

The Impact of Taiwan's Urban-renewal Policies, Laws and Decrees on Urban Redevelopment and Urban Disaster Prevention

Jen-Chih Chao^{1, a}, Kuo-Wei Hsu^{2, b}

¹PhD program in Architecture and Urban Design, Department of Architecture, Chaoyang University of Technology, Taiwan

²Department of Landscape and Urban Design, Chaoyang University of Technology, Taiwan

E-mail: ^ajenchihchao@gmail.com; ^bkwhsu@cyut.edu.tw

Abstract. Highly developed cities dating from 1970s of Taiwan have recently encountered a set of problems commonly known as urban decay, resulting in the relocation of urban business districts and high levels of out-migration. This study examines the impact of the various urban-renewal policies, laws and decrees that have been enacted to remedy this situation, as well as the effects of these measures on urban disaster prevention. Based on historical data, textual analysis and field research, it concludes that these governmental strategies, while important to the goal of urban renewal, have also been the cause of new urban-development problems such as traffic congestion, extreme population density, and deficiencies in the amount open space. This is traced to a lack of integration of large-scale development goals and strategies with specific urban-renewal areas' plans Part of the problem appears to be that the Taiwanese government usually adopts only a floor area incentive strategy to promote public participation. The authors recommend that it deploy a more diverse array of strategies, including but not limited to tax incentives, accelerated renewal processes, and regional rewards. The authors also highlight how real-estate development enterprises' design strategies and quality-control processes for residential construction can serve the goals of urban disaster prevention as well as urban renewal.

1. Introduction

1.1 Background and motivation

In the late 1990s, many in Taiwan began advocating urban-renewal policies as a means to achieving the goal of urban redevelopment, and issues surrounding such policies have since been widely discussed. Their supporters have cited benefits including the regeneration of blighted urban areas, improvements to urban quality of life, the promotion of sustainable development, and urban disaster prevention. In addition to passing various measures with these aims in mind, the government has provided a range of incentives to promote the planning and implementation of related projects including green buildings and new public spaces.

Urban development in Taiwan has been threatened by global-warming-related disasters, particularly flooding, as well as by urban heat-island effects and earthquakes, among other problems. Nevertheless, return on investment (ROI) and other economic benefits have consistently been seen as key to urban-



renewal decision-making there, and this has generally led planners to ignore disaster-prevention, quality-of-life and sustainability considerations.

1.2 Purposes of the Study

Urban-renewal strategies have considerable potential to aid disaster prevention and mitigation, urban sustainable development, quality-of-life, public interest in people and the development of a green economy. To date, however, most studies relating to urban-renewal issues have focused on rights transfers, financial risks, details of policy, and the people involved in urban-renewal initiatives. Few have examined urban-renewal policies, laws and decrees from the perspective of the urban disaster prevention. Thus, this study will be guided by the following two research questions:

- 1) *The influence of urban-renewal policy, laws and decrees on Urban-renewal.*
- 2) *The influence of urban-renewal policy, laws and decrees on urban disaster prevention.*

2. LITERATURE REVIEW

2.1 History of urban renewal in Taiwan

Taiwan's Urban Renewal Act has been in force and its genesis is divided into several distinct phases by the Construction and Planning Agency (CPA) of the Ministry of the Interior (CPA website) [1]. These are discussed in turn in the following six sections.

- 1) *The legislation: urban renewal policy, 1997-1999*

A 1974 amendment to the Urban Planning Act titled "The urban renewal of the old city districts" is recognized as the first milestone of urban-renewal legislation in Taiwan. However, both the modes of implementation that it specified – compulsory collection and sectional expropriation – were insufficient to their purposes, due to lack of funds and personnel. Therefore, a system of encouraging private investment initiatives was launched, under the general rubric Construction Agreement between Property Owners and Developers. Still, problems in acquiring land and other property remained an immense obstacle to effective urban renewal.

- 2) *Reconstruction following the 921 earthquake, 1999-2003*

A violent earthquake of magnitude 7.3, later named the 921 earthquake, struck Taiwan on September 21, 1999. In its northern and central cities in particular, many people became homeless and numerous buildings were in desperate need of reconstruction. Incidentally, however, the catastrophe provided an opportunity to test the Urban Renewal Act and other elements of the existing legal and economic framework for regeneration projects. The experience of radical physical reconstruction in the disaster-hit areas led to the Act and its implementation system being modified considerably, with the objective of creating safer as well as higher quality living environments.

- 3) *Urban renewal acceleration scheme, 2004-2008*

To enhance Taiwan's domestic prosperity, environmental protection and urban functionality, the government launched the 2005-2008 Urban Renewal Demonstration Project in 2005 and the Urban Renewal Acceleration Scheme in 2006. Love-Taiwan Infrastructure Project, 2009-2014

In 2009, the Ministry of the Interior launched the 12-part Love-Taiwan Infrastructure Project, targeting six key areas of the five largest cities in Taiwan, and announced the aim of completing it within eight years. Originally proposed by the CPA in 2009, this project's objectives were to promote comprehensive urban renewal along three pathways: 1) from "base redevelopment" to "area redevelopment" to "urban regeneration"; 2) from "reconstruction" to "rehabilitation and conservation"; and 3) from "investment" to "community self-help".

The CPA's urban-renewal projects reflect the Taiwanese government's enthusiasm for integrated approaches to spurring economic and industrial development, improving employment opportunities, eliminating obstacles to private-sector participation in urban-renewal projects and urban sustainability. However, conflicts of interest between public-sector and private-sector participants resulted in a range of challenges, to the point that the question of how to build a mutually beneficial cooperation mechanism for these two sectors emerged as an intractable problem.

- 4) *Ideas and strategies for disaster prevention as an aspect of to urban renewal, 2013*

The urban development of older areas of Taiwan has been noticeably impacted by climate change and natural disasters such as earthquakes. The CPA's Urban Renewal Division, created in 2013, proposed

that local governments propose ideas for disaster-prevention/urban-renewal pilot projects and build the relevant operational mechanisms and models. Then, government would evaluate disaster-prevention-type areas relocation and renewal, and oversee changes in urban special projects, urban design regulations, disaster prevention strategies, and so forth. For low-level and medium-level disaster areas, the reconstruction, rehabilitation conservation, and shock-resistance improvement of old buildings would be implemented. The CPA would also draft subsidy notices and raise funds for improving the shock resistance of pre-1970 buildings, and assist local governments to set up dedicated disaster prevention agencies.

5) *CPA urban-renewal projects, 2015-2018*

The urban-renewal projects that have been proposed by the CPA from 2015 onward are based on the National Development Projects (2013-2016), which aimed at “living justice”: defined as improving the living environments of Taiwanese people, enhancing the attractiveness and competitiveness of towns and cities, improving the speed of responses to seismic disasters, and maintaining the momentum of urban renewal. The CPA also defined the five key objectives of sustainable urban renewal, as: 1) carefully monitoring relevant urban-renewal laws and regulations; 2) ensuring that urban-renewal pilot projects are well-integrated with one another’ urban-renewal pilot projects; 3) promotion of urban renewal, with the wider aim of spurring regional redevelopment; 4) encouragement of non-governmental implementation of renewal projects 5) ensuring that information about urban-renewal projects is transparent, and that popular participation in them is as wide as reasonably possible.

We can divide strategies for the evaluation of levels of disaster risk confronting different urban areas into three categories: prevention and control, preparation and response, and land development and adaptation. Calculating floor area ratio (FAR) and assessing land-use strength are two fairly simple ways of prioritizing areas’ environmental status, which in turn can accelerate the whole process of urban renewal. However, it should be noted that there is some conceptual overlap between disaster-prevention urban renewal and green infrastructure. Disaster-prevention construction strategies, meanwhile, include not only building techniques *per se* – e.g., shock-resistance measures, green roofs, and energy-saving designs and materials – but also the layouts of public facilities and schemes of reorganization for regional ensembles. In other words, sound implementation of urban renewal cannot be executed on a building-by-building basis.

The urban-renewal development approach currently espoused by the CPA has been improved by past experience that revealed the problems of existing urban-renewal processes: in particular, low levels of public participation, lagging private-sector investment, and lack of transparency. These were successfully addressed through adjustments in policy orientation and loosening of regulations in a manner that satisfied the needs of the public sector, private sector, and general public. The focus of urban renewal in Taiwan shifted to climate change, urban disaster prevention, and sustainable development that balances the needs of society, the environment and the economy.

2.2 *Urban-renewal Literature*

Despite an increasing number of urban-renewal policies having been based on the perspective of urban disaster prevention in recent years, studies of such policies remain rare.

Urban-renewal research, including studies focused on environmental quality and urban disaster prevention, is very diverse: involving aspects of culture, society, economics, ecology, and policy studies. Lien (2015), based on an overlay analysis, found that Taichung City’s Central District had the highest potential for renewal as well as the highest disaster risk, making it a suitable model for urban renewal aimed at disaster prevention in Taichung City as a whole [2]. Chiu (2016), meanwhile, found that urban-renewal processes aimed at disaster prevention tended to follow the basic requirements of law; that the public had a weak grasp of urban disaster prevention; and that the Urban Renewal Advisory Committee was not adequately focused on the disaster-prevention aspects of its role [3]. Wu (2014) reported that residents of an area tend to think that environmental quality is improved as a result of urban renewal projects, but nevertheless assign low scores to their general feelings about such projects as well as to the quality of life in their own homes [4].

In short, while urban renewal is an important strategy for promoting local development, research has indicated that its successful implementation must acknowledge local people's cultural, social, economic and ecological orientations, along with the targeted area's disaster-prevention and sustainability needs, due to the increasing frequency and magnitude of natural disasters. Thus, urban renewal has taken on new connotations, as redevelopment and disaster prevention become ever more important to it, whether at the level of single buildings, neighborhoods, or entire regions.

3. RESEARCH METHODS

This study focusing on general urban-renewal business issues and renewal projects' impacts on the environment, society, and economy. Our preliminary research indicated that the problems of urban renewal are more complicated than such un-systematized approaches allow. This study therefore applies content analysis and field research as well as literature analysis to its examination of the influence of Taiwan's urban-renewal policies, laws, decrees, and actions on urban disaster prevention there.

3.1 Content analysis

Content analysis is utilized to explain the current status of a phenomenon and its development over a particular time period, through data obtained from the relevant literature. It is a combination of quantitative and qualitative analysis, insofar as it involves deducing qualitative change from quantitative change; and it stresses objectivity, systematization and quantification.

4. RESULTS

Recent urban-renewal studies have mostly adopted qualitative research methods, especially field research and literature review. Some have examined development performance, literature on financial assessment and quantitative methods, while others have mainly focused on qualitative methods.

4.1 The Roles of urban-renewal policies, laws, and decrees in urban development

1) The influence of urban renewal on land development in pre-1970' urban areas

In older districts of cities, urban renewal generally takes place after the end of a period of prosperity that has left behind a complex cultural legacy, and land-development strategies for such areas can therefore be challenging. Problems that emerge during these processes can involve property rights, heritage matters, and the strongly held views of residents. In addition, the sheer length of the development process has always tended to reduce the enthusiasm of potential investors and business enterprises for such schemes. Therefore, Taiwan's government has provided various types of floor area incentive (e.g., green build and open spaces) when facing and dispersed the construction of important public facilities across different areas to encourage public use of them.

2) The government's emphasis on policies, laws and decrees as means to achieving the goal of urban renewal

To accelerate the process of urban renewal in older urban areas, Taiwan's government has provided floor area incentives and floor areas transfers, set up area-specific urban-renewal strategies, and promoted bulk-reward projects themed around urban renewal for sustainable development. However, such reward policies have been difficult to implement, and have failed to attract the anticipated levels of participation from businesses and other investors.

3) Urban renewal's emphasis on cooperation between the public and private sectors, and its financial approach to attracting public participation

By its nature, the process of urban renewal is lengthy, and this inevitably influences land-investment and development businesses' costs and ROI. This, in turn, has a profound impact on the willingness of such enterprises to participate in it. On the other hand, because mutual trust between the public and investment/development enterprises is unstable, information about finance is not always correct. Diligent government inspection of each enterprise's implementation process tends to increase such trust as well as, somewhat counterintuitively, the willingness of such enterprises to cooperate with the government. The government has also exhibited a willingness to provide a variety of flexible policies for different urban-renewal environments. In 2009, for example, it proposed urban renewal in 30 areas, and allowed the public to participate in the implementation phase; this decreased the financial pressure

on the government while at the same time improving the working relationship between the public and private sectors.

4) *Urban renewal's stress on internalization of external benefits and acceleration of older-area land development*

Taiwanese public-sector bodies tasked with promoting urban renewal have tended to stress the external benefits of urban disaster prevention: by measuring its performance after urban renewal is accomplished, the influences and development for each areas, and the environmental improvement of decayed areas. From the perspective of environmental, economic, cultural and social influence on the promotion of urban disaster prevention and urban sustainable development, the essential benefits are not the buildings that are constructed during the urban-renewal period, but the long-term impact of such projects after they have been accomplished.

4.2 *The roles of urban-renewal policies, laws and decrees in urban disaster prevention*

The urban disaster prevention aspect of urban-renewal implementation and promotion in Taiwan is principally based on the Urban Renewal Act, which has been gradually amended and expanded to include legal interpretations regarding urban-renewal business operations. An Urban Renewal Operations Manual has also been published, aimed at promoting urban renewal program [5]. In addition, local government bodies have begun publishing local urban-renewal-related self-governance articles, ostensibly to reflect their unique social, economic and cultural situations, though in fact we found that the differences between such sets of articles were few. Accordingly, we have focused on the rules and regulations related to disaster prevention represented by the Urban Renewal Act and the Regulations for the Periodical Overall Review of Urban Planning, and will analyze them using the designation method and disaster factors. After this analysis, we will sum up the key issues and explain their respective relationships to urban disaster prevention.

5) *Designation analysis: the urban renewal act and urban disaster prevention*

The Urban Renewal Act divides urban-renewal areas into two types: prioritized and direct-designated. In prioritized urban-renewal areas, the safety and quality of construction in the face of danger factors such as fire, earthquake, and flooding are enhanced from a single building for area disaster prevention. Though this focuses more on post-disaster measures, it has been found effective in the prevention of serious disasters, as well as the cooperation of important buildings in direct-designated areas. (According to the Ministry of the Interior Construction and Planning Agency designated priority urban renewal areas.)

6) *Designation analysis: regulations for the periodical overall review of urban planning and urban disaster prevention*

In addition to setting forth general principles of urban design and the development of land for public facilities, this document contains strategies and principles for the periodic review of urban disasters, the designation of prioritized urban-renewal areas, and the establishment of urban disaster prevention and measurement projects.

More specifically, it sets forth basic modes of investigation of the history and characteristics of renewal areas at risk from disasters and the estimation of potential future disaster scenarios. Through such analyses, it is possible to identify the development issues and problems confronting particular projects and propose strategies to solving them. This, in turn, facilitates the prioritization of urban-renewal areas. When processing detailed regulations, the principles of urban ecology, water and green designs are crucial elements in decreasing the likelihood of urban disasters such as fires and floods: for example, through the planning of firebreaks and measures to prevent rainwater infiltration. When processing urban design, urban-renewal projects in older areas are expected to adhere in detail to urban-design principles such as configurations of space for disaster prevention and disaster relief, and the inclusion of facilities that will decrease the impact of disasters on the urban environment, such as greening, water retention, environment-friendly and recyclable facilities, and so forth. When processing detailed regulations for overall review, the urban-renewal fields will be delimited by CPA, and factors such as public safety and shabby buildings investigated and analyzed as a whole. Delimiting urban-renewal areas, renewing basic policies and bring in regulations of plans are the executions for the prioritized areas. Specifically, the surface area of sites for public facilities within old urban-renewal areas should be attain to more than 1 hectare; and taking development into

consideration comprehensively, the total surface area of public open space, public facilities, and urban disaster prevention space shall not be less than 10% of the surface area.

In short, a close analysis of the Urban Renewal Act and Regulations for the Periodical Overall Review of Urban Planning suggest that Taiwan's systems of planning urban development and urban disaster prevention do decrease the impact of different disaster factors on areas with dilapidated buildings and/or prior histories of disasters occurring. In the face of the environmental impacts of climate change and natural disasters, the foci of urban disaster prevention range from single buildings to regional-scale response plans for fires, earthquakes and floods. However, having looked at the range, designs, promotion and execution of Taiwan's urban-renewal projects and overall development strategies, it is clear that the single building is the subject of renewal in most cases, and that real-estate development enterprises make efforts to obtain the best floor area incentives that they can under the existing the laws and decrees, in part because this enables them to attract more residents. The inadequacy of an area's urban-renewal strategy will have knock-on effects on the renewal's completion as well as on its urban disaster prevention measures. For example, in the case of insufficient amounts of land being allocated to emergency shelters and open space, many other problems emerge, including traffic congestion and urban heat-island effects. Thus, however hard we try to improve the safety and quality of individual buildings, serious systemic problems are likely to remain.

5. CONCLUSION

5.1 *The influence of urban-renewal policies, laws and decrees on urban development*

Through content analysis of the relevant literature and field research, we can conclude that there are four main characteristics of the relationship between Taiwan's urban development and its urban-renewal policies, laws and decrees. These are:

- 1) *The strong influence of urban-renewal policies, laws, and decrees on land development in older urban areas.*
- 2) *The government's emphasis on policies, laws and decrees as the means to achieving the goal of urban renewal.*
- 3) *Emphasis on cooperation between the public and private sectors, coupled with a broadly financial approach to attracting the public to participate in urban renewal.*
- 4) *Urban renewal's stress on the internalization of external benefits and the acceleration of land development in older areas.*

Therefore, to solve the problems of urban disaster prevention, urban-renewal policies should do more to promote public participation; and the increasing negative environmental impact on cities of urban-renewal policies should be regulated. Moreover, the participation of the public should not be promoted solely through floor area incentive strategies; in addition to or instead of such rewards, the government could provide tax incentives, shorten renewal times, offer region-specific rewards, and provide more public facilities. Lastly, more should be done to encourage real-estate developers to control the design quality, build quality, and volume of their projects.

5.2 *The influence of urban-renewal policies, laws and decrees on urban disaster prevention*

Urban-renewal policies, laws and decrees should incorporate urban sustainable development as the core of the Taiwanese government's comprehensive development strategy and its implementation, albeit with an awareness that profit maximization on the part of real-estate development enterprises will always make this difficult, since it tends to result in urban over-crowding. It is largely for this reason that urban-renewal initiatives aimed at mitigating urban disaster risk have become the sources of further disaster-related vulnerabilities. Therefore, greater harmony among urban-renewal policies, laws and decrees should be sought, and ideally amount to a clear statement of an overarching strategy aimed at the planning of people-oriented environments, public facilities and public space.

6. References

- [1] Construction and Planning Agency, Ministry of the Interior website: <http://twur.cpami.gov.tw/reports/dl.aspx?MP=1&DLTYPE=3>

- [2] Lien, Hung-I (2013). Identifying disaster preventive type urban renewal: A case study in Taichung City. MA thesis, Feng Chia University Department of Urban Planning and Spatial Information.
- [3] Chiu, Chia-Wen (2016). The relationship between the planning process of urban renewal and urban disaster prevention: The case of Wanhua District, Daan District, Zhongzheng District in Taipei City. MA thesis, Ming Chuan University Department of Urban Planning and Disaster Management.
- [4] Wu, I-An (2014). A study on the impacts of living quality of urban renewal projects on the surrounding area from local residents' perspective. MA thesis, National Cheng Kung University Department of Urban Planning.
- [5] Construction and Planning Agency, Ministry of the Interior: Urban Renewal Operations Manual website: <http://uract.cpami.gov.tw/module.php?i=rule&type=A31&rid=A3101097115000000>