International Journal of Education and Social Development
ISSN: 3078-9931 (Print), ISSN: 3078-2287 (Online) | Vol. 5, No. 3, 2025

Construction and Configuration Strategy of Urban Pastoral Life Circle in the City Edge-Taking the Suburban Street of Sihui City as an Example

Hong Zhang, Chuming Chen, Jiahui Liang, Ranran Zhou, Yu Deng, Kexuan Yang

College of Life Sciences, Zhaoqing University, Guangdong, China

Abstract: As a unique transitional zone where urban and rural elements converge, the urban fringe faces multiple challenges in community life circle development, including uneven public service distribution, fragmented spatial configurations, disrupted social networks, and disconnection between natural landscapes and urban spaces. Grounded in the principles of "resilient governance" and "human-centered needs," this study proposes the concept of "resilient life circles" through the high-quality tourism belt development in Chengzhong Subdistrict of Sihui City, Zhaoqing. Characterized by adaptive supply, multidimensional integration, dynamic adaptation, and urban-landscape symbiosis, the project involved the Aesthetics Workshop at Zhaoqing University in its planning and design phases. Using Chengzhong Subdistrict as a case study, the research systematically analyzes existing issues in public service facilities, transportation networks, public spaces, community governance, and landscape integration. It outlines a comprehensive strategy for building resilient life circles through six dimensions: spatial optimization, service innovation, transportation network integration, public space development, governance enhancement, and urban-landscape synergy. Specifically, the study details plans to transform rural mulberry-fishpond systems, pastoral landscapes, and Sujiang River waterfronts into urban pastoral landscapes, including functional zoning, facility integration, and landscape design. This research aims to achieve deep integration of natural ecology and urban living, providing theoretical references and practical experience for high-quality community life circle development in similar regions. It also preserves and innovates the core concept of "urban-rural integration and ecological symbiosis" from Howard's "Garden City" theory, realizing innovative applications of this theory in contemporary urban fringe areas.

Keywords: Urban fringe, community life circle, flexible life circle, spatial configuration, urban pastoral landscape.

1. Introduction

Urban peripheries, the most dynamic and complex geographical units in urbanization, embody dual characteristics of both urban and rural areas. While absorbing functional spillovers from cities, they retain rural developmental DNA while grappling with pressing issues including land-use conflicts, lagging public services, social structural heterogeneity, and disconnection between natural landscapes and urban spaces [1]. The planning and development of community life circles serve as crucial vehicles for measuring residents 'quality of life, achieving equitable access to basic public services, and fostering urban-rural symbiosis. These initiatives play a pivotal role in enhancing living environments at urban peripheries, promoting social integration, and activating ecological value [2]. Tracing the evolution of urban-rural planning theory, Howard's core concept of "urban-rural integration and balanced development" proposed in *The Garden City of Tomorrow* provides a classic theoretical framework for resolving urban-rural segregation dilemmas. This paradigm emphasizes the organic integration of urban public services with rural ecological advantages to create composite spaces integrating production, living, and ecological functions [9]. However, current planning approaches for urban periphery communities predominantly adopt single-city or single-rural models, failing to fully incorporate the essence of urban-rural integration from garden city theory. These approaches exhibit rigid facility configurations, fragmented spatial layouts, homogeneous service provision, and disconnection between natural landscapes and urban spaces, making them ill-suited to residents' diverse dynamic needs and the growing trend of ecological-integrative living [3].

The concept of "resilience" originates from the principle of adaptive governance in management science, emphasizing flexible, inclusive, and collaborative approaches to achieve goals in uncertain environments [4]. Applying this concept to community life circle development aims to create "resilient living spaces" that transcend traditional rigid planning constraints. These spaces prioritize adaptive spatial configurations, precise service delivery, multidimensional collaborative governance, and deep urban-landscape integration, addressing the complexity, dynamism, and diversity of urban peripheries. As a typical urban fringe, Sihui City's urban streets boast diverse cultural-tourism-agricultural resources including ancient villages, revolutionary heritage, and specialty agriculture, alongside high-quality natural ecosystems such as mulberry-fishpond systems, contiguous farmlands, and the extensive Sujiang River shoreline. However, these rural landscapes have long remained "isolated," failing to effectively integrate with urban living spaces. This has led to increasingly prominent contradictions between community development and ecological resource utilization, industrial growth, and adaptive capacity—a phenomenon with strong representativeness in this context.

Zhaoqing University's Aesthetic Workshop has long been dedicated to researching regional cultural heritage, spatial aesthetics design, and ecological landscape integration. With extensive practical experience in urban-rural space renewal, cultural IP development, and ecological landscape empowerment, the workshop adheres to its core philosophy of "Aesthetics Enabling Life, Ecology Integrating Cities". It

actively participates in the planning and design of "resilient living circles" in urban streets, focusing on landscape transformation and functional integration of mulberry-based fish ponds, farmland, and Sujiang River embankments. By optimizing spatial forms, exploring ecological value, and creating integrated urban-scenic scenarios, the workshop injects professional expertise to formulate actionable planning schemes, serving as a crucial bridge between theoretical concepts and practical implementation. This study examines urban streets as research subjects, integrating the workshop's planning practices with 11 core tourism nodes and distinctive ecological landscapes in Zhaoqing's high-quality tourism belt. It explores the construction logic and configuration strategies of "resilient living circles", detailing specific planning content for urban pastoral landscapes, thereby providing innovative approaches for sustainable development of urban fringe communities.

2. Theoretical Connotation and Construction Logic of "Elastic Life Circle"

2.1. Definition of the "Elastic Living Circle" Concept

The "Elastic Living Circle" is an inclusive, adaptive, collaborative, and eco-friendly community support system developed within designated urban fringe areas. Centered on residents 'practical needs, supported by industrial development, and grounded in ecological landscapes, it achieves its goals through flexible spatial planning, multidimensional service provision, dynamic governance mechanisms, and deep urban-landscape integration. This approach embodies the core principles of Howard's Garden City theory—urban-rural integration and ecological priority. Addressing contemporary urban challenges like fragmented resource use, rigid spatial functions, and inadequate ecological resilience, the system emphasizes reserving dynamic adjustment space in planning to enhance its adaptability to social changes and environmental risks.

2.2. The Logic of "Elastic Living Circle" Construction

The development of the "Elastic Living Circle" aligns closely with Howard's Garden City theory, which advocates "functional integration, spatial equilibrium, and urban-rural symbiosis." It follows a comprehensive framework: "demand identification—resource integration—professional empowerment—spatial adaptation—service coordination—urban-scenic integration—governance assurance." Through systematic analysis of residents' daily activities and latent development needs in urban streets, the project integrates existing land resources, ecological foundations, and cultural assets, while leveraging the professional design expertise of Zhaoqing University's Aesthetics Workshop.

3. Analysis of the Current Situation and Problems of Community Life Circle in Chengzhong Street, Sihui City

3.1. Overview of the Study Area

Situated in central Guangdong Province, Sihui City serves as a vital transportation hub connecting the Pearl River Delta to western and southwestern China. The urban district of Shicheng Street, spanning approximately 12 square kilometers, administers 10 community residents 'committees with a permanent population of around 80,000, including 35% migrant workers, making it a typical urban fringe. This area boasts unique resources, featuring 11 high-quality tourism hubs such as the Ningzhai Ancient Village Cultural and Creative District in Gaoshi Village and the former residence of Peng Zemin in Baisha Village. It also includes contiguous mulberry-fishpond systems (mainly distributed around Baisha and Tiechang Villages, covering about 800 mu), expansive farmland (primarily cultivating rice, vegetables, grapes, and lotus roots, spanning approximately 1,200 mu), and a scenic Sujiang River shoreline (with a 3.5-kilometer coastline). These areas integrate diverse industries like ancient village culture, revolutionary-themed educational programs, specialty agriculture, eco-farms, and natural landscapes. In recent years, as Sihui's "Eastward and Southward Expansion" urban development strategy advances and cultural-tourism-agriculture industries flourish, growing tensions have emerged between community life circle development, industrial growth, residents' needs, and ecological landscape utilization.

3.2. Diagnosis of Existing Issues

3.2.1. Transportation Network: Inadequate Connectivity, Travel Inconvenience, And Weak Landscape Integration

The urban traffic network exhibits three key characteristics: well-connected arterial roads, fragmented infrastructure, and poor connectivity at scenic nodes. While major thoroughfares like Sihui Avenue and Longfeng Road traverse the district, the narrow, winding side streets and alleys linking residential areas to ecological zones remain unpaved, creating hazardous conditions for pedestrians and cyclists. Public transport coverage is uneven, with bus stops in peripheral communities and scenic areas spaced too far apart and operating too early, failing to meet residents 'ecological recreation needs or tourists' sightseeing demands. Furthermore, there is a lack of distinctive tourism routes connecting Sangji Fishponds, farmland landscapes, Sujiang Riverbanks, and high-quality tourism corridors. Existing routes lack scenic design and signage systems, failing to form continuous tourist pathways. This disconnect between ecological landscapes and cultural-tourism resources negatively impacts residents 'leisure activities and visitors' travel experiences.

3.2.2. Public Space: Fragmented Form, Single Function, and Disconnection from Ecological Landscape

The city's public spaces suffer from insufficient quantity and fragmented distribution. The old urban area is dominated by small rural parks, lacking large-scale comprehensive parks, while the city's outskirts are mostly idle vacant lots or temporary storage areas, lacking systematic public activity spaces. Existing public spaces have limited functions, primarily serving as greenery and viewing areas, lacking multifunctional features such as children's play areas, senior rest zones, and neighborhood interaction spaces, making it difficult to support community public life. Moreover, public spaces are disconnected from ecological landscape resources like mulberry-based fish ponds, farmland, and the Sujiang River shoreline, failing to form a continuous and integrated public space system. For instance, ancient villages lack connections to pastoral landscape trails, the Sujiang River shoreline has no waterfront public activity spaces, and

mulberry-based fish pond areas lack leisure stops, resulting in underutilized recreational and social benefits of these ecological landscapes.

3.2.3. Community Governance: Single Subject, Insufficient Participation, and Lack of Ecological Synergy Mechanisms

Current community governance remains dominated by sub-district offices and neighborhood committees, with limited participation from market entities, social organizations, professional institutions, and residents. The transient population, characterized by high mobility and weak sense of belonging, shows little interest in community affairs. Local residents 'rights to information and participation in community planning are inadequately protected, resulting in underutilized facilities after completion. More critically, there is a lack of ecological coordination mechanisms among industrial entities, professional institutions, and community governance. Cultural tourism enterprises, farm operators, and Zhaoqing University's Aesthetics Workshop have not deeply engaged in ecological landscape renovation and living circle facility planning. This disconnect between facility allocation, industrial needs, aesthetic standards, and ecological conservation prevents the formation of a virtuous cycle where "community services fuel industries, industries enrich communities, and ecology empowers living."

3.2.4. Urban-Landscape Integration: Fragmented Ecological Landscape, Single Functionality, and Lack of Systematic Planning

While the ecological landscape resources in Chengzhong Subdistrict—including mulberry-based fish ponds, farmland, and Sujiang River waterfront—possess natural advantages, they face challenges such as fragmented distribution, limited functionality, and lack of systematic planning. Most mulberry-based fish ponds primarily serve agricultural purposes, with no development of ecological tourism or farm experience features. The pond bases lack landscape improvements, and there are no leisure trails or interpretive systems nearby. Farmland lacks unified landscape planning, with haphazard crop layouts, narrow field roads, and absence of recreational facilities or educational signage, failing to meet residents' leisure needs. Along the Sujiang River, some areas suffer from environmental hygiene blind spots, with shorelines lacking systematic landscape design. Only local simple trails exist, failing to form continuous waterfront activity spaces. Facilities like waterside platforms, wetland purification systems, and nighttime lighting are missing, preventing full realization of ecological and landscape values. Additionally, the lack of effective connections between landscape nodes and frequent discontinuities in walking and cycling systems further exacerbate these issues.

4. Construction Strategy of "Elastic Living Circle" in Chengzhong Street of Sihui City

Building upon the current characteristics and resource endowments of urban streets, and integrating the theoretical framework of "resilient living circles," this study inherits the core concept of "integrating natural ecology into urban life" from Howard's Garden City theory. By leveraging the professional design expertise of Zhaoqing University's Aesthetics Workshop, it proposes six strategic dimensions for urban development: optimizing spatial layouts, innovating service provision, integrating transportation networks, creating public spaces, improving governance mechanisms, and enhancing urban-landscape integration. The plan specifically details the transformation of mulberry-based fish ponds, farmland, and the Sujiang River shoreline into urban pastoral landscapes, representing an innovative application of Garden City theory in contemporary urban peripheries. (Figure 1)

Figure 1. Planning Map of the Urban Pastoral Living Circle in Chengzhong Sub-district, Sihui City

4.1. Spatial Layout Optimization: Establishing a Facility Configuration System with "Hierarchical Categorization, Flexible Reserves, Urban-Landscape Synergy, and Aesthetic Empowerment"

4.1.1. Delimitation of Tiered Living Circles and Landscape Integration

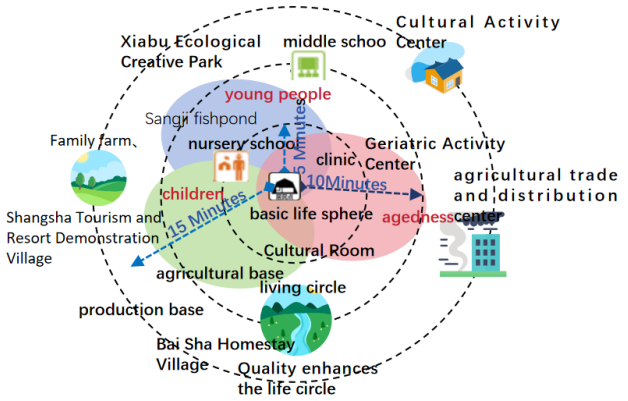
Based on residents' travel radius, facility service levels, industrial distribution patterns, and ecological landscape configurations, the urban streets are divided into three-tiered flexible living zones: 15-minute, 10-minute, and 5-minute. These zones are strategically connected to key nodes of ecological landscapes such as mulberry-fishpond systems, farmland, and the Sujiang River shoreline, as well as high-quality tourism belts. The Aesthetics Workshop of Zhaoqing University has been involved throughout the spatial planning and aesthetic design of these living zones at all levels.

The 15-Minute Lifestyle Circle, centered around the street administrative center, spans the entire jurisdiction. It integrates the Ningzhai Ancient Village Cultural and Creative District, the Xiabu Granary Cultural and Creative Warehouse, and the Sujiang Riverfront Core Landscape Belt, featuring cultural and sports facilities, a small cultural exhibition hall, a tourist hub, and an ecological landscape service center (offering tourism reception, eco-exhibitions, and dining facilities). Zhaoqing University's Aesthetics Workshop oversees the overall planning and ecological landscape integration of the area, incorporating elements like Sihui jade culture, citrus culture, and water town culture into architectural facade renovations, street furniture designs, and Sujiang Riverfront landscape enhancements, creating a core aesthetic of "a city within a landscape, where scenery and urban life coexist harmoniously."

The 10-Minute Living Circle, organized around neighborhood committees, spans 2-3 residential blocks. It

connects to the Peng Zemin Memorial House, Runfeng Ecological Park, and surrounding pastoral landscapes, featuring facilities such as primary schools, community health centers, cultural activity hubs, medium-sized supermarkets, study-abroad reception stations, and countryside leisure facilities. Zhaoqing University's Aesthetic Workshop emphasizes integrated design of functionality, aesthetics, and ecology. For instance, it combines study-abroad reception stations with pastoral landscapes, using eco-friendly materials to create "pastoral classrooms" and incorporating crops like rice and lotus roots into building facades. This approach not only fulfills service needs but also highlights the natural ecological essence.

The 5-Minute Living Circle centers on neighborhood nodes with a 300-500 meter radius, connecting the Baisha Bamboo Shoots Plantation, Tiechang Lotus Root Farm, mulberry-based fish ponds, and surrounding residential areas. It features amenities including kindergartens, community senior care centers, convenience stores, small rural parks, direct sales points for agricultural products, viewing platforms for mulberry-based fish ponds, and eco-rest stops (with simple seating, drinking facilities, and science exhibition boards). Zhaoqing University's Aesthetics Workshop has meticulously designed these facilities. For instance, the agricultural product sales point is crafted as an "eco-friendly and convenient" landscape building with thatched roofs and bamboo frames, harmonizing with the mulberry-based fish ponds and pastoral scenery. The rest stop adopts a modular design incorporating water town elements (lotus, reeds, and fish/shrimp motifs) to enhance both user experience and visual appeal. (Fig 2)



g 2: Configuration Diagram of 5+10+15 Public Service Facilities

Figure 1. Configuration diagram of 5+10+15 public service facilities

4.1.2. Reserving Elastic Space and Integrating with Ecological Landscape

In the three-tier living circle planning framework, the "rigid baseline + flexible space + ecological red line" principle is clearly defined. For basic infrastructure such as kindergartens and community health service stations, land use must strictly comply with national standards. For upgraded facilities including cultural activity centers, sports venues, and tourism amenities, the "flexible land use" policy is adopted to encourage repurposing idle grain storage facilities, vacant residential buildings, and rooftop spaces. Ecological landscape zones like mulberry-fishpond systems, farmland, and Sujiang River banks are designated with ecological protection red lines, reserving flexible spaces for landscape expansion to accommodate temporary recreational facilities. Zhaoqing University's Aesthetics Workshop participates in integrated design of flexible spaces and ecological landscapes. For example, idle houses in Baisha Village were transformed into a "community-tourism-ecology" complex, integrating community service centers, day care facilities, agricultural product exhibition points, and ecological science museums. The "restoration-as-original" approach combined with ecological design preserves architectural heritage while optimizing internal layouts, enabling shared access to residential services, tourism offerings, and ecological experiences. Around Xiabu Village's farmland, flexible spaces are reserved for modular temporary recreational facilities that can be flexibly adjusted according to farming seasons and tourist demand.

4.2. Detailed Planning Content of Urban Pastoral Landscape

4.2.1. Landscape Planning of Sangji Fish Pond Garden City: Creating a Compound Space of "Water Town Study + Ecological Leisure"

For the 800-mu mulberry-fishponds surrounding Baisha and Tiechang villages, Zhaoqing University's Aesthetic Workshop has developed a "one core, three zones, one belt, multiple points" planning framework.

Core Functional Zone: Designated as the contiguous mulberry-fishpond core area, this zone will establish an 'Ecological Research Hub for Mulberry-Fishpond Systems.' It preserves traditional mulberry-fishpond farming practices while featuring an ecological purification demonstration zone that showcases the circular agriculture principle of using pond mud to fertilize mulberry trees and mulberry leaves to feed fish. The zone also includes an experiential learning area with multiple interactive ponds where students and visitors can participate in activities such as fishing, mulberry harvesting, and silkworm rearing.

Three main functional sections

The ecological tourism zone features willow, reed, and lotus planted along the pond base, forming a 'pond base greenway + aquatic plant belt.' Three elevated viewing platforms are installed, offering panoramic views of the entire mulberry-fish pond system.

Leisure and Recreation Area: Two "Water Town Leisure Stations" will be constructed in the relatively open area along the edge of the fish pond, equipped with wooden benches, sunshades, drinking water facilities, and public restrooms. Around the stations, fishing platforms and family-friendly wading areas (shallow water zones with safety protection facilities) will be set up.

Cultural Exhibition Zone: The vacant houses around the fish pond have been transformed into the 'Mulberry-based Fish Pond Cultural Center', showcasing the historical roots, aquaculture techniques, and folk traditions of Sihui's mulberry-based fish ponds. A small retail area is also available, selling local specialties like dried mulberry fruits and dried fish.

Landscape Corridor: A 2.5-kilometer mulberry-fishpond ecological greenway will be constructed with permeable eco-bricks, linking the core area to three functional zones. Thirty educational signs will be installed along both sides, providing information on fish species, mulberry cultivation, and ecological cycles.

Multi-node facilities: Multiple small rest nodes are set up along the greenway, equipped with stone benches and landscape features, with one emergency call device and lighting facility installed every 1 kilometer.

4.2.2. Rural Farmland Urban Landscape Planning: Creating Shared Spaces for "Agricultural Experience + Rural Leisure"

For the 1200 mu of contiguous farmland in Chengzhong Street, Zhaoqing University's Aesthetics Workshop formulated a planning scheme based on the principle of "zoned planning and functional integration," adopting the "three belts, four zones, and multi-point linkage" approach.

(1) Three landscape belts:

The ecological landscape belt: Planting native flowers and shelterbelts along both sides of the farmland irrigation channels to create a 3-kilometer 'flower field scenic belt', with ecological floating islands installed for water purification.

The rural trail zone will feature a 4-kilometer circular path paved with a blend of gravel and eco-friendly concrete, measuring 1.2–1.5 meters wide, linking all functional zones and neighboring communities.

Rural Scenic Belt: Along the main farmland roads, landscape fences are installed, agricultural product science murals are painted, and rural signage is set up.

(2) Four Major Functional Zones

Premium cultivation zone: Designated 200 mu (≈13.3 hectares) of farmland as a premium agricultural product showcase, featuring seasonal planting of diverse ornamental crops to create a year-round scenic pastoral landscape.

Agricultural Experience Zone: Designated 100 mu (approximately 6.7 hectares) of farmland as a "Citizen Vegetable Garden" and "Family Farm", divided into smaller plots for residents or tourists to lease. The zone provides services such as farm tool rental, technical guidance, and irrigation support, along with storage sheds and cleaning areas for farm tools.

Rural Leisure Zone: A 'Shared Countryside Plaza' will be built in the central farmland area, equipped with outdoor seating, sunshades, and a simple stage for events like countryside music festivals and agricultural product markets. Multiple steel-and-bamboo structure rest pavilions and three countryside cafes will be set up around the area.

Science Education Zone: A 50-meter 'Rural Science Corridor' will be constructed to showcase crop growth cycles, agricultural technology advancements, and ecological farming knowledge. Two 'Rural Classrooms' will be established on open-air platforms, equipped with simple tables, chairs, and sunshade facilities, accommodating 50 participants for educational activities.

(3) Linking Nodes: Eight landscape entrances and exits will be established at the junctions between farmland and surrounding communities or cultural tourism sites, each equipped with signposts, parking facilities, and shared bicycle docking stations.

4.2.3. Planning of the Rural Landscape of the Cities along the Suijiang River: Creating a Green Corridor of "Waterfront Leisure + Ecological Protection"

For the 3.5-kilometer Sujiang River waterfront along the urban streets, the Aesthetics Workshop of Zhaoqing University has developed a "three-phase" planning scheme to achieve an organic integration of ecological protection, recreational leisure, and cultural exhibition functions. The upstream section features pastoral landscapes, the midstream section is designated as a vibrant leisure zone, and the downstream section serves as an ecological conservation area. This comprehensive approach aims to create a green corridor that combines waterfront recreation with ecological preservation.

Facilities: The entire route is equipped with landscape lighting systems, surveillance facilities, and emergency call devices. A waste collection point and handwashing station are set up every 500 meters. Three tourist service points are established at major entrances and exits, providing services such as tour guide consultation, drinking water, and emergency medications.

4.3. Transportation Network Integration: Building a Transportation Support System with "Fast and Slow Integration, Seamless Connection, Cultural and Tourism Linkage, and Landscape Connectivity"

4.3.1. Optimization of "Rapid Transit System" and External Connectivity

Enhance connectivity between urban arterial roads and key nodes in the living circle, cultural tourism sites, and ecological landscape areas. Expand the branch roads connecting Baisha Village and Tiechang Village to the main roads (to 6 meters wide), optimize traffic signal timing, and ensure smooth motor vehicle flow. Strengthen transportation coordination with other areas of Sihui City and the Guangdong-Hong Kong-Macao Greater Bay Area by establishing a bus terminal at the core node of the 15-minute living circle. Launch the "Urban-Central Subdistrict Ecological Landscape Express" bus service to connect key scenic areas along the Sui River, mulberry-based fish ponds, and farmland. The Aesthetics Workshop of Zhaoqing University will design bus stops and expressway signs incorporating water town and pastoral elements, transforming them into landscape nodes within the living circle.

4.3.2. Slow Traffic System Construction and Ecological Landscape Connectivity

Guided by the principles of "pedestrian priority, cycling accessibility, cultural-tourism integration, and landscape connectivity," we optimized the transportation network within the community, linking cultural-tourism sites with ecological landscape zones. The Aesthetics Workshop of Zhaoqing University played a key role in designing the slow traffic system, with a focus on creating an "ecological landscape corridor."

Capillary network enhancement: Existing narrow alleys will be widened and paved (extending those under 3 meters to 4 meters). Zhaoqing University's Aesthetic Workshop will upgrade the landscape by installing distinctive floor tiles featuring rice, lotus, and aquatic motifs, while adding small ecological landscape elements and lighting. The project will prioritize improving pedestrian pathways connecting ancient villages like Ningzhai and Baisha with mulberry-based fish ponds and farmland, significantly enhancing the walking environment.

Developing a distinctive greenway network: By integrating the Sujiang Riverfront Greenway, Mulberry-Fish Pond Greenway, and Rural Farmland Greenway, we create a circular tourism route that connects communities with core landscapes and cultural tourism sites, following the sequence of "ancient villages—revolutionary heritage sites—specialized agricultural bases—mulberry-fish pond systems—rural farmlands—Sujiang Riverfront." The Aesthetics Workshop at Zhaoqing University adopts an "ecology + culture" design philosophy, featuring cultural signage, rest platforms, landscape features, and ecological

education panels along the greenway. Incorporating elements of ancient village architecture, revolutionary cultural symbols, agricultural product designs, and water town flora, this initiative transforms the greenway into a multifunctional landscape corridor that combines transportation, leisure, cultural display, and ecological education.

4.4. Public Space Design: Creating a Public Activity Space with Openness, Shared Use, Multi-Functional Integration, Cultural-Tourism Fusion, and Ecological Symbiosis

Guided by the philosophy of 'maximizing every inch of land, revitalizing idle spaces, integrating production and living, and harmonizing urban landscapes,' Zhaoqing University's Aesthetic Workshop actively engages in public space planning and design. This initiative fosters seamless integration between public spaces, ecological landscapes, cultural tourism resources, and residents' daily needs.

Rural Park Enhancement and Ecological Integration: The existing rural parks in the old urban area will be upgraded by adding benches, fitness equipment, and children's play facilities, while incorporating community interaction and cultural exhibition functions. The Aesthetics Workshop at Zhaoqing University integrates local jade culture, citrus culture, and water town ecological elements to design landscape sculptures, cultural reliefs, and small water features. Native and productive plants are selected to create "miniature rural parks." Through landscape corridors or visual guidance, some parks will connect with surrounding small farmlands or mulberry-fishpond landscapes, achieving a harmonious blend of "urban mini-scapes" and "rural grand vistas."

Revitalizing Idle Spaces and Landscape Revitalization: Transforming Marginal Urban Areas and Abandoned Factories into "Community Shared Squares" and "Temporary Sports Parks" with Mobile and Removable Facilities. The Aesthetics Workshop at Zhaoqing University has developed functional zoning and landscape designs tailored to spatial characteristics and residents 'needs. For instance, shared squares feature cultural stages, seating areas, and greenery to accommodate diverse activities like gatherings, cultural events, and daily leisure. Meanwhile, the idle spaces around Baisha Wharf have been repurposed as waterfront leisure squares. By integrating the wharf's cultural heritage and Sujiang River's scenic beauty, the design includes cultural exhibition zones, waterside platforms, walking paths, and reed wetlands, creating a waterfront space that combines cultural immersion, relaxation, and ecological appreciation.

Industrial Space Integration with Landscape: Promoting the opening of specialized agricultural bases, eco-farms, and cultural innovation districts to residents. Zhaoqing University's Aesthetics Workshop has contributed to the landscape design and functional optimization of these open spaces. For instance, the Wanwanxing Grape Picking Base has designated areas for public leisure and fitness during off-picking seasons, featuring leisure trails, viewing platforms, and science education corridors that harmonize with the surrounding pastoral scenery. In Ningzhai Ancient Village's cultural innovation district, public rest areas and cultural exhibition walls have been established, blending traditional architectural elements with ecological design techniques to create public spaces that combine cultural ambiance, recreational functions, and natural charm, achieving shared use of industrial, residential, and ecological landscape spaces.

4.5. Enhanced Governance Mechanism: Establishing a Governance Support Mechanism with "Multi-stakeholder Participation, Dynamic Adjustment, Collaborative Governance, and Ecological Empowerment"

4.5.1. Multi-stakeholder Collaborative Governance

The "Urban Street Flexible Living Circle Construction Council" has been established, with the sub-district office serving as the lead unit. This initiative engages diverse stakeholders including community residents 'committees, property management companies, homeowner representatives, migrant worker representatives, farm operators, and ecological conservation experts to collaboratively address key issues in planning, construction, and operation of the living circle. As the technical support unit, Zhaoqing University's Aesthetics Workshop provides professional guidance on spatial design, cultural refinement, and ecological landscape transformation, integrating aesthetic principles, ecological concepts, and practical functions into planning decisions. Ecological conservation experts offer recommendations on restoration and sustainable resource utilization during facility site selection and landscape renovation phases. Through "Ecological Public Hearings" involving residents, businesses, and designers, opinions are collected to ensure facility configurations and landscape improvements align with community needs, industrial development, and meet aesthetic standards and ecological protection requirements. During operational phases, social organizations are engaged to provide elderly care and childcare services, while cultural tourism enterprises are encouraged to participate in managing tourism infrastructure and ecological landscapes. The Aesthetics Workshop offers ongoing design consultation and optimization services, establishing a governance framework characterized by government guidance, market-driven operations, social participation, resident-centric approaches, and ecological design empowerment.

4.5.2. Dynamic Monitoring and Evaluation Feedback

Zhaoqing University's Aesthetics Workshop has established a dynamic monitoring and evaluation mechanism for "flexible living circles," regularly assessing facility utilization efficiency, service satisfaction, resident demand changes, visitor experience feedback, and ecological landscape conservation through methods such as questionnaires, big data analysis, and field research. The workshop provides professional evaluation opinions from dimensions including spatial aesthetics, functional adaptability, cultural empowerment, and ecological integration. Ecological conservation experts conduct assessments based on ecosystem integrity and sustainable resource utilization. According to the evaluation results, the workshop promptly adjusts facility configurations, service content, traffic organization, spatial layouts, and ecological landscape protection measures. The Aesthetics Workshop optimizes design plans in response to adjustments, such as adjusting visitor reception capacity and facility layouts based on the ecological carrying capacity of mulberry-fishpond systems, and adding or optimizing ecological leisure facilities according to resident needs. This forms a closed-loop management system of "planning-construction-operation-evaluation-optimization-design iteration."

4.6. Urban-Landscape Integration Empowerment: Establishing a "Cultural-Tourism Synergy, Agro-Tourism Interaction, Ecological Empowerment, and Co-creation & Sharing" Model for Industrial-Residential Development

Leveraging the high-quality tourism belt in Chengzhong Subdistrict with diverse industrial resources, along with ecological assets like mulberry-based fish ponds, farmland, and the Sujiang River shoreline, the initiative integrates Zhaoqing University's Aesthetics Workshop's professional design expertise. This fosters a deep synergy between industrial growth, community development, and ecological conservation, creating a mutually reinforcing ecosystem.

Agriculture + Lifestyle + Ecology + Design: Leveraging resources including the Baisha Bamboo Shoots Plantation, Tiechang Lotus Root Farm, Wanwanxing Grape Picking Site, and Mulberry-Fish Pond System, the project will establish agricultural product direct sales outlets, processing experience centers, and an eco-tech museum. Zhaoqing University's Aesthetic Workshop will design the spatial layout and brand identity for these facilities, adopting an eco-friendly minimalist style that blends agricultural elements with water town aesthetics to enhance experiential consumption and ecological awareness. The initiative will develop activities such as farm tours, family picking, mulberry-fish pond study programs, and countryside camping, featuring interactive installations and educational displays to enrich residents' leisure lives. By encouraging community participation in crop cultivation, processing, marketing, and ecological maintenance, the workshop will provide professional support in agricultural packaging design and eco-tourism promotion, thereby increasing local incomes.

Cultural Tourism + Lifestyle + Ecology + Design: The Ningzhai Ancient Village Cultural and Creative District and Xiabu Granary Commercial Complex integrate residents 'daily consumption needs with ecological landscape experiences, featuring convenience stores, specialty dining, lifestyle services, and eco-themed homestays. Zhaoqing University's Aesthetics Workshop participates in business planning and spatial design, creating a hybrid space that combines cultural tourism commerce, convenience services, and ecological experiences—satisfying tourists 'needs while enhancing residents' daily lives. Leveraging Pengze Min's former residence as a red heritage site and Sujiang River's ecological landscape, the initiative conducts patriotic education, community cultural activities, and eco-friendly public welfare programs. The Aesthetics Workshop is responsible for renovating red culture exhibition spaces and ecological activity venues, blending modern display technologies with traditional architecture and ecological elements to amplify cultural dissemination, ecological immersion, and community engagement.

Eco-Community Revitalization + Design-Driven Quality Enhancement: A compensation mechanism for ecological conservation has been established, allocating a percentage of revenue from cultural tourism and agritourism sectors to create the "Community Ecological Development Fund." This fund supports ecological restoration, maintenance of mulberry-fishpond systems and farmland landscapes along the Sui River, as well as community infrastructure development. Cultural tourism enterprises and farm operators are encouraged to participate in public facility construction and ecological protection. For instance, Runfeng Ecological Park funds fitness facilities and eco-walkways in surrounding communities, prioritizing local residents for landscape maintenance. With financial support, Zhaoqing University's Aesthetics Workshop continuously enhances community spaces and ecological landscapes. Projects include transforming marginal plots into mini-ecological parks, improving the aesthetic design of mulberry-fishpond facilities, and enriching the visual and experiential quality of the Sui River shoreline. This creates a virtuous cycle where industrial growth benefits residents, community participation sustains industries, ecological empowerment elevates quality, and design optimization fosters integration.

5. Conclusion and Prospects

The development of urban fringe communities presents a complex systemic challenge, where traditional rigid planning models struggle to accommodate their dynamic, intricate, and diverse characteristics. The "resilient living circle" concept proposed in this study not only inherits but innovates the core principles of Howard's Garden City theory—urban-rural integration and ecological symbiosis—while emphasizing adaptive flexibility, multidimensional inclusivity, collaborative interaction, urban-landscape integration, and design empowerment. By transforming rural ecological resources like mulberry-fishpond systems, farmland, and Sujiang River banks into urban pastoral landscapes that combine multifunctional utility, scenic beauty, and participatory experiences, the framework achieves coordinated development of ecology and living through concrete planning schemes such as "one core, three belts, four zones, and multi-point linkage." This approach offers new solutions to urban fringe community development challenges. As a professional design force, Zhaoqing University's Aesthetics Workshop has deeply engaged in the entire planning process of the "resilient living circle" in Chengzhong Subdistrict, Sihui City. By injecting professional expertise into spatial layout, facility design, landscape creation, cultural empowerment, and ecological transformation, the workshop serves as a crucial bridge connecting theoretical concepts with practical implementation. This initiative also provides a replicable model for applying Garden City theory in contemporary urban-rural planning.

Through empirical research in Chengzhong Subdistrict of Sihui City, this study leverages its high-quality tourism resources and ecological advantages to develop an "Elastic Living Circle" strategy. The framework encompasses six dimensions: spatial layout optimization, service innovation, integrated transportation networks, public space development, governance enhancement, and urban-landscape synergy. Key components include: tiered facility allocation with flexible reserves, precision multi-dimensional services, balanced speed-traffic networks, open public spaces, multi-stakeholder collaboration, integrated cultural-agricultural-ecological models, and professional end-to-end design support. The study particularly details three urban pastoral landscape planning elements.

This study still has certain limitations, such as the incomplete establishment of a quantitative evaluation index system for "urban pastoral living circles," particularly the lack of clear standards for assessing the benefits of ecological landscape transformation. Future research could further develop a scientific evaluation system to provide quantitative

support for the effectiveness of living circle construction and the value of ecological landscapes. As urbanization deepens and residents' needs continue to upgrade, the connotation and extension of "urban pastoral living circles" will keep expanding. The core principle remains people-oriented, with industry as the foundation, ecology as the base, and design as the enabler. Through flexible approaches, it aims to achieve sustainable development of community spaces, continuous improvement of living environment quality, full realization of ecological value, and a virtuous cycle of coordinated industrial and residential development.

Acknowledgment

Supported by Zhaoqing University's Double Hundred Special Project SD202503, Ministry of Education Industry-University-Research Projects 231007635315330 and 230706151245304, Zhaoqing University Student Innovation Project, and Zhaoqing Education Development Research Institute Project ZQJYY2023225 Co-funding

References

[1] Wu Liangyong. Introduction to Human Settlements Science [M]. Beijing: China Architecture & Building Press, 2001.

[2] Zhang Jingxiang, Yu Tao. Optimization of urban public service facilities planning based on the life circle concept [J]. Urban Planning, 2017, 41(1):9-16.

[3] Li Xun, Huang Yaping. Spatial production and governance transformation in urban fringe communities: A case study of Tangxia Village, Guangzhou [J]. Geographical Research, 2019, 38(1):133-146.

[4] Wang Delu, Yu Qian. Elastic governance: a new governance paradigm [J]. China Administrative Management, 2014(5): 104-108.

[5] Guangdong Provincial Department of Housing and Urban-Rural Development. Guidelines for the Planning and Construction of Urban and Rural Community Life Circles in Guangdong Province (Trial) [Z]. 2021.

[6] Cai Yunnan, Wang Shengzhe, Zhang Peng. Construction and allocation strategies of "soft life circle" in rural communities: A case study of Bitang Village, Yunfu City, Guangdong Province [J]. Planner, 2025(5):138-144.

[7] Chengzhong Subdistrict, Sihui City. Construction Plan for the Premium Tourism Belt in Chengzhong Subdistrict, Sihui City [Z]. 2024.

[8] Aesthetics Workshop of Zhaoqing University. Spatial Aesthetics Enhancement and Ecological Landscape Integration Design Plan for Chengzhong Subdistrict, Sihui City [Z]. 2024.

[9] Ebenezer Howard. The Garden City of Tomorrow [M]. Translated by Jin Jingyuan. Beijing: Commercial Press, 2010.