Abstract

Tainan is a city full of architectural diversity, with nearly four hundred years of history since the Dutch colonization in 1624. The Taiwanese called it Fucheng, which means "the first capital built in Taiwan." During the urbanization process, the vernacular spatial characteristics became concealed as a result of the urban renovation plan during the Japanese colonial period. The authors wish to explore this vernacular quality and make it the aesthetic criteria for the old town district in Tainan. First, urban conservation and aesthetic zoning plans in western countries are reviewed for reference. Second, the authors make an analysis of the morphological structure in the old town district, define the exterior layer and interior layer of typical old town blocks, and illustrate — with spatial characteristics, spatial deficiencies, urban context gaps and lost space — the composition of temple plazas and land use patterns, etc. Third, based on the morphology of aesthetic zoning, redevelopment of the historic landscape by both accentuating the streetscape and rezoning inside the old town blocks is proposed. In addition, the authors suggest viewshed control and graded density to recompose a pedestrian village with a fluid open space network. After the aesthetic zoning techniques are fully discussed and understood, the authors finally encourage marketing and an autonomous community as means toward the sustainable development of the old town district.

Keywords: old town district; urban context gap; spatial characteristics; aesthetic zoning; historic districts

1. Introduction

Tainan City is renowned for its rich cultural heritage. This inherited feature has distinguished it from other modern cities in Taiwan, particularly in the historic fabric and buildings in the Central Business District (abbreviated as CBD). Since the R.O.C.\(^1\) regained Taiwan after World War II, the CBD has not been radically changed in either street pattern or urban scenery because of urban sprawl and suburbanization. Except for the increase in commercial density, the entire district basically retains the morphological structure established in the Japanese colonial period.\(^2\) Even if a few undeveloped urban roads would probably destroy the historic fabric, the proclaimed redevelopment proposal\(^3\) by the city's government suggests that these curvilinear lanes, alleys or pocket spaces should be preserved. This inconsistency between the urban master plan and the renewal strategy is due to the evolution of urban development ideas. The latest trend emphasizes historic preservation instead of bulldozer\(^4\) renewal, even though the conflict between development and preservation is still controversial.

From the perspective of tourism, renewal issues will be concerned with the planning of a cultural zone, such as the specification of the domain of historic districts and the old town district, the arrangement of cultural events in historic sites, or the impact of preservation strategy on the neighborhoods etc. Since redevelopment of the old town district will involve partial urban renovations or designation of historic preservation zones, local residents' attitudes become crucial, and gentrification effects\(^5\) should be considered. In any case, renewal strategy is based on the suggestions of experts regarding the physical environment, which could be opposite to the wishes of residents. For instance, old shop house owners may prefer to keep the current properties instead of rezoning; the younger generation would probably flee the old district, leave the old houses empty, and move to suburban areas. Such diversified opinions will result in uncertainty and hardship concerning renewal in the old town district.

For aesthetic purposes, the preservation of historic buildings and sites will influence the neighborhood morphology. Aesthetic zoning would limit the intensity...
of land use, regulate the harmony of façade styles, plan modules or bulk, etc. Such ordinances concerning the built environment usually require the cooperation of the local government and residents. The authors will now refer to the evolution of urban conservation strategy in western countries, mainly concerned with morphological and aesthetic issues.

2. Literature Review of Urban Conservation and Aesthetic Zoning in Western Countries

The first systematic formal analysis of medieval European plazas is probably "City Planning According to Artistic Principles" (1889), written by Camillo Sitte. He traveled around European cities and made sketches of the plazas in ancient Roman city centers. Sitte made analyses based on aesthetic sensitivity and was not concerned with the historical circumstances that generated such forms. With examples from Italy, Austria, and Germany, he defined square typology as, "an enclosed square system of ancient times." He studied perceptual psychology to determine the proportional relationship between the monument and its surroundings, opposing the fashion of too many wide streets and squares and the dogma of symmetry.

The legislation of aesthetic zoning in western countries can be traced back to the "Advisory Commission on the Height of Buildings" in 1913, which was organized by an influential American lawyer Edward M. Bassett. The purpose of this commission was to control the impact of skyscrapers in downtown Manhattan, because the sunshine and ventilation of old low-rise buildings were being blocked by the shadow of skyscrapers. This commission concluded that there was a need for greater public control over building development. The first "Comprehensive Zoning Ordinance" was proclaimed in 1916; its main purpose was to conserve the existing land value and to establish the character of district. However, the legislation was revised more than 2,000 times until 1961. The Landmarks Preservation Commission (LPC) was created in 1965 and became responsible for protecting and preserving New York City's architecturally, historically, and culturally significant buildings and sites. In 1978, Grand Central Terminal, owned by Penn Central Transportation Co., was designated as a landmark; thus, the expansion plan for the terminal building was rejected by the LPC because of the need to preserve the aesthetic and historical character of the landmark. Furthermore, the judicial precedent of Penn Central Transportation Co. vs. the City of New York was a paragon of aesthetic zoning, involving Transferred Development Rights (TDR) and taking issues.

Conservation in the UK was initiated by the "Civic Amenities Act" in 1967. The purpose of a conservation district is to maintain historical and visual quality. Under the act, new construction can be built in a conservation district, but its appearance is required to harmonize with the historic landscape. In 1974, the "Town and Country Amenities Act" granted historical conservationists more control to prevent the disappearance of any historic buildings; furthermore, the scope of conservation extended to plants, trees, streetscapes, and outbuildings. This extension made conservation acts more meticulous. In 1990, Article 71 of the "Planning Act (Listed Building & Conservation Area)" stated that local governments have to tender plans and proposals to formulate and maintain the character of conservation districts.

Conservation plans were especially popular in France and Italy. An ecomuseum created by George Henri Rivière and Hugues de Varine in 1971 was the epitome of such plans. It combined ecology, regional anthropology, and autonomous community, which is an interactive way that communities preserve, interpret, and manage their heritage for sustainable development. Preservation, interpretation and management mean that communicating heritage values, providing new interpretations of them, and raising their profile, are part of the day-to-day activity for an ecomuseum. Heritage is very close to place as a notion, including the history of inhabitants, what is visible and invisible, tangible and intangible, memory and future. It suggests increasing the value of a place instead of diminishing it.

Conzen is an influential British scholar in the field of urban morphology. He used townscape to establish the historical reality of a conservation district. Townscape, from his understanding, is composed of three elements: town plan, building fabric, and land utilization. His main arguments also include regionalism based on common identification, control of architectural form, the impact of land use and landscape on the historical reality, and so forth.

These brief introductions illustrate the concept of conservation strategy and aesthetic zoning. Historic districts in Tainan may learn from these ideas and legislation techniques. The next section is concerned with an analysis of the composition of the Tainan urban context.

3. The Old Town District in Tainan

The old town district in Tainan is approximately bounded by the remains of the old town wall from the Ching dynasty, or the greenbelt (refer to Fig.1.). Since most historic fabrics are located within this district, its spatial composition is in a sense fuzzy and fine-grained; moreover, the urban context itself also reveals the metamorphosis of a city. For instance, it is common to find an overlap in historical contexts at different times, or new development of historic fabrics. These superimpositions are critical factors in the townscape. Unlike other modern cities in Taiwan, Tainan has preserved a lot of historic sites, buildings, and infrastructures during different reigns. From the Dutch Colonization (1624–1661), Koxinga...
period (1661–1683), Ching dynasty (1683–1895), Japanese Colonization (1895–1945) until the R.O.C. (1945–present), Tainan possessed nearly four hundred years of town development history. Each reign had its own heritage in the city; for instance, Fort Zeelandia was built in the Dutch period; the Confucius Temple in the Koxinga period; the old town wall, and Five Cove District were established in the Ching dynasty; and the sewage systems and urban roads were constructed during the Japanese colonial period, etc. According to the statistics gathered by the Culture and Tourism Affairs Bureau, the total number of listed historic buildings in Tainan number more than one hundred, while characteristically aged buildings number five thousand.

3.1 Street Pattern Transformation in the Japanese Colonial Period

As previously stated, the Tainan street pattern is fuzzy due to the overlapping of town planning during different reigns. In its evolutionary process, the impact of urbanization in the Japanese period is significant. The introduction of a sewer system with thoroughfares, designed by drainage engineer Hamano Mishiro, represented a radical change which completely transformed the conventional Chinese old town plot. This early 20th century street pattern, which imitated European land use planning in colonial cities, combined grid and radial systems for transportation convenience. Most lanes and alleys built during the Koxinga and Ching periods have been divided by newly built thoroughfares and become concealed inside the blocks. In addition, development of the Taiwan railway also changed the traffic system while the new canal replaced the water transportation function of the prosperous five coves during the Ching dynasty. Due to this urbanization process, the organic street system was turned into geometrical shapes, and the land use pattern was transformed into zoning.

3.1.1 Two Layers of the Old Town Blocks

Morphologically, a typical block in the Tainan old town district has two layers: an exterior layer and an interior layer. The exterior layer is normally composed of row houses, which includes retail stores on the ground floor and living space on the upper floors. Fronting the through traffic, the continuous facades of row houses and their advertisements become the streetscape of the old town district. The interior layer, on the other hand, demonstrates a different spatial composition. It resembles a quieter residential community, even if the density is at almost the same level as the exterior layer. Most housing units are reinforced concrete buildings, and some units enclose a temple plaza. A typical old town block with two distinguished layers actually functions as a mixed-use community. Yet, the morphological weakness is obvious. In between the two layers, there is not adequate concern for public health issues. For instance, the connection between the two layers is ambiguous; the residual room between the exterior and interior layers is normally too tight for lighting and ventilation. Hence, land use patterns in old town blocks require detailed inspections, and readjustment according to the latest building code.

3.1.2 Urban Context Gap between the Old Fabric and the New Street Pattern

From previous analyses of the intrinsic nature of the two distinct layers, the urban context gap can be defined as a spatial deficiency caused by the arbitrary combination of a geometrical street pattern with the historical fabric. Old lanes and alleys in Koxinga and Ching were divided by modern thoroughfares and appeared fragmented; thus, the urban context gap obstructed automobile circulation. This means that the through traffic hardly extends inside the old town block; it can also be interpreted as an odd subdivision without consideration for public health and local traffic. In addition, some parcels in old town blocks are actually deformed lands. Hence, the urban context gap needs reformation by partial land readjustment or recomposition of the relationship between historic lanes and adjacent parcels.

Old zoning ordinances in Tainan regulate bulk, density and land use type, but not subdivision rules. From the government's perspective, the urban context gap is a renewal problem, which can be solved by bulldozer redevelopment; but for local residents, it is an unhealthy environment. However, the old town district will keep declining if the urban context gap problem continues. Even if the old town blocks are seemingly self-sustainable, the interior layers actually become enclaves in Tainan from an urban growth perspective, since suburbanization and urban sprawl will accelerate the decline of the old town district. However, conservation scholars always appeal to the government for support in preserving the historic zones.
and propose the romantic concept of an "ecomuseum." But how can urban context gaps be resolved? The authors would like to quote "Lost Space,"15 defined by Roger Trancik as it refers to the context gap problem:

"Lost spaces are the undesirable urban areas that are in need of redesign, antispaces, making no positive contribution to the surroundings or users; they are ill defined, without measurable boundaries, and fail to connect elements in a coherent way."

Lost space occurred when new infrastructures were built without considering the historical fabric. The authors determine the presence of a few lost spaces in the old town district, as follows:

1). Obstruction of nodes in automobile circulation: this is caused by the arbitrary combination of two different traffic systems. In the Japanese colonial period, the geometrical street pattern was laid over the conventional movement network, thus creating conflict nodes.

2). Temple plazas without definite enclosures: some historic temple plazas directly front the arterial roads without any transitional space, due to the development of modern thoroughfares.

3). Residual land caused by the new infrastructure: the development of the Taiwan Railway broke the original city context, creating a big gap between the front and rear station areas. Some land parcels adjacent to the railway were abandoned.

4). Waterfront area separated from CBD: the Tainan canal is hard to reach due to the obstruction of a large architectural massing. Chinatown complex (a local shopping mall) cuts off the pedestrian route from CBD (Jungjiang Rd.) to the canal; the riverbank becomes a lost space because it is beyond the access of pedestrians.

There are still many other ill-defined space types in the old town district which need redesign. In any case, urban context gaps in the district should be closed to make a healthy composition.

### 3.2 Spatial Characters of the Old Town District

Spatial character is the real sense people can experience from a place. What conventional planning does is create a comprehensive way of allocation in a city or region concerning population density, transportation, zoning system and housing etc. Urban renovation plans during the Japanese colonial period radically transformed the traditional neighborhood morphology; thus, the conventional spatial characters of the Ching townscape were changed by this land reform movement. In 1937, a zoning system was officially introduced to Taiwan when the Japanese colonial government proclaimed the "Taiwan Urban Planning Act." Since then, a building management system evolved from two-dimensional planning to three-dimensional zoning, particularly in regard to bulk and building height regulations. Another factor transforming the spatial characters of the old town district is the impact of European-style architecture. A lot of public buildings imitating Renaissance or Baroque styles and designed by young Japanese architects became landmarks in the old town district; the stylish architecture of places such as the Taiwan railway station building, the old City Hall, the Lin Department Store, etc., are composed of rich architectural vocabularies. These landmarks are located adjacent to traffic circles; they are motifs of urban space, which could recall the city memory.

On the contrary, the scale inside the old town blocks appears to be more pedestrian-friendly. The intrinsic nature of the block transmits the human scale of olden times. While some of the old wooden bungalows built in the Ching dynasty still exist, most sites are already filled with reinforced concrete buildings. The common scene inside the block consists mainly of attached row houses, normally three to four stories high with fairly tight yards adjacent to narrow alleys or fire lanes.

#### 3.2.1 Composition of a Temple Plaza

Temple plazas are almost everywhere in the old town district. They are typically located inside the block. Since most temples in the old town district are listed cultural heritages, the religious zone is designated as a historic district. However, there are no strict rules for the aesthetic quality of an historic district, and most preservation works focus on rehabilitation of the temples' structure and architectural details. For example, in the case of Datianhou Temple Plaza, the temple building was constructed in the Koxinga period and is supported by a wooden structural system with a dougong16 on the top of the columns. The temple complex is composed of a front gate, five halls and five courtyards in linear order; the temple plaza was surrounded by long and narrow-shaped row houses and a performance stage. This plaza is an enclosed square and all the fire lanes and alleys inside the block lead to it. Its spatial composition is illustrated in Fig.2.

![Fig.2. Spatial Composition of Datianhou Temple Plaza](image)

#### 3.2.2 Spatial Deficiency in the Old Town District

Based on previous analyses, a typical old town block is bounded by arterial roads and subdivided by lanes and alleys. As shown in Fig.3., the exterior layers of blocks are for commercial and the interior
layers for residential use. Most of the buildings are low-rise because of the height limitation imposed on them. From a user's perspective, the physical environment of most houses is characterized by poor lighting and ventilation, which is caused by the long and narrow shapes of attached row houses. Moreover, the conventional lanes and alleys are too narrow and curvilinear for automobile circulation. Various types of lost space cause land use inefficiency; these urban context gaps result in fragmented subdivisions, obstructed nodes, and deformed lands. Such spatial deficiencies are critical factors concerning healthy neighborhood morphology in the old town district.

4. Aesthetic Zoning

The concept of an ecomuseum is proposed in "The Redevelopment Plan for the Historic District of Jungshan and Jungjang Roads in Tainan City." It combines the cultural heritage and the local neighborhood as an historic district. Except for the inefficient alleys and deformed parcels, most historic fabrics should be conserved under this proposal. This will truly protect the spatial character of old town blocks. In order to create a good urban landscape and develop tourism, the authors suggest both reshaping the geometrical street pattern and closing the urban context gaps in old town blocks. According to an analysis of two layers of old town blocks, the exterior layer is not only for commercial use, but also comprises the appearance of the streetscape. Hence, the main components of a good townscape are modern thoroughfares with beautiful facades and vistas. For instance, by creating some rhythms and motifs in the repetitive boring row houses, adding classical languages in elevations, or introducing a stylishly sloped roof, etc. This method can be traced back to the City Beautiful Movement in Chicago by Daniel Burnham in 1909, and Haussmann's renovation of Paris in the 1860's. The planning methods were to build a magnificent townscape, such as creating grand avenues radiating from the Arc de Triomphe, geometrical street patterns connecting squares and landmarks, tree-shaded boulevards, etc. However, the purposes of the City Beautiful Movement in Chicago and the Renovation of Paris are different from the Urban Renovation Plan of Hamano Mishiro in Tainan. The renovation of Tainan was more concerned with the urban sewage system and public health reform. Coincidentally, the results of the Urban Renovation Plan in Tainan appear to have had the same effect as the City Beautiful Movement. For example, geometrical street patterns replaced the old Chinese town plot, stylish architecture was built, a zoning system was introduced, etc. The major difference is probably the city scale. The old town district in Tainan is small; one can walk from the center to the edge in fifteen minutes. Nonetheless, the latest aesthetic zoning strategy should continue the planning ideas of the early 20th century, and accentuate the character of a geometrical street pattern.

As for the interior layer of old town blocks, it is fuzzy because the local community life functions, historic fabrics, and context gap problems are all mixed up. Aesthetic zoning should concentrate on the synergy effect and clear all spatial deficiencies in old town blocks. Vernacular places such as temple plazas, historic alleys, old bungalows, and row houses all compose the old town neighborhood. It is not merely a problem of renewal or preservation; rather, it is a question of "should we keep the conventional lifestyle and pass it on to the next generation?"

4.1 Conservation of the Historic Districts

From a review of the literature, we know how Sitte made an analysis of the medieval Roman Square, how American aesthetic zoning was formulated, how British conservation legislation evolved and how the ecomuseum was conceived in France and Italy. These planning and zoning experiences may be references for the conservation of the old town district in Tainan.

When concerned with autonomous communities, local residents may ask radical questions like, "Is that the spatial character we want to keep?" or, "Can cultural fascination bring in tourists?" These problems are essential to the conservation of historic districts. So far, there has not been any specific change of zoning ordinance in the historic districts of Tainan. What have been completed most in the realm of conservation are the rehabilitation of cultural heritages and the beautification of historic routes. Preservation work proceeds and is being formulated piece by piece. Radical change of the historic districts is not feasible in Tainan, for instance; one could designate some pedestrian zones in the historic district and keep automobiles away from the area. This strategy sounds like a good promotion for tourism, however, the pedestrian zone interferes with the local traffic and besides, tourism in the historic district is not big enough to maintain a huge theme park zone and sacrifice the functioning of the local community.

Aesthetic zoning is currently practiced under an urban design review process. According to "The Tainan Landscape Master Plan," the Chihkan Historical District is one of the significant zones in need of control concerning the historic scene. A few control guidelines are as follows:
1). Designate a viewshed around Chihkan Fort to maintain the old town atmosphere.
2). Control bulk and building height in the district; practice TDR.
3). Preserve the scale and rhythm of historic alleys, which connect significant pieces of architecture.
4). Establish the principles for rehabilitation of building facades in historic alleys.

The authors would now like to concentrate on the control of bulk as it relates to density issues in planning.

4.2 Bulk and Density Control

Tainan zoning ordinances basically regulate buildings in two regards: bulk type and land use type. Bulk is defined by site coverage ratio, floor area ratio (FAR) and building height, which relate to use density and built form; there are also other requirements, such as yards being a public health concern and arcades being for pedestrian use. The limit values of these items are based on zoning types and location factors. For instance, the FAR of residential use in the urban center area is as high as 240%, and lot coverage ratio is 60%; these values would be a little bit lower if the land was located in a general urban area, or if the zoning districts were only for single families or duplexes. If the zoning district is located in a suburban area, the FAR will be as low as 120%. This density principle resembles cumulative zoning, however, it performs in a mixed-use urban environment. According to the Bureau of Urban Development, major density items are regulated as seen in Table 1.

Table 1. Density Regulation in Tainan

<table>
<thead>
<tr>
<th>Zoning Types</th>
<th>Type</th>
<th>Site Coverage Ratio</th>
<th>FAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential zone</td>
<td>Low Density</td>
<td>50%</td>
<td>120%</td>
</tr>
<tr>
<td></td>
<td>Medium Density</td>
<td>50%</td>
<td>180%</td>
</tr>
<tr>
<td></td>
<td>High Density</td>
<td>60%</td>
<td>240%</td>
</tr>
<tr>
<td>Commercial</td>
<td>Type I</td>
<td>80%</td>
<td>320%</td>
</tr>
<tr>
<td>Historic Zone</td>
<td>—</td>
<td>—</td>
<td>160%</td>
</tr>
</tbody>
</table>

From Table 1., we can see that site coverage ratio in commercial zones is as high as 80%, and FAR is 320%. This illustrates why row houses in the old town district are normally three or four stories high, with a small backyard. As for the historic sites, the limit value of FAR by zoning ordinance is 160%, however, the FAR of historic buildings is normally much lower than this value. Hence, the way in which to transfer the residual FAR of historic buildings to appropriate sites is a critical issue.

As for the building height, it depends on the front road width and height ratio relationship by code. Some districts require an urban design review process before approval of development, while height restriction is one of the factors in the protection of the historic landscape. So far, there are no strict rules regarding urban design review and it is the government officers’ discretionary power that decides what is appropriate for the district. However, as suggested by the "Tainan Old City Regeneration Foundation" in its conservation proposal of 2006, new development projects are better kept away from the old town district in order to preserve the completeness of the historic fabric and heritage. A greenbelt, as the old city growth limit, can be a buffer zone of the vulnerable historic district, while the ring area between the greenbelt and the old city loop will be the appropriate location for acceptable sites of the TDR.

Practically, bulk and density control are planning tools that manage the urban environment, while zoning ordinances depend on the character of districts and locations. However, from a sustainable neighborhood standpoint, the building densities in the Tainan old town district appear to be spread evenly. In a mixed use and high-density urban environment, graded density may seem infeasible, though it is actually an inexorable trend for future development. High built densities, urban context gaps, and spatial deficiencies have caused the whole district to decline. Residents leave the district because of the defective quality of life, few young people wish to stay in the old community, building vacancy ratios rise and one of the elementary schools in the district is about to close because there are not enough registered children.

4.3 Reconsidering the Historic Districts in Tainan

Urban renewal policies and urban design guidelines proposed by the city government form the major framework for the redevelopment of the historic districts. What confuses people concerning the redevelopment is the ecomuseum proposal. The following problems need to be clarified before a real ecomuseum is constructed:

1). Are current public facilities, infrastructures and amenities in the historic district sufficient to satisfy the needs of cultural tourism?
2). Are the cultural attractions sufficient and fascinating enough to develop tourism in the district?
3). How can the city's government proceed with urban renewal policies without destroying the vulnerable historic district?
4). How can aesthetic zoning help shape the old town district? What is the attitude of residents?

These practical issues illustrate the uncertainty and hardship of historic districts. According to the "Fucheng Historic Cultural Scenery Conservation Plan," the locations of historic districts and their relationship with the greenbelt are shown in Fig.4.

4.3.1 Redevelopment vs. Conservation

Concerning the stated questions about public facilities, cultural attractions, renewal problems, and residents' attitudes, the aim is to regenerate the old town district and redevelop the historic districts via aesthetic zoning.

The government's redevelopment proposal usually concentrates on the socioeconomic issues of a district, such as amenities in the neighborhoods, education and training, traffic system refinement, cultural events,
etc. The inner city redevelopment programs after the 1980s in the downtown areas of American cities are the epitome of such proposals. The main purpose is to make the CBD more nationally and internationally competitive when confronting suburbanization and globalization trends. Nowadays, the old town district in Tainan confronts an urban decline crisis similar to the one that occurred in American downtown areas during 1960s and 1970s. Hence, the critical issue in the old town district is not only urban conservation, but also the opportunity for urban renaissance. Aesthetic zoning is the key solution and a feasible way to redevelop.

Urban context gap problems and spatial deficiencies are the main challenges of aesthetic zoning. As previous analyses have proved, it involves numerous planning and design criteria. Since most historic alleys in the old town district should be protected under conservation principles, the existing oddly-shaped parcels and deformed lands, inefficient fire lanes and traffic obstruction nodes, and other types of deficiencies should all be rezoned without destroying the vernacular spatial character. Furthermore, the rhythm of the historic buildings should be accentuated to create a local identity. Take Chihkan historic district for example: as a preservation zone, it not only possesses three national cultural heritages within a short walking distance, but the neighborhoods also offer various retail services and gourmet restaurants, which cannot be separated from the historic heritage. Urban context gaps and spatial deficiencies are joint parts of the Chihkan historic district. How to redevelop and conserve is a regeneration dilemma.

4.3.2 Historic Districts as Special Zones

Based on the socioeconomic factors of historic districts, the neighborhood and the cultural heritages need to coexist in a coherent way. Actually, aesthetic zoning does not invent new urban design rules or zoning ordinances. Rather, it begins by reading the interweaving phenomenon in an urban context, creates vernacular spatial characters from the intrinsic nature of old town blocks and accentuates the extrinsic nature of a geometrical street pattern. According to the previous analysis of historic fabrics and spatial characters, closing the context gap by rezoning is the key to urban renewal. Also, due to the vulnerable nature of historic districts, a conservation policy should refer to the aesthetic quality rooted in historic heritages such as architectural vocabularies, plan modules, rhythms of facades, and even land use patterns in the district. Moreover, to conserve the historic scene or create good vistas, the designation of viewsheds is required. Viewshed control will lead aesthetic zoning toward design-oriented ordinances such as exterior wall alignment, skyline, landscape elements, or continuity of open space, etc. By doing so, open spaces or greenbelts are not just buffer zones or recreation spots, but would become the natural boundary of the old town district, accentuating the tapered effects of the historic scene. Hence, the open space system is fluid, integrates with temple plazas, historic alleys or even arcades as a visitors’ circuit, thus enhancing the historic experience in the old town district.

For local communities, aesthetic zoning could refine the urban quality of life in terms of amenities and recreation standards. It also helps to recompose a pedestrian village in the old town district. Conservation policy does not intend to constrain the possibilities of real estate development in the districts; rather, it is a sustainable principle for their development. If we link the neighborhood with historic heritages, redistribute residential and commercial densities, preserve the old town life style, and keep the high intensity developments away from the vulnerable historic districts, this can be achieved. The local community empowering systems, community planners, and NPOs should initiate the statute of aesthetic zoning, while the city government needs to tender urban landscape guidelines for local communities to follow. The historic district as a special zone is not a dream. An ecomuseum could be achieved under the aesthetic zoning and community autonomous system.

5. Conclusions

The latest conservation policy by local scholars attempts to survey all the listed cultural heritages, historic buildings, and unlisted ancient buildings in the city, then designate the most valuable historic sites as preservation zones. Yet, historic sites and alleys are spread out almost everywhere in the old town district, and most of them are concealed inside the blocks. Current conservation strategy tends to turn the intrinsic nature of old town blocks into the extrinsic character of the townscape, while viewshed control can precisely formulate such a vernacular quality of the old town district.

In any event, the main uncertainties involved are financial resources and conservation of community lifestyle. As for finances, the most crucial problem is the historic values in the market. For instance, in advanced countries, historic buildings or cultural heritages are evaluated based on their market function, while they are also a part of the market mechanism.
This means successful cultural tourism can make conservation financially self-reliant, and be beneficial to the government instead of competing for subsidies. Concerning the conservation of lifestyle in historic districts, this depends on the attitudes of residents toward renewal; for instance, how to integrate the neighborhood with the historic sites, and how to refine those spatial deficiencies in old town blocks. Revitalization of old districts is definitely rooted in autonomous community. So far, urban conservation in Taiwan is still in the initial stage, and the synergy effect between renewal and socioeconomic factors needs to be considered. Urban design reviews and urban landscape master plans are the latest aesthetic zoning regulations for the old town district. The historic district in Tainan is closer to an ecomuseum as a concept, which collects all the historic buildings, cultural events, commercial activities and memories in a restricted zone. The old town district in Tainan will continue to evolve with the maturation of aesthetic zoning and the autonomous community mechanism regarding renewal issues.

Notes

R.O.C. is the abbreviation of "Republic of China."
2 Taiwan was ruled by the Japanese Colonial Government from 1895 to 1945.
3 "The Redevelopment Plan for the Historical District of Jungshan and Jungjang Roads in Tainan City" was proclaimed in April of 2006.
4 Bulldozer is the early urban renewal method used during the 1960's in the USA. It does not consider the local fabric. This type of renewal causes even more social problems after new affordable housing is completed.
5 Gentrification is a phenomenon in which low cost, physically deteriorated neighborhoods undergo renovation and an increase in property values, along with an influx of wealthier residents who may displace the prior residents.
7 The New York Court of Appeals concluded that there is no taking problem because the Penn Central Transportation Co. could transfer the development rights to the neighboring sites. Taking problem is a legal term concerned with "police power" used in the Constitution of the United States. Please refer to "Planning Control of Land Development: Cases and Materials," Chapter 2, The Legal Bases for Land Use Controls, Penn Central Transportation Co. vs. City of New York 438 U.S. 104, 98 S. Ct. 2646, 57 L. Ed. 2d 631 (1978).
8 Declaration of Intent of Long Networks, Trento (Italy), May 2004.
9 Spirit of place is defined in "Genius Loci, Towards a Phenomenology of Architecture" by Christian Norberg Schulz.
10 Greenbelt was the approximate city boundary during the Japanese period.
11 Zheng Chenggong was a prominent leader of the anti-Ching movement opposing the Ching Dynasty, and a general who defeated the Dutch to claim Taiwan in 1662.
12 Hamano Mishiro is the student of Scottish engineer William K. Burton (1856-1899). Burton came to Taiwan as a public health consultant of the government. Mishiro worked with Burton, and both made great contributions to Taiwan's urban sewage system in the early 20th century.
13 The "Taiwan Urban Planning Act" was proclaimed in 1937 by the Japanese Colonial Government. This act introduced modern urban planning ideas from the USA and Europe, in which zoning system and land readjustments were the typical planning tools.
14 The Population in the mid-west district consists mostly of the middle aged and senior citizens; young people tend to move out to new development zones.
15 Finding Lost Space traces leading urban design theories that have emerged over the past eighty years: the principles of Sitte and Howard; the impact of and reactions to the Functionalist movement, and designs developed by Team 10, Robert Venturi, the Krier brothers, etc.
16 Dougong is the system of wood brackets on the top of a column supporting the crossbeam.
17 The "Tainan Urban Landscape Master Plan" was proclaimed in 2008.
18 A viewshed is an area of land, water, and other elements that is visible from a fixed vantage point. In urban planning, for example, viewsheds tend to be areas of particular scenic or historic value that are deemed worthy of preservation against development.
19 According to "Building Technical Code," Chapter 9 Bulk Control, Article #164, building height should satisfy the following condition: As ≤(L×Sw)/2, H ≤ 3.6 (Sw+D).
20 The Minister of Interior proclaimed "Detailed Plan Review Principles." Article 14 assigns certain districts for urban design review, which should form the urban design principles of the district based on local environmental character; urban design regulations should be included in a detailed plan.
22 The conservation plan is proposed by "Tainan Old City Regeneration Foundation."
23 Typical inner city redevelopment cases are rousification in Baltimore and Boston.
24 Tapered effect is a planning and design method used in landscape.
25 Short walking distance in a neighborhood is a key element of New Urbanism.

References