation. Luohu, Futian and Nanshan Districts (see the south-western area in the map) are the urban cores of Shenzhen where many urban villages had been demolished during the past decade

Source: SBPNR, 2018, text translation by authors.

analysis in this paper contain the following three parts.

A) Research: Overview of consensus and limitations of the existing urban (village) renewal strategies in China and Shenzhen

In this step, the review materials were obtained from the publications indexed by China National Knowledge Infrastructure through the keyword search for “Zhongguo Chengshi Gengxin (urban renewal in China)” or “Shenzhen Chengshi Gengxin (urban renewal in Shenzhen)” or “Zhongguo Jiucheng Gaizao (old urban area redevelopment in China)” or “Shenzhen Jiucheng Gaizao (old urban area redevelopment in Shenzhen)”. Both key academic papers and survey reports were collected for qualitatively review. The analysis complies with a chronicle sequence to trace the development and changes of the main concepts for urban renewal in China. Such a general understanding of the urban renewal concepts in research provides directions for policy-making and adjustment.

B) Policy: Critical review and analysis of the published key urban village and urban renewal policies in Shenzhen

This part analyses the changes of government attitudes towards urban villages and urban renewal and introduces the main strategies and approaches adopted through systematic keyword indexing and quantitative content analysis (Du et al., 2015). The document retrieval via the online platform of Shenzhen Government (www.sz.gov.cn) indicates that there are over 3000 policies, regulations, and other types of documents in different levels (county, town, street office, district, and municipal levels) that are related to “Chengshi Gengxin (urban renewal)” and “Chengzhongcun Gaizao (urban village redevelopment)” by 2018 (in the titles and/or contents of these materials). The earliest policy was found to be digitally archived by this website was published in 2003. Most of these policies’ contents are repetitive, such as the policy

interpretation documents. Thus, this paper mainly concentrated on the municipal-level policies, while those interpretation documents, policies of implementing procedures, and repetitive specific provisions at district, street office, town, and county levels were excluded. Notably, the earliest municipal policies related to urban villages in Shenzhen were published in the 1980s (Wang, 2003; Ma and Wang, 2011), and the review and analysis should also involve the municipal policies which were published over the 1980–2002 periods and had not been electronically archived by the website of Shenzhen municipal government. Finally, 47 municipal-level major policies (Appendix-Table A1), which have been frequently reported by public media and academic articles (such as Wu, 2014; Yi et al., 2018; Ziguanyun, 2018), were selected for an in-depth analysis.

With the 47 selected policies being data set, a systematic keyword indexing was conducted to illuminate the structure, focal points, and overlooked aspects in these policies. First of all, an excel matrix with statistical functions was established as the analytical platform of keyword indexing. The 47 analysed policies were numbered from 1 to 47 and each of them occupies a column in the excel matrix (Fig. 3). Each policy was scanned and surveyed against the full set of critical keywords (including key phrases and short sentences) and recorded only the first instance of that keyword appearing in that policy while the frequency of emergence in each policy was not indicated in this indexing (Du et al., 2015). Moreover, the frequency of each keyword to be identified in these 47 analysed policies was automatically recorded by the excel matrix, which was used for later quantitative analysis (Fig. 3).

C) Practice: review of design entries for urban village renewal

By conducting a similar method of content analysis in the second part of the paper, the third part collects 14 representative urban and architectural design entries which can be fully accessed online as another set of the study materials to discuss what has been considered in the existing

The diagram illustrates a conceptual model for policy analysis. At the top, four main categories are listed: 'Code of Keyword', 'Keywords/Key Phrases', 'Keyword Frequency', and 'Code of Each Policy'. Below these, a large grid contains data. The grid has columns for 'No.' and 'Stage' (with sub-stages S1 through S8). The rows are organized by 'Generations of Policies' (e.g., D1, C1, E1, A3, C2, D1, E1, A1, D2, A3, D1, C1, F1, E1, MA1, MA1, SD1, FO1, FO1) and 'Key Phrases' (e.g., Eliminate Illegal Buildings, Improve Urban Infrastructure, Planning First, etc.). Arrows point from the top categories down to the grid. A curved arrow points from the 'Code of Keyword' category towards the 'Key Phrases' and 'Keyword Frequency' sections. Another curved arrow points from the 'Code of Each Policy' section towards the 'Year of Publication' column.

	No.	1	2	3	4	5	6	7	8
	Stage	S1	S1	S1	S1	S1	S1	S1	S1
Total	1981	1982-1	1982-2	1983	1986	1987-1	1987-2	1988-1	
716	9	12	5	6	8	2	3	4	
Code									
D1	Eliminate Illegal Buildings	30	1	1	1	1		1	
C1	Improve Urban Infrastructure	23							
E1	Planning First	21		1					
A3	Improve Urban Environment and Living Conditions	20		1			1		
C2	Improve Fire Fighting Facilities	20	1						
D1	Strictly Punish Illegal Buildings	19			1	1			
E1	Standardized Urban Planning	19		1	1	1		1	1
A1	Environmental Protection	18	1	1					
D2	Strengthen Land Management by Government	17				1	1		
A3	Building Façade Regularization and Beautification	16		1					
D1	Unauthorized Land Transfer Prohibited	16	1	1	1			1	
C1	Recreational and Sport Facilities	15							
F1	Multiple Forms of Compensation for Demolition	15	1						
E1	Define Control Line for Development and Transformation	14					1		1
MA1	Overall Renewal through Demolition	13							
MA1	Integrated Rehabilitation*	13							
SD1	China's International, Modern, Open and Innovative Metropolis	12		1					
FO1	Urban Village Regeneration	10							
FO1	Old Village Regeneration	10					1		

Fig. 3. An evaluation matrix with statistical functions for the keyword indexing (due to the limitation of the space, this image just shows part of the analytical matrix tool). Note: Code of keyword – the capital letter represents the dimension/instrument: A – Environment& Ecology; B – Society & Culture; C – Hardware & Infrastructure; D– Management & Regulation; E – Architecture & Urban Design/Planning; F– Economy & Investment. "SD - Strategic Directions & Concepts; FO - Focuses & Objects; MA - Modes & Approaches (for details, see Fig. 5)

Source: created by authors.

urban village renewal design practices and how these design practices have adopted the suggestions or requirements from the implemented policies. As a test and reflection, such an understanding can contribute to making more effective and practice-oriented policies in the coming future. The flow of data analysis and the interrelations among the three sections are presented in Fig. 4.

4. Urban renewal actions in China and Shenzhen

In 2005, the demolition of Yunong Village in Shenzhen marked that Shenzhen and China entered a new era of urban renewal (*chengshi gengxin*) (Deng, 2014; Pan, 2019). Even though China has experienced decades' exploration, the urban renewal actions in many Chinese cities are still at a primary stage due to the emerging unpredictable social-ecological issues. Additionally, there is a lack of a systematic framework for legislation,² policy-making, as well as urban planning and design implementation (Lin, 2015; Liu et al., 2017b). Although the local governments in many cities have claimed that the main aspects of urban renewal should be “environmental upgrade” and “liveability

enhancement,” the primary motive is the increasing contradiction between the economic growth and urban land crisis (Sun, 2013; Lin, 2014; Xu et al., 2016; Wu, 2016b). Under such circumstances, urban renewal almost becomes the only way out for many Chinese cities (Chen, 2011; Sun, 2013; Wu, 2013; Sima et al., 2019). Accordingly, those old urban areas with the so-called “backward” lifestyle and “chaotic” morphological patterns, in particular, the urban villages with a widely stereotyped discourse of “dirty-massey-bad” (*zang-luan-cha*), have become the primary targets for a new round of demolition and reconstruction. Architects, urban planners, social reformers, and local citizens and indigenous villagers have put forward many concepts and bottom-up strategies to catch the step of urbanization and respond to the demolition-oriented urban renewal. They aimed to explore more specific and flexible approaches for urban renewal while maintaining local urban fabrics and identities, such as “Overall Renewal”, “Organic Renewal”, “New Alley Action”, “Phase-based Progressive Upgrading”, “Urban Acupuncture”, “Cheap Lodging Unit System”, and “Micro-Update” (Table 1). Since the 1990 s, various urban rehabilitation activities had also been informally launched across Chinese cities. Most of these rehabilitation concepts and activities possess similar connotations and have advocated addressing the context-specific problems through small-scale interventions and occupants’ self-help upgrading. Additionally, most of these formal and informal rehabilitations have not only generated positive effects but also made urban villages dynamic urban neighborhoods with better living habitats.

From 2005–2019, most of urban village renewal programs in Shenzhen were demolition-oriented and adopted a mode of real estate development, such as Yunong, Tianbei, Caiwuwei, Dachong, Gangxia, Hubei, and Baishizhou. In parallel, many formal and informal attempts for urban village upgrading in Shenzhen had been launched by various subjects and encouraged by the district governments and street offices. These attempts were devoted to maintaining the current form of urban villages through “soft” rehabilitation. Apart from that, more and more social forces (such as street managers, citizens, villagers, and renters) have supported the progressive amelioration of urban villages’ living

² To respond to the Chinese term “*chengshi gengxin*”, a few English terms have been used in scholarly discussion, such as urban renewal, urban regeneration, urban upgrade, urban renovation, and urban redevelopment. Though each of these English terms possesses its focused aspects for urban governance and planning, they share very similar connotations and goals (Zheng et al., 2014). This paper does not delve into their differences, instead, discusses a general situation of “*chengshi gengxin*” in China’s urban context. In 2015, the Shenzhen Municipal Government drafted *The Law of Shenzhen SEZ Urban Renewal (Shenzhen Jingji Tequ Chengshi Gengxin Tiaoli)* with the aim to address the disputes of the compensation during urban renewal, so as to promote the process of demolition and reconstruction. This will be the first law for urban renewal in China. However, it was established for demolition-oriented urban renewal and had not been enacted until 2021. An updated version of *The Law of Shenzhen SEZ Urban Renewal* has been published by the Shenzhen Municipal Government on 30 December 2020 and implemented on 1 March 2021) (SBPNR, 2021).

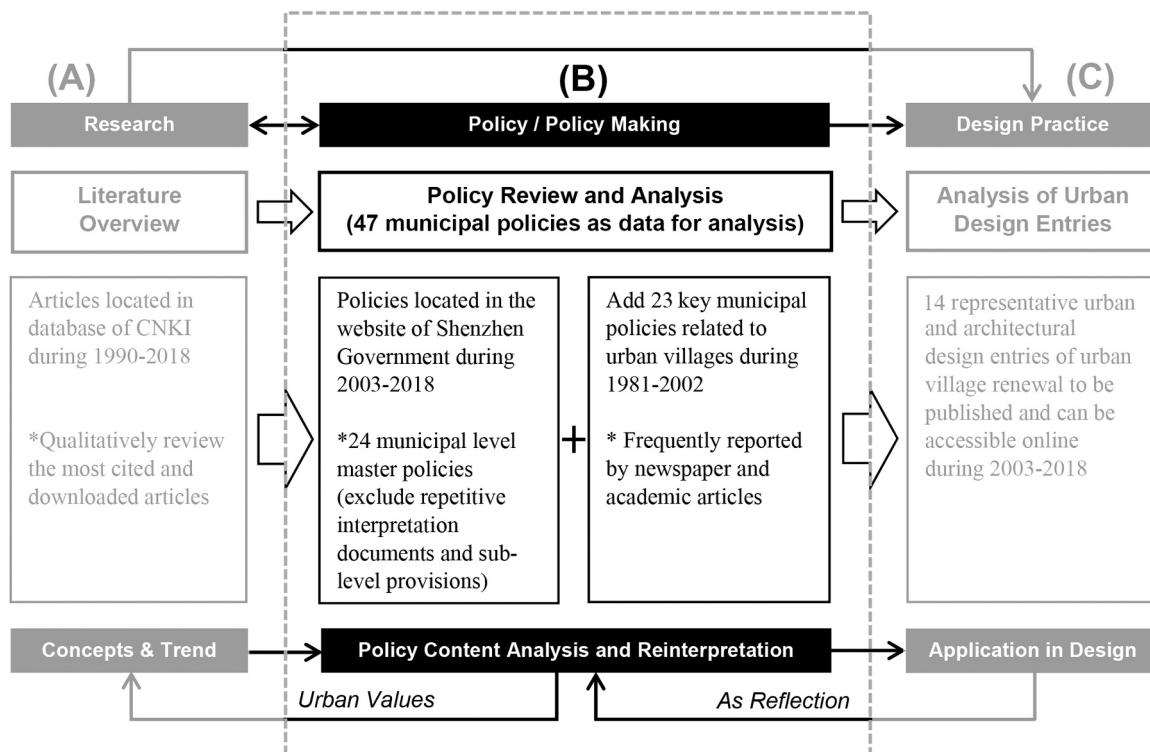


Fig. 4. Flow chart of analysed materials as well as the relationship among the three presented parts (a feedback loop of “Research-Policy-Practice”) in this paper (source: drawn by authors).

conditions and advocated stimulating residents’ consciousness and enthusiasm to renovate the living environment, so as to establish a harmonious new urban neighborhood. Based on the variations of initiators, these programs can be classified into three classes, including “formal and municipal-led” (Class-I), “formal combined with informal and district-led, developer-led and village-led” (Class II), and “informal and individual-led” (Class-III) (Table 2). These adopted urban village renewal programs with multiple levels have demonstrated the possibility of achieving integrated rehabilitation.

To sum up, under the contradiction between land crisis and sustained economic growth, many urban renewal programs in China, especially in Shenzhen, were property-led and demolition-oriented. For the reason that so-called “environmental improvement” (*huanjing gaishan/tisheng*) in many urban renewal programs intends to make cities **Newer** (urban beautification: “modern city image”, “clean and tidy physical environment”), rather than more **Mature** (respect and inherit the original urban fabrics and identities and make them stronger and more sustainable), the purpose of most urban renewal programs in China was some kind of “slum clearance”, which is similar to what happened in the northern region of the globe in the 1960s’ urban renewal context (Nourse, 1966; Hyra, 2012; Shamai and Hananel, 2021). Apparently, the Chinese government thinks highly of the importance of environmental quality enhancement in the era of urban renewal but does not point out a very specific direction and establish a systematic evaluation mechanism, and subsequently, might fail to identify the real environmental problems and then put forward non-specific countermeasures (sometimes might be inappropriate). Therefore, it is necessary to analyse the current focuses and shortcomings of the policies in implementation, in order to achieve a more efficient urban renewal in the coming few years, which will be presented in the following sections.

5. Implemented policies and the impacts

5.1. Policy evolution in Shenzhen (1980–2018)

Since the 1980s, the Shenzhen Municipal Government has gradually enacted many rounds of policies to regularise the illegal constructions and building intensification activities in urban villages. During the past three decades, several key years of policy evolution have been associated with changes in government attitudes.³ In 1982, illegal construction was officially prohibited, while in 1992, the restrictions were loosened for the reason that the government was supposed to expropriate the village collective-owned farmlands for urban construction at that time. By 1999, the building densification and intensification in urban villages developed into an “uncontrollable” stage, which compelled the government to punish these illegal constructions by demolishing the illegal parts or imposing a fine. In 2004, the Shenzhen Government officially transferred all of the indigenous villagers along with their original farmlands from a rural status to urban status, declaring that the city has stepped into an epoch of 100% urbanization rate (Comprehensive Research Group, 2014). What followed was that the government introduced its first policy for the redevelopment of urban villages,⁴ which meant many urban villages would be demolished and reconstructed (SZMUPLC, 2005; SZMUPLC, 2010). In accordance with the introduction of the “Three Olds Redevelopment” (*san-jiu gaizao*) policy by the

³ The stages division of the policy evolution in Shenzhen was based on the year of the key events and policy implementations that significantly influenced the direction of the (re)development of the urban villages and the city, which have been discussed and recognized both academic literature and media (e.g. Ma and Wang, 2011; Miao, 2014; Liu et al., 2017b; Liu et al., 2017a; Cai, 2021).

⁴ Provisions of Redevelopment of Urban Village (Old Village) in Shenzhen (2004) (Shenzhen Government, 2004a).

Table 1

Main concepts and strategies for urban village renewal in China and Shenzhen (1990–2018) (reviewed and organized by the authors).

Since	Concepts and Strategies	Key Points/Advocacies	Advocates/Supporters	References
1990s	Western Medical Therapy (Overall Renewal/Overall Reconstruction)	Advocate total demolition & reconstruction as early as possible to address both the social and environmental problems, so as to avoid the problem accumulation	Government, developers, and some social researchers	Xie (2005), Li (2009)
1994	Organic Renewal (<i>youji gengxin</i>)	Respect original urban fabrics, carefully treat every existing urban element, maintain local identity and culture, evaluate the impacts on the whole system of the neighbourhood and/or the city in a holistic angle	Architects, urban planners, and urban researchers	Wu (1994), Yang et al. (2011), JURPCMC (2015), Wen et al. (2017)
2003	New Alley Action (<i>xinlixiang yundong</i>)	The economy of “Five Square Meters & Three Dreams”: Environmental dream, Economic dream, and Safety dream; Self-help upgrading with small-scale interventions (based on social network and daily basis) to create a more positive image of urban villages	Villagers, street community office, and migrant renters	Yan (2003, 2007), Gao (2011), Lin and De Meulder (2011)
2000s	Phase-Based Progressive Upgrading & Community-oriented Planning and Design	Self-readjustment of building and spatial layouts Self-refreshed neighbourhood function Self-help renovation (e.g. functional change, façade beautification, fire control, management improvement)	Urban planners and researchers	Wang and Dai (2006), Zhang and Shan (2015)
2004	Multi-Strategy Based on Land Use Classifications	Three types of redevelopment based on land use: Reconstruction Partial Renovation Preservation with Renovation	Government, developers, and urban planners	Li (2004)
2004	Floating City Plan (<i>fucheng jihua</i>)	Reduce “perceived density”: Open ground-floor space for (semi-) outdoor activities in the high-density urban villages; widen the narrow streets/alleyes; Flexible and mixed functional use of the ground floor spaces	Architects	Huang et al. (2004)
2004	Context-Specific Renewal (No “Make it Rigidly Uniform”)	Integrate the approaches to address the context differences, including partial reconstruction, total demolition, infrastructure improvement, encourage self-help renovation, in-situ resettlement, and whole village relocation	Urban planners and architects	Han (2004)
2004	Economy-Oriented Renewal	Combine Joint Stock Economy and Individual Economy to achieve: Demolition of illegal buildings, partial conservation, functional readjustment, moderate upgrading, and “Integrated Rehabilitation”	Architects, urban planners, and urban researchers	Ye et al. (2004)
2006	Building Grouping & Roof Platform	“Big Regularized & Small Diversity”: Make full use of the roof platform as public spaces; mix old and new buildings (new buildings embedded in the clusters of old buildings)	Architects	URBANUS (2006), Duan (2015)
2006	Urban Acupuncture (Carefully Diagnose before Treatment, Small-Scale Interventions)	Upgrading based on the specific problems and specific stage of development among different urban villages; Open the Ground-floor spaces as semi-external arcade spaces to indirectly expand the width of streets; green roof and vertical greening; reducing partial density – demolishing a few handshake buildings and release for public open spaces	Urban planners, architects, landscape architects, and urban researchers	Wang and Chen (2006), Wen et al. (2017)
2006	Cheap Lodging Unit System (CLUS System)	Emphasize the dynamic balance between upgrading of the physical environment and users’ perception; CLUS: standard modular design, vertical use of public spaces, etc.	Architects	Wang and Chen (2006)
2010	Micro-Update (Micro-Renovation) (<i>wei gengxin</i>)	Upgrade the “hardware” and infrastructure of old urban areas through small-scale interventions to maintain the original urban fabrics and spatial patterns	Urban planners, architects, landscape architects, and urban researchers	Chao and Shi (2015), He and Hong (2015), Wang (2018)
2012	Quality Rental House Plan (<i>yiju chuzuwu jihua</i>)	Self-help and self-funded upgrading to achieve “Five Goods” Standard: Good fire control, Good public security, Good environment, Good management, and Good credibility	Street community office, village collective, and villagers	Southern Metropolis Daily (2012), Wang (2014)
2015	Rethinking the possibility of New Alley Action	Critical gentrification (partial, positive); progressive and small-scale redevelopment, maintain public memory and local identity, self-help upgrading	Architects and urban planners	Dai (2015)
2017	Typology-Specific and Organic Renewal (<i>teze chayihua youji gengxin</i>)	Transferring the urban villages to be “Quality Rent Houses” through an integrated rehabilitation approach;	Government and urban planners	SZMUPRLC, 2017
2018	Zoning Renewal Plan (<i>fengqu gengxin</i>)	“Integrated Rehabilitation” Priority; Classify urban villages into several zones according to their local social and environmental conditions; Multiple approaches to be adapted to different contexts	Government, urban planners, and architects	SZMUPRLC, 2018; Sima et al., 2019

Guandong Province in China (Yu et al., 2019)⁵, the “Shenzhen Urban Renewal Measures” was enacted in 2009, aiming to “eliminate” all the urban villages located in the inner-city within five years (Table 3). Consequently, during 2009–2015, many urban villages have been involved in various urban renewal units (URU) (Shenzhen Government,

2012; UPDIS, 2012; Lv and Feng, 2014), which would go through dismantlement and reconstruction in several months or a few years. However, in late 2016, it was the first time that the Shenzhen Municipal Government officially stated that the redevelopment of urban villages in the inner-city should in principle adopt the approach of integrated rehabilitation (*zonghe zhengshi*) rather than the whole demolition and reconstruction (SZMUPRLC, 2016; SZMUPRLC, 2017; Shenzhen Government, 2017). Such a claim was further confirmed and emphasised in a few newly-released documents, in particular, the “Shenzhen Urban

⁵ The “three olds” means the old towns/city districts, old industrial buildings, and old villages (Guangdong Provincial People’s Government, 2009).

Table 2

Multi-level activities of urban village rehabilitation in Shenzhen (reviewed by authors).

Class	Level of Program	Representative Rehabilitation Actions	Feature	Concerned Aspects (not Consequence)
I	Municipal-led	<ul style="list-style-type: none"> • Façade Beautification (<i>chuanyi daimao</i>) • Five Renovations (<i>wuhua zhengzhi</i>)^a • Overall Village Planning (<i>zhengcun tongchou</i>)^b 	Formal	City Image Improvement
II	District-led	<ul style="list-style-type: none"> • Interiority Program (<i>lizi gongcheng</i>) in Nanshan District^c • Other environmental improvement actions by district governments 	Formal + Informal	City Image Improvement and Urban Affordability
	Developer-led	<ul style="list-style-type: none"> • Handshake Building 2.0 International Community (by Shum Yip Group) • Wan Cun (Ten Thousand Villages) Program (by Vanke) 	Formal	City Image Improvement and Pursue Effective Management
III	Street Office-led /Village-led	<ul style="list-style-type: none"> • Quality Rental Houses Plan (Baishizhou) (street office launched, village-led, self-help improvement) 	Formal + Informal	Urban Affordability and Livability
	Villager-led	<ul style="list-style-type: none"> • Baishizhou Housing Improvement by individual villager • Greening Door Way Courtyard 	Informal	Urban Affordability and Livability
	Tenant-led	<ul style="list-style-type: none"> • Home Improvement by Migrant Tenants (self-help improvement) 	Informal	Urban Affordability and Livability

Notes: a) Five Renovations (*wuhua zhengzhi*) was launched by Shenzhen Government in 2015, which contains "Clean-Up" (*jinghua*), "Civilize" (*wenhua*), "Green" (*lvhua*), "Beautify" (*meihua*), and "Pave" (*yinghua*) (Hu, 2015). b) Overall Village Planning (*zhengcun tongchou*) was first launched in Pingshan District in 2014 and later promoted by Shenzhen Government with the promulgation of Measures for Management of Pilot Project of Coordinating Interests of Land Readjustment (Zhang, 2015). c) Interiority Program (*lizi gongcheng*) was launched by Nanshan District (Shenzhen) in 2014. It focuses on fine-scale interventions while emphasizes a mechanism of long-term management, aiming to improve city image and renovate urban villages into civilized urban neighbourhoods (Zeng, 2014).

Village (Old Village) Master Plan (2018/2019–2025) " (SZMUPLRC, 2018; SBPNR, 2019; Table 3).

5.2. Analytical structure - "Three Contents and Six Instruments"

Through keyword indexing and statistic, a total of 155 keywords in these 47 analysed policies were identified, amounting to 716 indexing records. These indexed keywords would be classified into two levels, namely, the "strategic level" and the "instrumental level." The former mainly refers to city positioning, which can be grouped into "Three Contents," including "(SD) Strategic Direction and Concept (for the City)," "(FO) Focuses and Objects (of Urban Village Renewal)," and "(MA) Modes and Approaches (for Urban Village Renewal)." To be more specific, the latter chiefly involves the implementation and achievement of the goals of the "Three Contents" for urban village renewal. According to *Evaluation for the Construction of A Liveable Community* (DB44/T-2015), six key aspects are synthesised to be evaluated, including "(i) Community Space", "(ii) Community Environment", "(iii) Community Security", "(iv) Community Culture", "(v) Community Service", and "(vi) Community Management" (GPBQTS, 2015). While the aspect of "economy and financial support" is absent in this evaluation system, this paper's policy analysis adds it as an "Instrument (F)" as it has been widely discussed in multiple kinds of literature on urban renewal and urban village redevelopment in China (e.g. Chen and Wu, 2020; Zhu, 2020; Yuan et al., 2021). Thus, all the "instrumental level" keywords were divided into "Six Instruments", including "(A) Environment and Ecology" (refers to (ii)), "(B) Society and Culture" (refers to (iv)), "(C) Hardware and Infrastructure" (refers to (iii) and (v)), "(D) Management and Regulation" (refers to (vi)), "(E) Architecture and Urban Design/Planning" (refers to (i)), and "(F) Economy and Investment" (added dimension). Moreover, each division of the above keywords is further categorized into several sub-classifications (A1-F2) (Fig. 5).

5.3. "Three Contents" – positioning the city

Keywords in "Three Contents" indicate which direction the government turns in and how it has positioned the city in the short-term and long-term visions. A total of 52 critical keywords with 171 indexing records were identified in the 47 analysed policies. In the cluster of "(SD) Strategic Directions and Concepts", 12 of the 47 analysed policies have mentioned that the city was planned to evolve into a "Global, Modern, Open, and Innovative Metropolis" from 1982 to 2018. During that period, the government frequently attaches great importance to high economic growth. However, the significance of maintaining social stability has also been particularly proposed in parallel in some policies since 1993 ("SD1-Economy Growth and Social Stability"). With regard

to the concepts of urban (village) renewal, "SD2-Urban Renewal Unit (URU)" (9/47) was first put forward to regularise and manage all renewal projects.⁶ The conceptual term of URU has been widely adopted in many official documents since 2009, followed by "SD2-Organic Renewal", "SD2-Small Plot Urban Renewal", and "SD2-One Village One Strategy" (Fig. 6: SD).

In terms of the group of "(FO) Focuses and Objects", such keywords as "FO1-Urban Village Regeneration" (10/47) and "FO1-Old Village Regeneration" (10/47), were frequently used in the policies from 1986 to 2017 (Fig. 5: FO). Urban village regeneration has been among the most important and urgent urban tasks in Shenzhen since the 1980s and continues to occupy a crucial position. Currently, demolition and reconstruction (*chaichu chongjian*), transformation of functions (*gongneng zhishuan*), and integrated rehabilitation (*zonghe zhengzhi*) are the three essential urban renewal approaches in Shenzhen. As for the cluster of "(MA) Modes and Approaches (general)", "MA2-Overall Renewal through Demolition" (13/47) and "MA2-Integrated Rehabilitation" (13/47) are of the highest frequency in the 47 analysed policies, followed by "MA3-Public Participation" (8/47), "MA2-Integrity of Urban Functions" (7/47) and "MA2-Functional Change" (5/47) (Fig. 5: MA). Meanwhile, the appearance of urban equity and public participation have become increasingly frequent since 2005.⁷

In summary, the "Three Contents" of the analysed 47 policies suggest that the municipal government aimed to make Shenzhen a world-class metropolis with high competitiveness as well as achieving the trade-off between continuous economic growth and high quality of urban (re)development. Nonetheless, the urban villages were likely to be viewed as an obstacle to the attainment of these goals in the past. After three decades' explorations, the government and the society tend to consider these urban villages as precious resources for Shenzhen in the long run. Currently, the government is struggling to position urban villages appropriately and correctly. Since the "problem" of urban villages involves various issues and challenges which the whole city is also up against and are in want of careful and comprehensive solutions in order to make the urban transition sustainable. Correspondingly, multiple solutions to this critical "problem" were proposed in many official documents, which will be elaborated in the next sub-section.

5.4. "Six Instruments" – implementing urban village renewal

This part analyses how the Shenzhen municipal government

⁶ Shenzhen Urban Renewal Measures (Shenzhen Government, 2009).

⁷ Implementation Opinions on Provisions of Redevelopment of Urban Villages (Old Villages) in Shenzhen (Shenzhen Government, 2005a).

Table 3

Representative city policies of urban villages and urban renewal in Shenzhen at different stages (reviewed and organized by authors).

Period/Key year	Key Policies and Provisions	Consequences and Impacts
Stage I: 1980–1991 Time node: 1982	<i>Interim Provisions of Village Membership Construction Land in Shenzhen SEZ</i> (1982)	Home Based Land Identification - Each family was distributed a piece of land with an area of 150 m ² and the homestead's footprint was limited in 80 m ² . The red line for construction control is zoned for new villages while the ownership of the original village land belongs to the government.
Stage II: 1992–1998 Time node: 1992	<i>Interim Regulations of Rural Urbanization in Shenzhen SEZ</i> (1992)	Tongzheng (unified land acquisition) - All of the lands in SEZ (<i>guannei</i>) were expropriated and transferred as state-owned urban land while remaining the farmers' real estate property of their self-built houses.
Stage III: 1999–2003 Time node: 1999	<i>Decisions on Prohibition Against Illegal Construction by the Standing Committee of Shenzhen People's Congress</i> (1999)	Illegal constructions were officially prohibited. This led to a Large-Scale Building Boom (construction fighting). Drastic measures but invalid implementation.
Stage IV: 2004–2008 Time node: 2004	<i>Management Measures of Bao'an and Longgang Districts Urbanization</i> (2004)	Tongzhuhan (unified land conversion) - Beyond the state-owned land in SEZ (<i>guannei</i>), all of the land outside SEZ were also forcibly to be transferred to state-owned urban land. Accordingly, the registration status of all indigenous villagers in Shenzhen "became" urban residents, Making Shenzhen an Urbanization Rate of 100% .
Stage V: 2009–2015 Time node: 2009 & 2015	<i>Provisions of Redevelopment of Urban Village (Old Village) in Shenzhen</i> (2004) <i>Implementation Opinions on Provisions of Redevelopment of Urban Village (Old Village) in Shenzhen</i> (2005)	The First Policy for urban village redevelopment in Shenzhen. Emphasised the necessity of redeveloping the sub-standard urban villages. Monetary compensation was the main approach to be adopted for urban village relocation while also providing multiple scenarios for the indigenous villagers, including only monetary compensation, substitution of real estate property, and the combination of the above first two approaches.
New Stage & Turning Point: 2016–Present Time node: 2016 & 2018	<i>Shenzhen Urban Renewal Measures</i> (2009) <i>Detailed Rules for Urban Renewal Implementation</i> (2012) <i>The Law of Shenzhen Urban Renewal</i> (2015) <i>Shenzhen 13th Five-Year Plan of Urban Renewal</i> (2016–2020) (2016) <i>Shenzhen Master Plan</i> (2016–2035) (Suspended and transformed to another developing plan) <i>Shenzhen Urban Village (Old Village) Master Plan</i> (2018–2025) (Review Version) (2018) Updated in March 2019: <i>Shenzhen Urban Village (Old Village) Master Plan for Integrated Rehabilitation</i> (2019–2025) (2019)	Comply with the province enacted strategy of "Three Olds" (<i>sanjiu gaizao</i>); Officially indicated that the city entered an era of urban renewal. Shenzhen became the first city that introduced the concept of "Urban Renewal" (<i>chengshi gengxin</i>) in mainland China. Making Demolition Harder - "Double 90" (<i>shuang jiushi</i>) Principle: The renewal plan should be agreed by at least 90% of the proprietor who owns over 90% (including 90%) of the buildings in the village or area. The first law for urban renewal in mainland China, which provides a detailed ratio of demolition to compensation. (The law was not officially enacted yet). Turning Point of Policy Shift - The government highly advocates "Integrated Rehabilitation" (<i>zonghe zhengzhi</i>) for urban village renewal rather than total demolition and reconstruction. Urban villages are treated as an integral part of Shenzhen's overall master plan. Explores the possibility of typology-based renewal for urban villages throughout the city (an embryonic form of the concept of "zoning renewal") The First Master Plan of Integrated Rehabilitation for Urban Villages in China: "Zoning Renewal" Plan (<i>fenzu gengxin</i>) - typology-based urban renewal by taking into account the sizes, locations, socio-cultural values, building forms, and existing environmental qualities of the urban villages (in 2018 version). Allow a flexible and changeable scope for "integrated rehabilitation," so as to Maintain Spatial Patterns of Urban Villages and guarantee availability of Urban Residential Areas with Low-cost Living in the city (in 2019 version).

exercised urban village renewal programs and attained the achievement by identifying what has been emphasised and what has been relatively overlooked in these policies. A total of 103 critical keywords in the 47 analysed policies were identified and further classified into "Six Instruments" (Cluster A to F), which involve 545 indexing records. The statistic results illustrate that the 47 policies highly concentrated on "(E) Architecture and Urban Design/Planning" and "(D) Management and Regulation," followed by "(C) Hardware and Infrastructure." In comparison, "(A) Environment and Ecology," "(B) Society and Culture," and "(F) Economy and Investment" were relatively not so emphasised (Fig. 7).

5.4.1. Emphasised aspects - direct and visible solutions (urban planning and design, formalisation and regularisation, and hardware and sanitation)

Results of keyword indexing demonstrate that "(E) Architecture and Urban Design/Planning" plays a vital role in redeveloping urban villages as the relevant keywords were mentioned 176 times in the 47 analysed policies (176/545, Fig. 7). As a response to the frequent criticism about building layouts chaos of urban villages (Chen, 2011; Pan, 2019; Du, 2020), "E1-Planning First" (21/47) and "E1-Standardized Urban Planning" (19/47) were brought into focus, which indicates that spatial control and regularisation as well as building facade beautification were the major ways of resolution to modernise those informally developing villages, so as to make them integrate into the "tidy and modern" urban landscape. Meanwhile, the implementation of "E1-Classification and Technical Guideline" (9/47) to specifically address various

environmental problems of urban villages and the old urban areas has been particularly advocated in urban renewal policies since 2005.⁸ As far as "E2-Urban Structure and Morphology" is concerned, these policies also suggested adjusting the existing spatial structures of urban villages with high-density/compact patterns through standardized urban design and planning approach, which is supposed to reduce building coverage ratio and increase the "Number of Public Open Space" (7/47) and "Green Coverage" (5/47) effectively. Besides, the concept of "E3-Green Building" (5/47) and "E3-Low Carbon-Oriented Development" (5/47) was also introduced in recent years' policies⁹ (Fig. 8: E).

Apart from "(E) Architecture and Urban Design/Planning", "(D) Management and Regulation" (130/545) and "(C) Hardware and Infrastructure" (79/545) have also been treated as key instruments for the renewal of urban villages and old urban areas (Fig. 7). Specifically, "D1-Eliminate Illegal Buildings" (30/47, 1981–2016) and "D2-Strength Land Management" (17/47, 1983–2016) were always stressed for the

⁸ Such as *Implementation Opinions on Provisions of Redevelopment of Urban Village (Old Villages) in Shenzhen* (Shenzhen Government, 2005a), and *Notice of Interim Measures to Strengthen and Improve the Implementation of Urban Renewal* (Shenzhen Government, 2016).

⁹ Such as *Shenzhen Urban Renewal Measures* (Shenzhen Government, 2009), *Shenzhen Municipal People's Government's Opinions on Optimizing the Allocation of Space Resources and Promoting Industrial Transformation and Upgrading* (Shenzhen Government, 2013), and *The 13th Five-Year Plan of Shenzhen Urban Renewal* (SZMUPLRC, 2016).

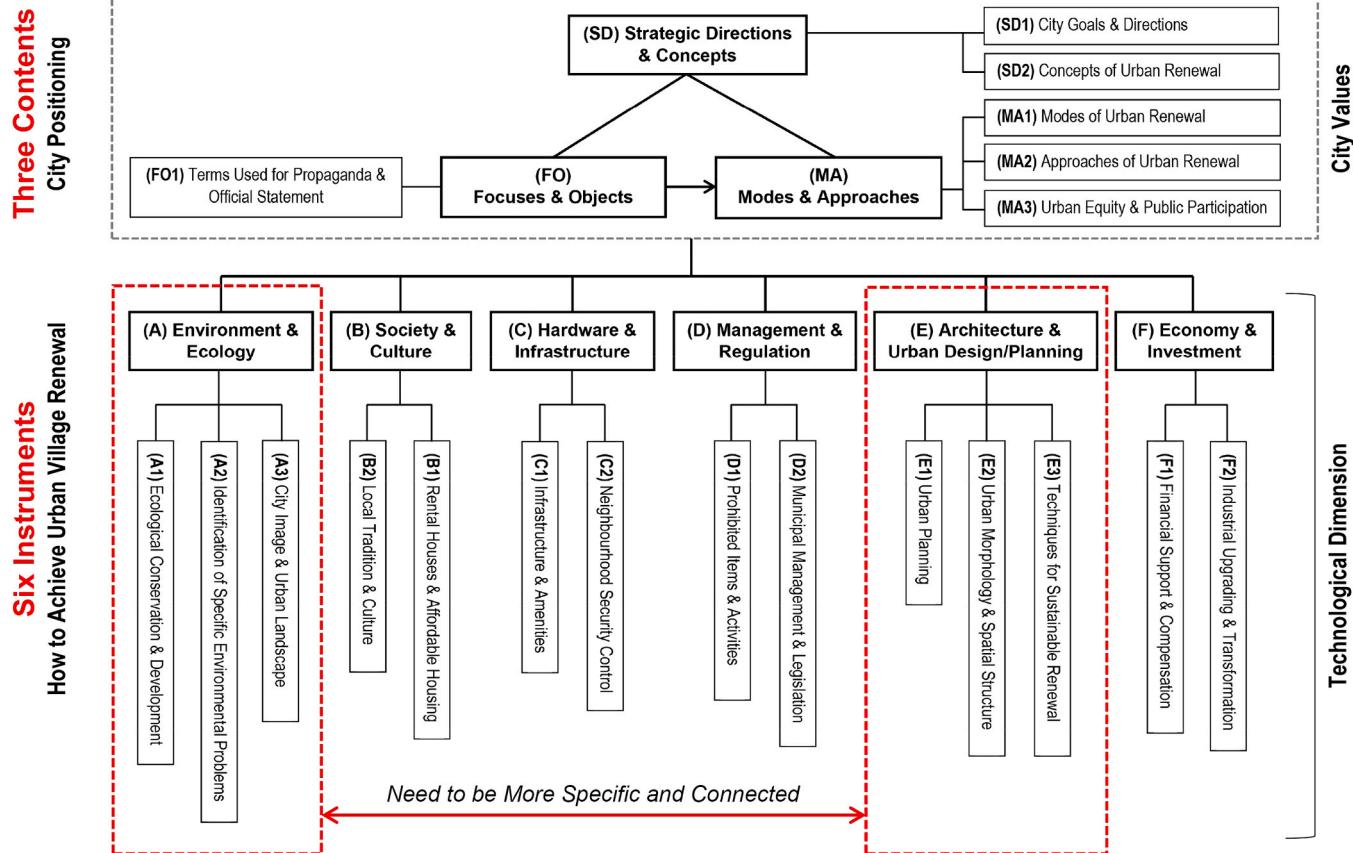


Fig. 5. Structure and analytical framework of the reviewed policies: the “Three Contents” (SD-FO-MA) + the “Six Instruments” (A, B, C, D, E, F), including the sub-classifications of the indexed keywords
Source: drawn by authors.

reason that the phenomenon of construction fighting (*qiangjian fengchao*) in urban villages had made the city “uncontrollable,” “outdated,” and “unsustainable” (Fig. 8: D). Nevertheless, such formal constraints and regulations for the informal urban villages might be inefficient as they were handled under the rules of institutional informality or logic of “the third realm” (Lin and De Meulder, 2011; Wu, 2014). For this reason, some policies also suggested the necessity of improving the competence of community self-help management and maintenance.¹⁰ In addition, the enhancement of urban infrastructure and hardware was another crucial task that rid urban villages of the perceptual “backward” and “inhabitable” statuses (“C1-Improve Urban Infrastructure” 23/47), in particular, the improvement of fire-fighting facilities (“C2-Improve Fire-Fighting Facilities”, 20/47) and sports entertainment facilities (“C1-Recreational and Sport Facilities”, 15/47). The notifications of “C2-Building Quality Examination” (6/47) and “C2-Fire Prevention Space and Fire Passage (*fanghuo jianju, xiaofang tongdao*)” (3/47) in several policies have provided a few pragmatic directions for typology-based renewal by way of architectural design and urban planning (Fig. 8: C).

5.4.2. Overlooked aspects - mechanism/causes behind (environmental evaluation, socio-cultural conservation, and informal economy)

In terms of the instrument of “(A) Environment and Ecology” (72/

545), “A3-Improve Living Environment” (20/47, 1982–2018) was most continually mentioned, followed by “A1-Environmental Protection” (18/47, 1981–2016). In order to achieve these two sub-goals, “A3-Building Façade Regularisation and Beautification” (16/47) has been deemed as the most visible, feasible and effective strategy but it did not settle problems in essence. Moreover, part of the policies also critiqued the severe problem of “A2-Environmental Pollution” (6/47) in urban villages, including poor daylighting,¹¹ weak air ventilation,¹² water pollution,¹³ and noise jamming¹⁴ (Fig. 9: A). Such a negative perception of the environmental quality of urban villages is similar to what most public media reports and many academic publications have criticised since the 1990s (Gao et al., 2006; Pan, 2019).

Regarding the instrument of “(B) Society and Culture” (47/545), even though existing social media and academic literature have highly recognised the social-cultural value of the urban villages, some issues are still not sufficiently considered in the policies, such as “B1-Affordable Housing” (8/47) and “B2-Traditional Urban Landscape Conservation” (6/47). These issues are critical and can inspire more inclusive and innovative directions for a sustainable urban village renewal during the interventions of architecture and urban design/planning, such as “B2-

¹¹ Detailed Rules for the Implementation of Urban Renewal (Shenzhen Government, 2012).

¹² Ibid.

¹³ Overall Plan Outline for Urban Villages (Old Villages) in Shenzhen 2005–2010 (Shenzhen Government, 2005b).

¹⁴ Decisions of Resolutely Investigate and Prosecute Illegal Buildings and Illegal Land Use (Shenzhen Government, 2004b).

¹⁰ Such as *Implementation Opinions on Provisions of Redevelopment of Urban Village (Old Villages) in Shenzhen* (Shenzhen Government, 2005a), and *Comments of Municipal Government on Further Promoting the Works of Urban Renewal* (Shenzhen Government, 2010).

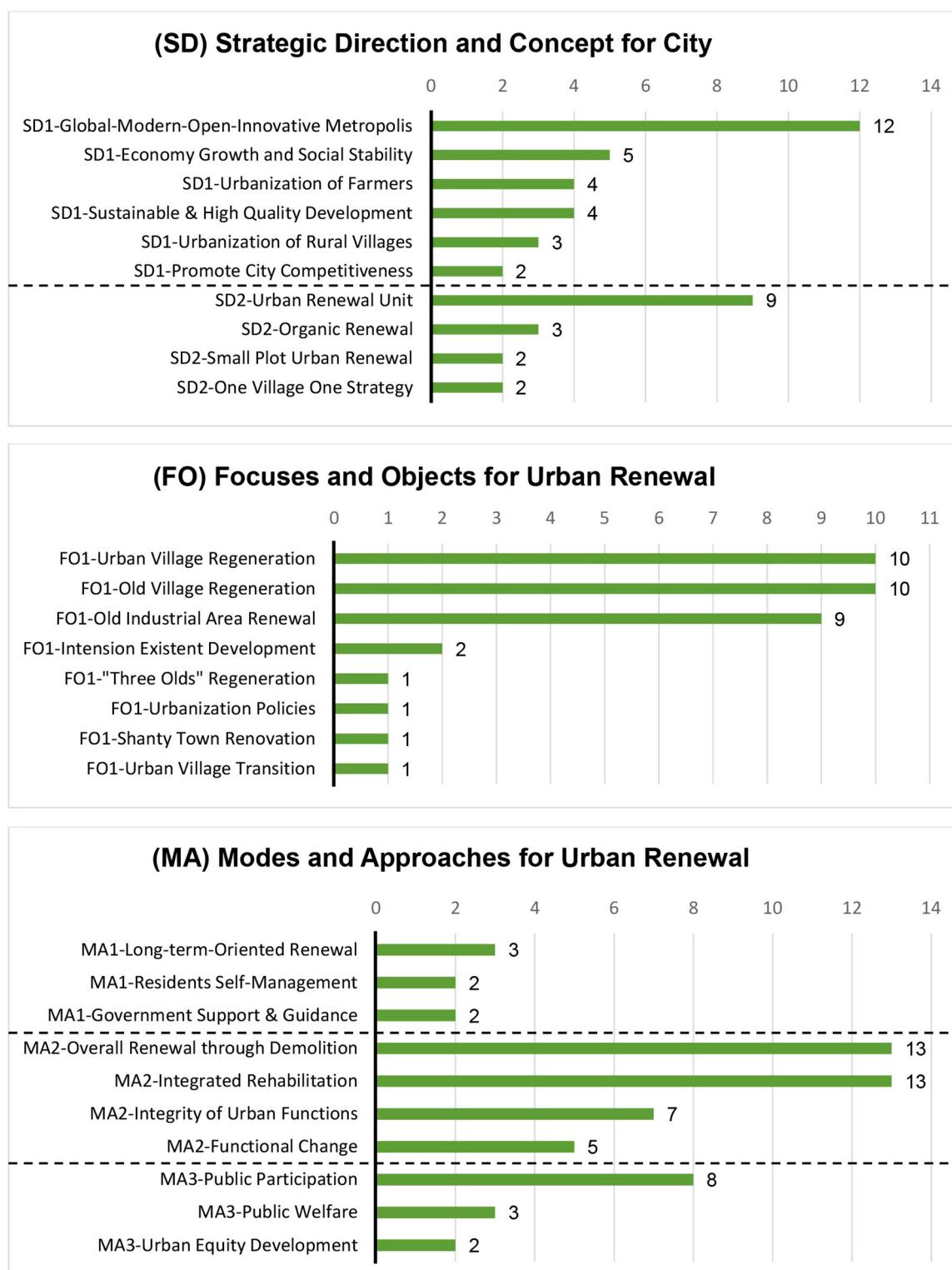


Fig. 6. The most critical and highly mentioned key phrases of “Three Contents” in the 47 analysed policies.

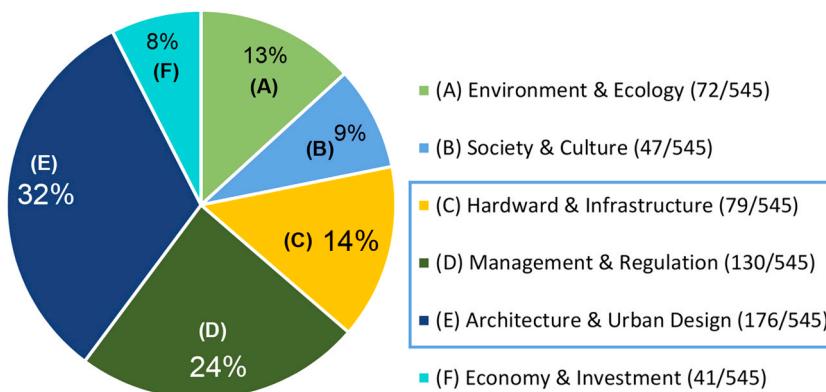


Fig. 7. The proportion of “Six Instruments” that make urban (village) renewal in the 47 analysed policies.

Integrate Histories and Cultures” into urban redevelopment (7/47) and “B2-Respect Original Urban Fabrics” (4/47) (Fig. 9: B). However, these socio-cultural items/approaches should be linked to the environmental aspects, and holistically considered the inter-influenced components during policy-making and implementation, so as to achieve the goal of sustainable renewal (Mostafavi, 2010; Elder and Olsen, 2019). For instance, the solution for “affordable housing” should not be limited to just “affordability” but at the same time, the issues of “decency” and “liveability”, which requires a deeper understanding of the role and effects of the environmental components. In addition, the instrument of “(F) Economy and Investment” (41/545) in the existing policies mainly serves for the demolish-rebuild mode of urban (village) renewal. Beyond the implementation of “F1-Multiple Forms of Compensation” (15/47), a few policies recommended that setting up archives for each demolished urban village is helpful to the completion of management and compensation system and also the preservation of the land-use legacies of urban transformation.¹⁵

As revealed in the above analysis, “(E) Architecture and Urban Design/Planning”, “(D) Management and Regulation”, and “(C) Hardware and Infrastructure” are the three highly emphasised instruments in the existing implemented policies in Shenzhen as they are related to the putting forward of the direct and visible “solutions”, namely, the interventions of “planning and design”, “regularisation and control”, as well as “beautification and modernization”, respectively. These “solutions” have been widely adopted by many city governments throughout China today. By contrast, the instruments that are related to the mechanism/causes behind, in particular, the “(A) Environment and Ecology”, have been insufficiently discussed and were not linked to the currently adopted visible “solutions.”

5.5. Impacts on practice - applications in urban design practices

With the clarification of the structure and focuses in the existing master policies, this part reviews 14 representative urban and architectural design entries that can be online accessed (see Appendix-Table A2) to discuss what has been considered in existing urban village renewal design practices and how these design practices have exploited the suggestions or requirements from the related policies. The 14 analysed design entries were mainly created and developed by Shenzhen local urban and architectural research centres and design firms, real estate development companies, as well as college students’ design

works, most of which gave strong backing to the necessity of the urban villages as productive social resources and diverse adaptive functions for Shenzhen (and other cities of China). Furthermore, many designers called for long-term conservation and improvement of these urban villages in the city, which stand for a strong response to the instrument of “(B) Society and Culture” in the policies (Fig. 5) and is able to function as material carriers of city memory and local culture inheritance.

In these design entries, the problem of “Lacking Public Open Spaces” (12/14) along with the absence of green cover (need to “Increase Greenery,” 9/14) in urban villages was highly deemed as the result of extremely “High Building Density” (9/12) of urban villages (Fig. 10). The policies have also emphasized these two aspects and suggested addressing them through the instrument of “(E) Architecture and Urban Design/Planning” (Fig. 8: E). As a consequence, most of the design entries had the consciousness of bringing down the urban villages’ building density or of grouping the buildings into a few “larger” blocks/units while demolishing the buildings with a central location in order to make an outdoor public courtyard, so as to “create” outdoor spaces for public activities. In order to achieve this design goal, a few old buildings with relatively poor environmental and structural conditions were suggested to be demolished in some design entries (for details, see Appendix - Table A2).

6. Discussion and policy implications

Based on a reinterpretation of the sustainable development goals (SDGs) as well as a reflection of thoughts and principles of *Ecological Urbanism*, this study emphasises the importance of *environment* for urban policies towards sustainanle development. The *environment* can be utilised as an inclusive medium/approach to efficiently frame and connect multiple aspects in an urban renewal policy. We advocate to extend the connotation of the concept of *environment* from a material and infrastructural consideration to a mechanism-based and performance-orientation thinking during the making of urban renewal policies. The three pillars of SDGs are all important. They are interlinked, mutually interact, and should be considered by urban governments during simultaneous policy-making and urban planning. Any specific “problem” or “issue” which occurs in an urban neighbourhood (urban villages) should be evaluated holistically as it is possible that the role and effect of a perceived problem or issue can be changed in the distinct contexts of that neighbourhood (urban villages). While the socio-cultural and economic aspects of urban (village) renewal have been widely discussed and highly recognised in existing scholarly literature and policies, the environmental dimension, which plays a fundamental role in SDGs (Fig. 1), lacks a systematic understanding in terms of its relationship with the other two pillars of SDGs (i.e. social and economic sustainability) (United Nations, 1987; Younis and Chaudhary, 2017;

¹⁵ Measures for the Administration of House Demolition in SEZ (Shenzhen Government, 1991); Several Regulations of Shenzhen Municipal People’s Government on the Processing of Shenzhen SEZ Real Estate Ownership Problems (Shenzhen Government, 1993).

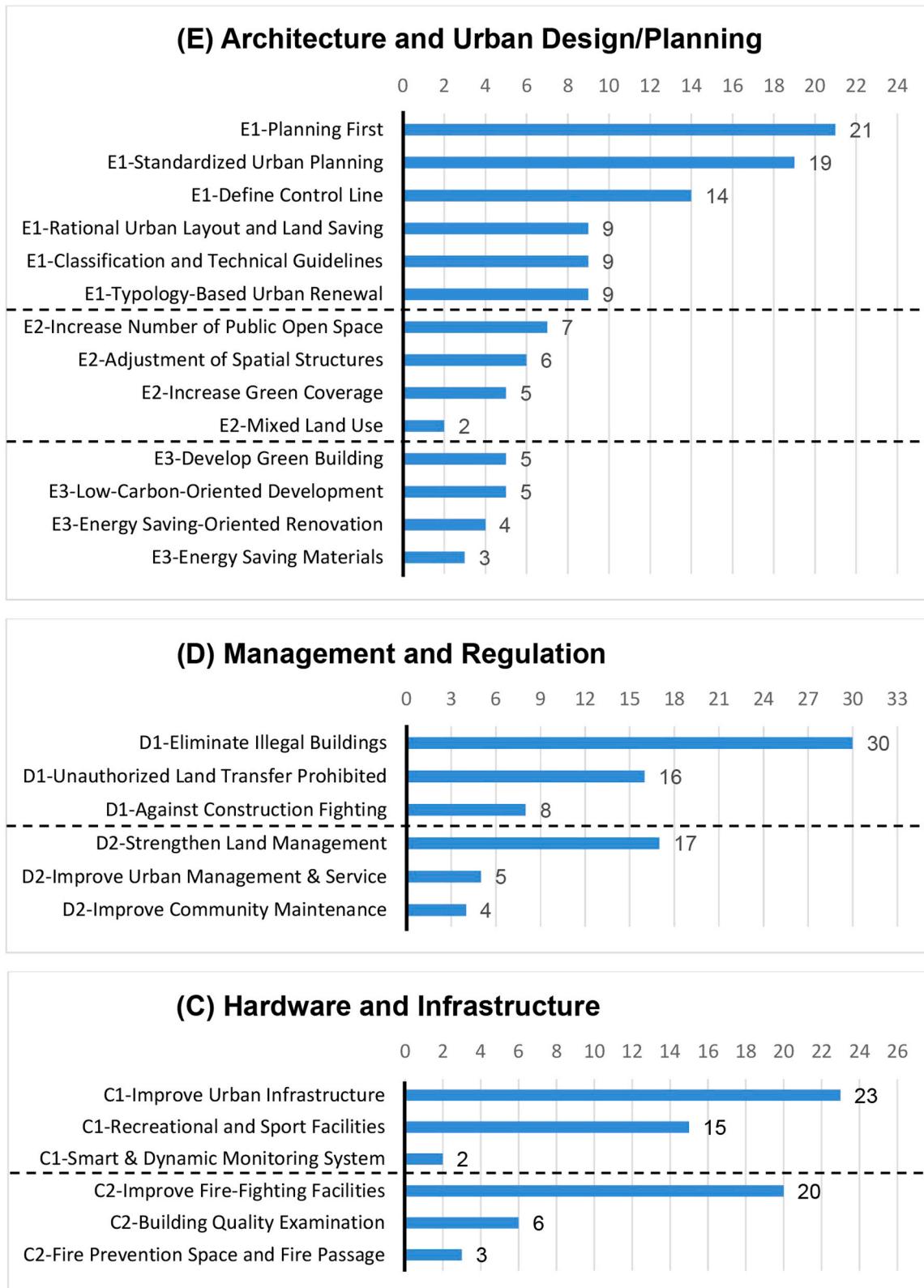


Fig. 8. The most critical key phrases of the Instruments of “(E) Architecture and Urban Design/Planning,” (D) Management and Regulation” and “(C) Hardware and Infrastructure” in the 47 analysed policies (1980–2018).

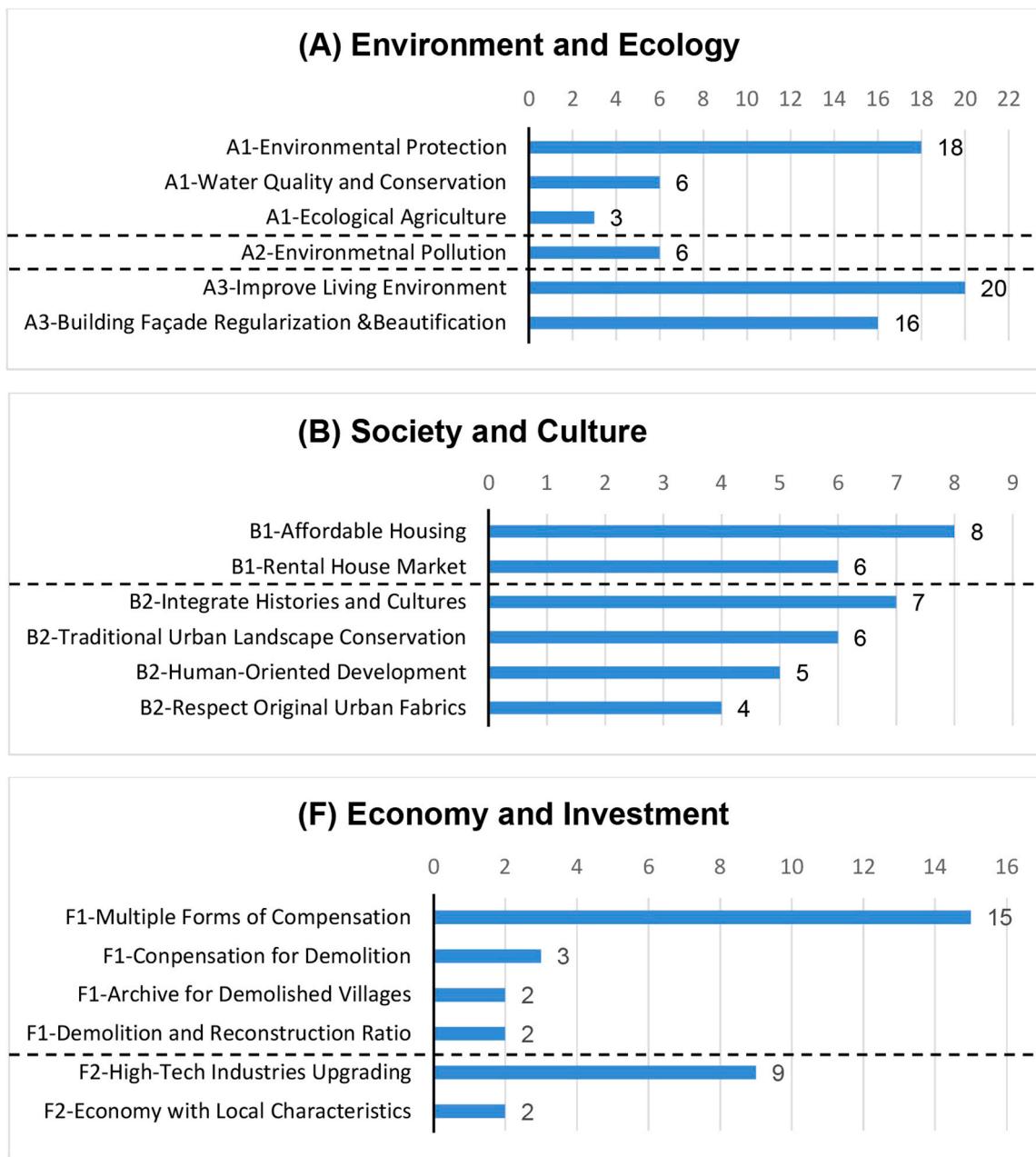


Fig. 9. The highly mentioned key phrases of Instruments of “(A) Environment and Ecology,” “(B) Society and Culture,” and “(F) Economy and Investment” in the 47 analysed policies (1980-2018).

Elder and Olsen, 2019). With a deeper understanding of the essential mechanism and the role of the *environment* as well as its correlation with the other two pillars of SDGs, we gain a more holistic angle to determine the causes of the problem and subsequently make a smart enough decision during policy-making (Green, 2019). This is also a key demand or approach that *Ecological Urbanism* advocates and devotes to explore (Geddes, 1949; Guattari, 2000; Mostafavi, 2010). In this regard, urban renewal provides us an opportunity to rethink a city's *ecologies* as well as its organisation and operations of multiple components within this complex ecosystem (Alexander, 1965).

Urban renewal is a dual-issue that involves the transformation of city values (“Three Contents”) and technological breakthroughs (“Six Instruments”). It refers to environmental rehabilitation, alongside the social well-being and economic effects on the cities. Wholesale demolition and radical gentrification without careful consideration of the consequences of emerging urban recession and environmental deterioration

may place cities in a state of jeopardy. From the above literature overview and policy analysis in the paper, it is clear that several aspects, in particular, ecological-environmental aspects, have not been sufficiently considered and credited in the current urban planning and policy-making systems. However, these overlooked aspects are also crucial in achieving inclusive and sustainable urban renewal. These were identified and a subsequent discussion follows. Using the environmental dimension as the foundation (Fig. 1), all aspects are correlated; and a systematic evaluation of their synergy and conflicts during implementations of urban renewal policies and practices will be performed. By identifying misconceptions as well as the overlooked aspects (i.e. the *environment* of urban villages) in existing implemented urban (village) renewal policies in Shenzhen, this study provides some insights into the scholarship of urban renewal studies as well as urban governance and land use planning. These will be discussed in the following sub-Section.

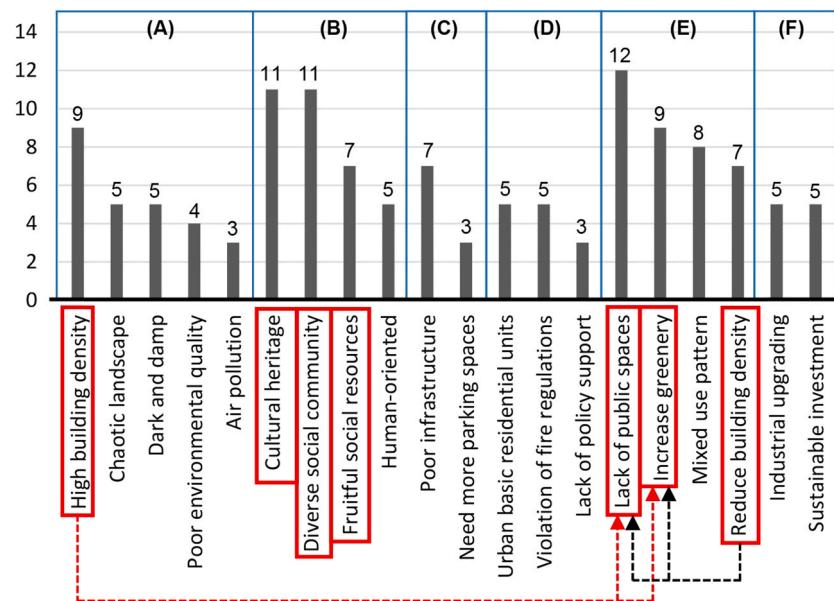


Fig. 10. Top 20 critical keywords used in the 14 analysed design entries (2003–2015).

6.1. Understanding the urban ecologies

- **Importance of environmental assessment mechanism - ecological-environmental knowledge for design/planning practice**

In the policies which were analysed, the connection between the instruments of “(A) Environment and Ecology” and “(E) Architecture and Urban Design/Planning” should be more specific and require strengthening. Although “(E) Architecture and Urban Design/Planning” has been treated as a core instrument for enabling the policies to achieve

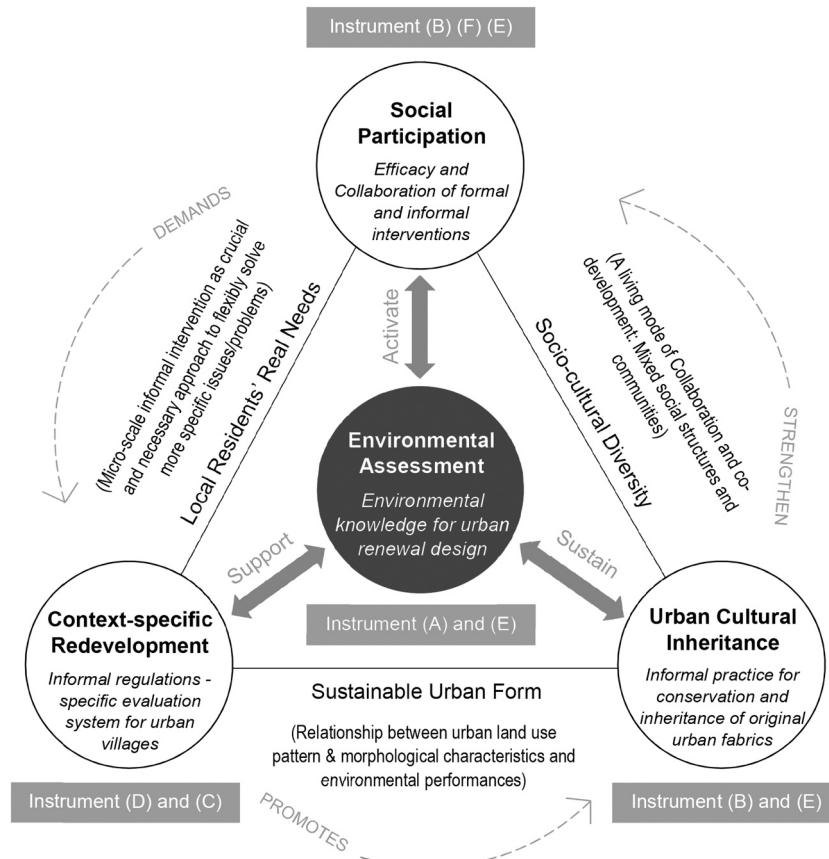


Fig. 11. Interrelationship and pathway of impact of “Environmental Assessments” and “Informal Rules” for improving urban village renewal policy-making, echoing a system-oriented thinking of *Ecological Urbanism* and the sustainable development goals
Source: drawn by authors.

the target of urban village renewal, this is not enough for supporting a systematic understanding of the ecological and environmental aspects of these informal settlements in cities. In addition, environmental rehabilitation can generate direct and measurable effects on an urban renewal program's quality while environmental assessment is an effective approach for detecting real problems and the causes behind (Fig. 11). Therefore, the implementation of related policies should involve this "step/process" and clarify the specific aspects or parameters on which there should be focused and how they should be addressed during the whole process of urban village renewal practice. Affected by mainstream media narrative, all 47 analysed policies only provide generic environmental problem descriptions or criticism, potentially triggering the urgent need for systematic environmental evaluations prior to and during the process of urban renewal. Furthermore, advocating the comparison of pre-demolition and post-occupancy environmental evaluation (e.g. urban heat island effect, thermal comfort, ventilation, daylighting, acoustic, and air pollution performances) for reconstructed urban villages is not present in any existing implemented policies in Shenzhen. However, this is crucial for identifying and quantifying environmental consequences and impacts on the surrounding urban areas, as well as entire city ecosystem (rather than individually concentrated on the "redeveloped site" *per se*, Pflieger and Rozenblat, 2010; Perera et al., 2021). By identifying what is gained and what is lost following the adoption of a specific strategy (in particular, from an environmental perspective), it helps reconfirm the direction of near future's urban renewal in a more efficient manner.

6.2. Rethinking the role of informality

- **Social participation - efficacy of informal interventions**

Previously implemented policies mainly consider formal urban planning and management approaches but lack informal interventions for both community fostering and environmental ameliorating, in particular, the participation of multiple users/stakeholders (including migrant residents, indigenous villagers, and nearby citizens). Today, a control-oriented strategy has dominated the paths and consequences of many completed and ongoing urban (village) renewal programmes in Chinese cities. However, multiple flexible strategies, particularly those involving residents' daily routines and responses, should be encouraged and implemented in order to adequately identify and then address the specific issues each urban village and urban neighbourhood are facing. Beyond a "top-down" guidance, policy-making should at the same time support positive local informal actions in the promotion of neighbourhood environmental enhancement (Table 2). It is notable that the collaboration of village-led rehabilitation activities (informal, bottom-up) with government-guided urban renewal programs (formal, top-down) is a crucial link for forming human-centered and environmentally specific urban renewal programmes, as well as addressing residents' real needs in a soft and balanced way.

- **Context-specific renewal - establishment of informal regulations**

China's current policy-making process for urban renewal (towards urban villages and old and informal urban neighbourhoods) mainly takes references from the new and formal urban residential quarters (*juzhu xiaoqu*). Some of the analysed policies set an example by using typical techniques or strategies for new urban construction and modern building blocks, including green building technologies, low-carbon development, and energy-saving materials. Nevertheless, they can be problematic sometimes if we fail to fully consider the true performances and distinct operational logic of urban villages in these aspects. Taking the keywords from sub-cluster E3 (techniques for sustainable renewal) as an example (Fig. 8), most of these aspects may have been achieved in the *high-density mid-rise* urban villages, as they are a type of "open urban neighbourhoods" with relatively low pedestrian air temperature during

the daytime in hot summer, in addition to having low carbon emission and energy consumption per capita. This is an overlooked topic but worthy for further investigation in order to inform more effective policy making (such as the preliminary findings of the recent studies by Liu et al., 2017c; Yang et al., 2017; Wu et al., 2018; Pan and Du, 2021). Generally, the *heterogeneity* (rather than so-called *chaos*) of building forms and morphological patterns, the *diversity* of socio-cultural components (rather than so-called *irregularity*), the *dynamic* and *flexibility* of informal industrial chains (rather than so-called *illegality*), and the *temporal-spatial diverse* environmental performances (rather than so-called *poor* and *bad*) in urban villages all require a very different and innovative way of thinking by urban policy-makers and planners, compared to the approach of dealing with those newly built formal urban quarters, and then specific informal regulations for urban villages should be established.

- **Urban cultural inheritance - practice of informal conservation**

Among the 47 analysed policies, some have raised the issue of "Traditional/Vernacular Landscape Conservation," which emphasizes the importance and necessity of respecting urban villages' original fabrics and tempo-spatial legacies. However, most strategies which are mentioned in these policies focus mainly on ways in which to regularise and modernise urban villages, rather than ways of inheriting and developing these informal urban neighbourhoods' advantages with a view to resolving their specific problems. In a Chinese context, many cities are actually planned and developed based on the land-use legacies of existing and widely distributed urban villages, based on geographical terrains, road networks, local customs, and human inhabitants (Tuan, 1975; Kostof, 1991; Shane, 2016). All these grounded elements have been cultivated for several decades, and in some cases, centuries (Du, 2020). The connotation of urban conservation should now be extended by learning from the *ecologies* of urban villages. They are outside the practices of formal urban planning and design while operating so effectively in their informal ways and continuously supporting cities' development. Such *ecologies of informality* is the gene of a city's identity and should be carefully conserved and inherited, so as to enable it to sustainably fostering, rather than their material form merely being preserved. By holding such a point, the creation and implementation of urban renewal policies should change the direction from what requires elimination/replacement to what requires maintenance and development. While adding back the overlooked environmental aspects to the system/circulation of urban renewal policy making and conducting systematic environmental assessment can provide new insights to achieve this goal (Fig. 11).

6.3. Limitations and future study

A few limitations remain in this study. Firstly, it mainly reviewed 47 major municipal-level policies while the district-level as well as street office policies/regulations had yet to be analysed, due to the large number and frequent update of these documents. Secondly, due to the restriction of data accessibility, only 14 representative design entries of urban village renewal were used for keyword indexing. Future study should involve more design entries for comparison, especially, those physically built projects of urban village redevelopment. Some representative district-level policies/regulations/design standards can also be analysed and compared to the principles or advocated strategies in those municipal-level policies, in order to examine how the municipal policies and advocacies have been reinterpreted and implemented at local levels. What is more, the analytical framework of "Three Contents and Six Instruments" was preliminarily established based on the contents of Shenzhen's policies and needs to be further developed with incorporating the local socio-ecological components before conducting policy evaluation for a specific region on the planet.

7. Conclusions

This paper has reviewed the main policies relating to urban villages and urban renewal in Shenzhen (1980–2018). An analytical framework of “Three Contents and Six Instruments” was established for analysing the emphasized advantages and overlooked aspects of these policies (Fig. 5). As government's attitude towards old urban neighbourhoods (such as urban villages) and their urban renewal advocacies are changing (Sima et al., 2019), this open analytical framework can be used to evaluate and adjust the existing implemented policies in cities as well as provide a structure for the making of more effective policy in the future. The 47 analysed municipal-level policies had several shortcomings and directions for improvement are identified and suggested in this paper. Although many urban renewal policies mention “environments” in urban villages, they are limited in that they focus on the upgrading of urban infrastructure, improvement of sanitation conditions, and building façade beautification. Similarly, some of the existing academic studies and many urban renewal practices follow an ideology of “making things new and modern” and focus more on urban formulisation and modernisation, ultimately leading to urban homogenisation. At the same time, the policies are limited to generic principles and lack the environmental assessment required for testing and adjusting these principles, in order to match local contexts and solve specific problems. Therefore, these policies provide limited guidance and insight for urban renewal practices which mainly adopt a “density reduction” strategy and focus on the improvement of infrastructure. To improve, a systematic environmental assessment mechanism should be introduced for the making of urban (village) renewal policies and linked to the dimensions of urban culture and identity, formal-informal complementarity and synergy, as well as the real needs and *habitus* of the residents (Fig. 11; Hillier and Rooksby, 2002). These directions or suggestions can also be considered for policy-making pertaining to the management and redevelopment of informal settlements with similar social and spatial characteristics in rapidly transforming cities all over the world.

Meanwhile, most key points emphasized in the recent policies for urban (village) renewal have been widely discussed in previous Chinese urban renewal programs, as well as in other countries (Table 1). Although these principles, concepts, strategies, and methods have been widely recognized and adopted, each principle can be achieved from a variety of different approaches, including both formal and informal interventions. The crucial point is how to implement and make the processes and consequences fit the local context based on these principles. In this case, policy-makers must change their inherent solutions and actively search for a more innovative and flexible path. The most fundamental step for achieving this goal is the introduction of an effective mechanism for context-based environmental assessment which can be easily linked and expanded to other aspects during the course of urban renewal.

Declaration of Competing Interest

The authors declare that there is no known conflict of financial interests or personal relationships that could have appeared to influence the works presented in this paper.

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Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.landusepol.2021.105744.

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