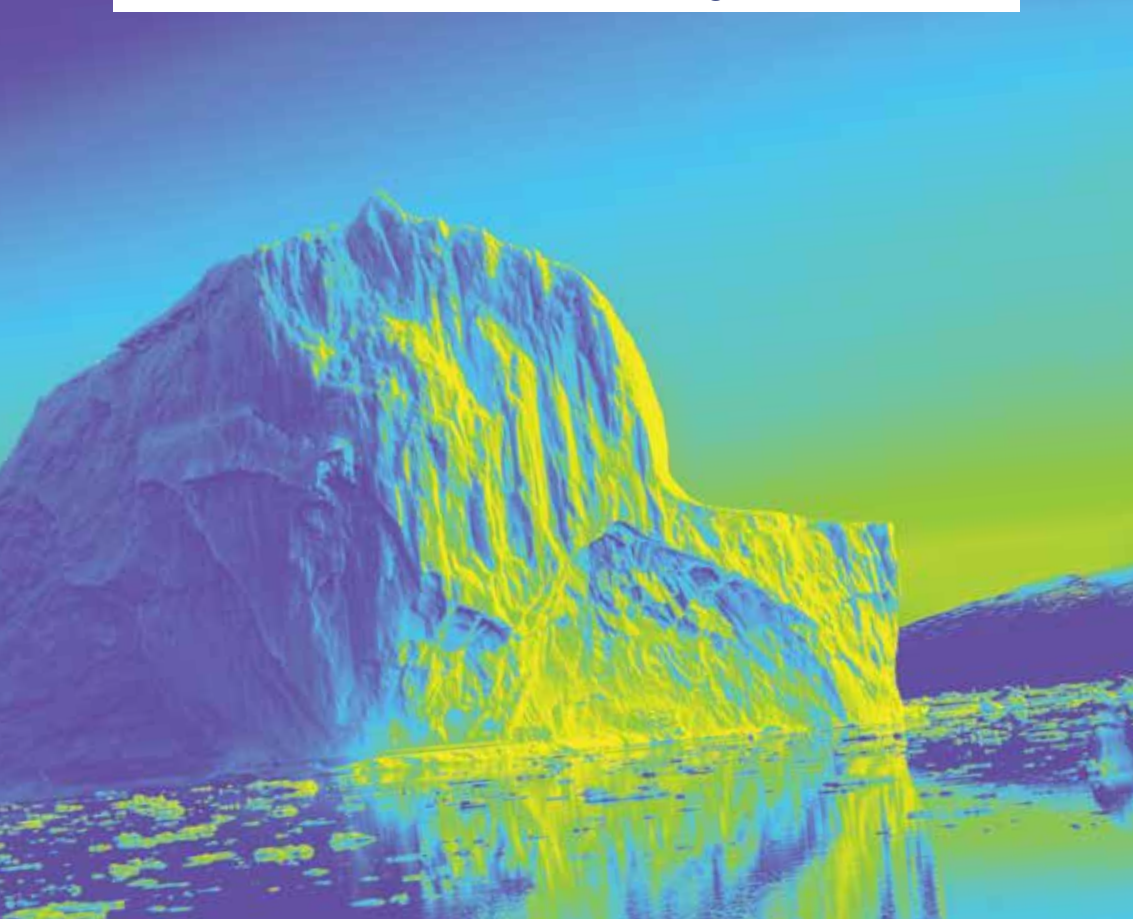


DESIGN FOR ADAPTATION

Cumulus Conference Proceedings Detroit 2022



Cumulus Conference
Proceedings Series
10/2023 Detroit

Design for Adaptation Cumulus Conference Proceedings Detroit 2022

Editor

Amy Lazet, College for Creative Studies

Layout and Graphic Design

College for Creative Studies

Concept for Cumulus Conference

Proceedings Series was developed in 2018 by Jani Pulkka.

Cumulus Conference

Design for Adaptation hosted by College for Creative Studies,
Detroit, Michigan, USA on November 2-4, 2022.

www.cumulusdetroit2022.org

Published by Cumulus

Cumulus: The Global Association of Art and Design Education and Research.
www.cumulusassociation.org

Copyright ©2023

College for Creative Studies, Cumulus Association.

All content remains the property of authors, editors and institutes.

ISBN 979-8-218-07901-7 (PDF)

Cumulus Conference Proceedings

Series, N°9, ISSN 2490-046X

Cumulus Conference Proceedings Series

Publications in Cumulus Conference Proceedings Series

01/17	Kolding, REDO
02/17	Bengaluru, Letters to the Future
03/18	Paris, To get there: designing together
04/18	Wuxi, Diffused Transition & Design Opportunities
05/19	Rovaniemi, Around the Campfire – Resilience and Intelligence
06/19	Bogotá, The Design After
07/21	Rome, Design Culture(s) Volume #1, Volume #2
08/23	Guayaquil, Arts imagining communities to come
09/23	Detroit, Design for Adaptation
10/23	Antwerp, Connectivity and Creativity in Times of Conflict



DESIGN FOR ADAPTATION

CUMULUS DETROIT

Cumulus Conference
Proceedings Series

Cumulus: The Global Association
of Art and Design Education and Research

Detroit 2022

CONTENTS

8	Conference Chair Welcome
10	Cumulus President's Message
11	College for Creative Studies Association of Independent Colleges of Art and Design
12	CCS Student Exhibition "Conscious Adaption"
13	Keynote Speakers
15	Track Chairs
16	International Reviewer Board
18	Foreword of the Cumulus Detroit 2022 Proceedings

CLIMATE APARTHEID

21	Are Trees the Key to Promoting the Adaptation of Environmentally Sustainable Attitudes and Behavior?
42	Design, Storytelling and Our Environment: Critical Insights from an Empirical Study with Storytellers
54	Digital Learning Experiences for Creating Solutions for Adaptation
67	Elderly Users' Satisfaction from Shanghai Unified E-Governance on Mobile Terminals: The Effect of the Design Interface
79	Guidelines for ICT to Promote Inclusion, Equity and Social Justice in the Brazilian Healthcare Ecosystem
93	Sustainable Smart Product Design Decision-Making and Evaluation System

106	Training a New Generation of Biodesigners for a Better Society
120	Using STEAM to Power Equality and Democracy in Vaccination Decision Making in the Face of Climate Apartheid

CLIMATE CITIZEN

138	A Cookbook for Planetary Health: Situated and Distributed Learning to Address Non-Trivial Issues Through Design for Collective Action
151	A Novel Approach to Estimate Dietary Carbon Footprint Using Appearance-Based Analysis of Meals
165	A Shift to Life-Centered Systems Thinking: Teaching Modules to Design Regenerative Futures
185	Adaptive Design Education Strategies for Equitable Access

196	Adaptive Resumes in Disrupted Futures	372	Do Democracies Afford? Design as Experiential Change
214	Climatic Adaptability in the Form of Pile Dwellings in the Palaces of the Western Han Dynasty	385	"Down to Earth": From Anthropocentric to De-Anthropocentric Design Paradigm
227	Co-Creating Visual Dialogs for Crises and Emergencies: Climate Scenarios as Opportunities	400	If It's Broken, Don't Just Fix It: Exploring Repair as Design Through a Two-Week Design Charrette
242	Collaborating to Build Resilient Communities: Creating a Model for Sustainable Community Spatial Renewal	412	Improving Community-Based Adaptation to Climate Change Through Participatory Gamification Design
252	Collective Interest Matrix: Can Design Be Sustainable Within Capitalism?	438	In a New Context, We Are All Apprentices: How Dialogue Between the Three States of Craft Education Is a Catalyst for Adaptation
264	Defining Ecological Citizenship: Case-Studies, Projects & Perspectives Analysed Through a Design-Led Lens, Positioning "Preferable Future(s)"	450	Life-Centered Design and Intersectionality: Citizen Science and Data Visualization as Entry Points
289	Design Activism: Are We Doing Enough?	468	Material Kin: Fashioning a Cellulose-Based Foam Floatation Device in Climate Breakdown
298	Design Fiction and the Eco-Social Imaginary	482	Preparing to Repair: Using Co-Design and Speculative Design Methods to Explore the Future of IoT Right-to-Repair with Citizens and Communities
315	Designing Accountable: Comprehensible and Explanatory Digital Systems	502	Proposal for a Worldbuilding Curriculum
332	Designing for a Livable Climate: Adaptation and the Window of Opportunity	521	Radical Interdependence on a Neighborhood Scale: Raising Awareness Among Children About Human and More-than-Human Entanglements
352	Designing from the Core: Facilitating Core Thinking for Sustainable Development in Design Education		

- 805 Mapping Knowledge, Skills and Capabilities of Stakeholders in Open Design-Led Distributed Production Settings
- 821 Modeling Global Action for Sustainable Development with Educational Participation
- 836 Rising Waters: Designstorming Adaptive Designs for Coastal Communities in 2030, 2050 and 2100
- 850 Ruderal Material Project
- 860 *(Poster)* Encouraging Adaptation of Reusable Packaging for FMCG Products through E-Commerce Delivery
- 862 *(Poster)* Fostering Circular Materials within the Design Practice: Materials and Product Library System

CONFERENCE CHAIR WELCOME

Dear conference attendees,

Climate change is a complex, multidimensional issue where physical hazards and social and economic drivers interact. For these reasons, climate change is deeply intertwined with global patterns of inequity. While the human tendency to adapt reactively is well-known, we believe that proactive adaptation is now necessary to avoid far more impacts of climate change, and we believe that adaptation plays a crucial role in reducing communities' exposure and vulnerability.

In the last two centuries, we have entered the Anthropocene. We are removed from the evolution of the Homo sapiens by 10,000 generations, yet the five generations of the twentieth century have used fossil resources at unheard-of rates while accumulating waste and creating irreversible pollution in the air, water and soil. This is a challenge for humanity and civilization.

This challenge is enormous and has multiple dimensions, from the political, where choices can no longer be based solely on the criterion of our short-term interests, to the economy, we must abandon blind growth. The ethical dimension is where we should apply the macrocosm in the microcosm of our desires. The symbolic dimension is where we need to break the "always positive" archetypes of the individual's "material success." The list of dimensions is long and includes the arts, where we must explore other modes of reality and imagine revisions and redesigns.

If anything is clear, however, it is that climate change will not be neutralized in the course of our lives.

This necessary transition will have costs and require us to make sacrifices. Even if economists think the market will solve everything, energy and food insecurity is already a reality that plagues evermore people worldwide. People will be forced to migrate; animals will go extinct; new parasites will arrive in new areas; through various pathways, climate change will exacerbate existing health threats or create new public health challenges. We must return the human condition to the center of our future projects.

[continued on next page]

CONFERENCE CHAIR WELCOME

[continued]

This challenge will require a team effort; just as science needs philosophy and design will need ethics, we need more stakeholders at the table. Will we be able to forge other paths? We hope so. Which ones? Nobody knows yet, but maybe the solution to the impacts of climate change lies within the Earth, our minds and our capacities.

Let's take tangible steps to prepare and respond to the greatest threat to humanity and beyond. Here at the Cumulus Conference, you will be introduced to innovative ways of training the next generation of designers, learn how everyday materials can play a role in helping laypeople recognize their impact on the environment, and see new ways of bringing the climate crisis to the public's attention.

We hope you return home with profound memories, new knowledge and inspiration for your work. Have a great conference, and welcome to Detroit!

Maria Luisa Rossi
Conference Chair
Chair and Professor
MFA System Design Thinking

CUMULUS PRESIDENT'S MESSAGE

Design for Adaptation in the Complexity

The 2022 Cumulus conference in Detroit at the College for Creative Studies is the second in the U.S. in more than 30 years of history and the first after a long global pandemic, which made us rethink how we meet, network and disseminate globally in new, creative ways. Accordingly, the topic selected revolves around the concept of adaptation, which is one of the properties of any complex system to survive and grow under the pressing global challenges, such as global warming, while reducing vulnerabilities and fostering resilience. As the call points out, climate change consequences are impacting not only our environment but human rights, poverty, inequity, global food security and health. They are calling for rapid action and adaptation. Such an emergency, without precedent, requires bold and creative thinking.

Along with three days of paper presentations, panels, keynotes and working groups, the conference sent a clear call to action to the large global design community to explore sustainable and equitable solutions: we are living in a time of emergency and at the same time of complexity, which needs bold ideas and actions, where every single element may interact to each other and the whole at different levels, without any linear predictions. The good news is that a property of a complex system is adaptivity, which means it can adapt to its surrounding environment when it is composed of many elements in a network of actions and feedback in a dynamic state.

All living and social systems are considered complex adaptive systems, from ant colonies to the stock market, from the biosphere to ecosystems, from the brain to social networks, and from technological to communication systems, therefore falling into the broad and increasingly widespread transdisciplinary cognitive paradigm developed with complexity theories in its ability to describe nonlinear systems, such as biological, ecological, financial, economic, medical and healthcare, and social systems.

What is the future of the cities? How do we combine local and global solutions? Where are the flows of migration going? What is the role of the citizens, the communities and the people? How can we develop equitable solutions to ensure access to life-saving resources? How can we foster technological innovation safeguarding access and inclusion at every social level?

[continued on next page]

CUMULUS PRESIDENT'S MESSAGE

[continued]

Since Detroit is a UNESCO City of Design, it was the ultimate location to convene globally for sharing knowledge, research, projects and practices responding to the urgent challenges emerging from the environment and society. Additionally, Detroit is speaking a long story of technological, economic and social transformations, which are noteworthy for the design.

Moreover, the partnership developed by the College for Creative Studies for the conference with the Association of Independent Colleges of Art & Design (AICAD) gave participants coming from all over the world a broader view to design education in North America.

The memory of such a rich experience is included in the following volume, which is not only speaking about the conference proceedings, but furthermore, it is celebrating our large global Cumulus community through its common values around open exchange and knowledge sharing.

Finally, we were back in presence!

Lorenzo Imbesi
Full Professor, Sapienza University of Rome
President, Cumulus Association

COLLEGE FOR CREATIVE STUDIES

Located in the heart of Midtown Detroit, the College for Creative Studies (CCS) is a world-class institution that educates artists and designers to be leaders in the creative professions. A private, fully accredited college, CCS enrolls more than 1,400 students pursuing Bachelor of Fine Arts (BFA), Master of Arts (MA) and Master of Fine Arts (MFA) degrees.

Students in the BFA program can major in Advertising Design, Art Practice, Communication Design, Craft and Material Studies, Entertainment Arts, Fashion Design, Film, Illustration, Interdisciplinary Art + Design, Interior Design, Photography, Product Design and Transportation Design, in addition to a dual major Art Education program. Students in the graduate program can major in Art Education, Color and Materials Design, Design for Climate Action, Interdisciplinary Design Studies, Motion Design, Transportation Design and User Experience Design.

ASSOCIATION OF INDEPENDENT COLLEGES OF ART AND DESIGN

The Association of Independent Colleges of Art and Design (AICAD) is a non-profit consortium of the leading specialized arts and design schools in the U.S. and Canada. Founded in 1991, the mission is to help strengthen the member colleges individually and collectively, and to inform the public about these colleges and universities and the value of studying the arts and design.

AICAD institutions educate more than 50,000 undergraduate and graduate students each year, plus many thousands more in summer and continuing education programs.

COLLABORATING TO BUILD RESILIENT COMMUNITIES: CREATING A MODEL FOR SUSTAINABLE COMMUNITY SPATIAL RENEWAL

Jingwen Tian¹, Xiaotong Zhang², Tanhao Gao³, Hongtao Zhou⁴

¹ College of Design and Innovation, Tongji University
Tianjingwen0120@gmail.com

² College of Design and Innovation, Tongji University
xiaotongzhangwood@qq.com

³ College of Design and Innovation, Tongji University
yiguandoujiang@gmail.com

⁴ College of Design and Innovation, Tongji University
lifeisfurniture@gmail.com

Abstract

This paper examines the positive impact of collaboration between government, designers, and community residents on the resilience and sustainability of communities through current design practice. The design practice is an urban renewal event initiated by the government based on China's urban development shift from incremental expansion to sustainable stock resource exploitation. It has been successfully held for four years. The fourth edition (this project) of the event is a micro perspective of the community space, with a real focus on the needs of community residents.

The project aims to help urban communities gain better sustainability, comfort, and accessibility to public space through low-intervention strategies on stock land resources so that local governments, residents, and designers can be connected through a process of social participation. This paper advocates the active impact of design initiatives for community public spaces in response to urban development and social change. It analyzes how to design interventions for public spaces that can improve the adaptability of older communities in the modern urban development process. Through the idea of integrated resilient cities, design empowerment connects government-initiated design activities to the community, creating a new model for micro-renewal of sustainable community public spaces (Ahmad & Talib, 2015).

The project site is one of Shanghai's communities, which contains the earliest workers' village in Shanghai, built in the 1950s. There is a low level of spatial participation throughout the community due to housing conditions, outdated infrastructure, a lack of quality public spaces, and many leftover spaces that are not well utilized. Therefore, the project develops solutions through small and incremental steps. In curated exhibitions, urban furniture (artistic sitting furniture, telephone booth art gallery, child-friendly activity facilities, public art) are placed as exhibits in some of the leftover spaces in the community's public space. In this way, the public space of the entire community becomes a "public

exhibition hall” and a “community living room,” and the design strategy maximizes solving the leftover space in the community to meet the daily interaction needs of the community residents. Some co-creation activities will be held with community residents during the exhibition to facilitate effective civic empowerment through social participation and engagement. Ultimately, the design study creates a new model of “exhibition for building” community renewal and considers the future direction of community resilience and sustainability. At the same time, the exploration of this model provides new ideas for adaptive design in older communities, contributing to social innovation and providing well-being for community residents.

Author Keywords

Resilient communities; public space; sustainable urban renewal; adaptive design; “exhibition for building.”

Introduction

Since 2013, the Chinese government has gradually implemented a sustainable development strategy, and China’s urban development has entered a new stage of action with the stock of spatial resources (Wang & He, 2015). In Shanghai, due to economic and other reasons, many old communities in the urban area are long-established. The accelerated urbanization process has led to the decay of these old neighborhoods, which are not well adapted to the development of the times, thus creating a series of social problems. The Shanghai government has launched a top-down urban public activity since 2015 to enhance the resilience of older neighborhoods and restore urban adaptability. This activity is a crucial practice around the interaction between public art and the spatial environment at this stage in China and an essential exploration of the current urban renewal process.

The activity has now been successfully held for four years. The first three editions had a more macroscopic perspective, focusing on the transformation of urban industrial sites on a large scale. The fourth edition microscopes the view into the community space, with the theme “15-Minute Community Living Circle – People’s City,” and studies the needs of community residents.

The project site is located in a community with a strong sense of life, a high percentage of elderly and children, and a traditional old workers’ new village. Since more than 70% of the existing community are old houses built in the 1950s and 1980s, the area inside the homes is about 40-60 square meters, with less space available for indoor activities, and the residents have a high frequency of use and demand for public space. In the field-work process, many cases were found in which the changing times and the changing needs of residents led to a decrease in the utilization rate of some spaces, a weakening of space functions, and a large amount of leftover space. Faced with the growing needs of the urban population, the public facilities and public space environment of communities urgently need renewal.

In the above context, how can designers use their practical expertise to empower design to restore adaptive capacity in older communities? Design requires a new, more proactive approach to economic and social change. Design must shift from passive to active (Lou, 2010).

Therefore, in the context of government-led projects, the designer coordinates all stakeholders in a collaborative co-creation and brings into play the initiative of the site users (residents) in the community building process. Combining the top-down approach of the government and the bottom-up approach of the community, they jointly promote the adaptive development of old communities towards a new model of spatial and social resilience (Thorpe & Manzini, 2018).

Resilient Design Enhances Adaptability in Older Communities

Theories Related to Resilient Cities

Resilient cities were originally applied to disaster preparedness, particularly for response and recovery from unexpected emergencies. In recent years, the concept has received renewed and widespread attention due to the outbreak of the Covid-19 pandemic. Resilience is the ability of a social-ecological system to absorb or withstand perturbations and other stressors, keeping the system within the same framework and essentially maintaining its structure and function. It describes the degree to which a system can self-organize, learn, and adapt (Holling et al., 2002). Urban communities are facing adaptive issues such as environmental, economic, and social well-being, proposing the use of restoration, acupuncture, and other methods to make communities healthier and more dynamic (Pearson et al., 2014).

Social resilience is operationalized as the ability of social systems to maintain functionality while promoting social trust, reciprocity, collaboration, and characteristics among networks of different sizes (Putnam, 2015). Social resilience has three main dimensions: the ability to cope, the ability to adapt, and the ability to change (Keck & Sakdapolrak, 2013).

Impact of "Resilience" on the Adaptability of Older Communities in Modern Cities

Older communities are not better adapted to the rapidly developing urban environment due to their long construction time. Therefore, it often leads to physical space problems and internal social cohesion problems in communities, producing lower spatial functional and social system resilience (Ni & Cattaneo, 2019). Consequently, the design team used adaptive intervention strategies to create spatially, systematically, and socially oriented resilient communities. We coordinate government, community residents, and designers to explore the spatial potential of older communities, restore their self-adaptation to modern cities, and promote more sustainable urban development (Webb et al., 2018).

How Do We Collaborate to Build Resilient Communities?

Stakeholder Collaboration

In this project, three different important groups of participants were involved in co-creation (Figure 1):

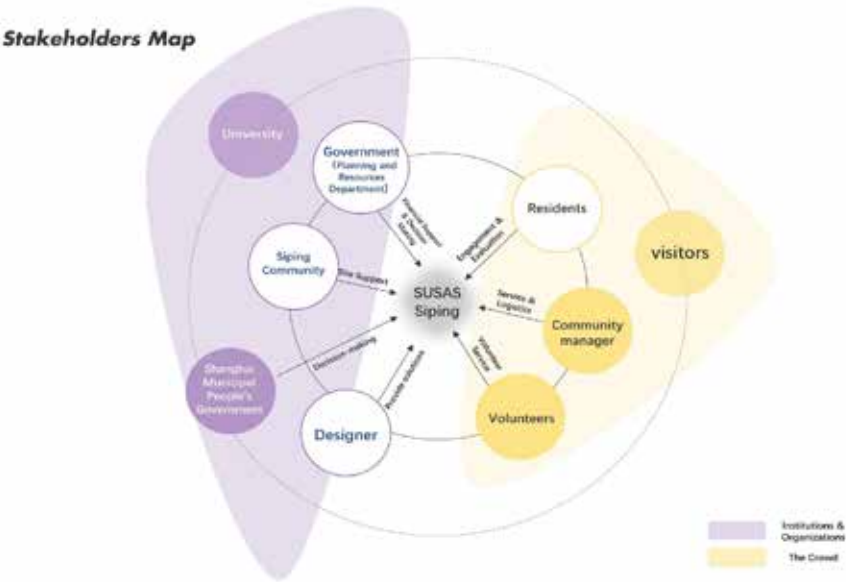


Figure 1. Stakeholder map of the co-creation process.

1. Government agencies.

Government agencies are also divided into municipal government functions and local governments in the community management sector. As the initiator of this project, the city government plays a leading role in controlling the direction of the entire project. It also plays a vital role in terms of funding and policy support. The community's local government has a more comprehensive understanding of the community. It proposes a general plan of expectations for the community and reflects the excellent reference value. At the same time, the local government is responsible for mediating communication between the designer and the municipality and conveying adequate information. Therefore the idea of combining with the top-down strategy of the government can make the whole project process go smoothly.

2. The community residents are also the actual users of the public space.

Several co-creation workshops were held before and after the project to discuss environmental issues about the community space and conceive a vision for the community's future development. They were encouraged to express their life scenes, memories, and community stories. At the same time, the community spatial environment was scored in grid-based zoning based on the daily use of the community's public space, thus categorizing the public space and laying a compelling foundation for subsequent design planning. The participation of residents also creates a direct connection between the space and its users to facilitate the restoration of social resilience.

3. Professional designers, artists, and design students from nearby universities.

The designer's role in this project is more like that of a coordinator by building a platform

for community co-creation, integrating the needs of different stakeholders, and coordinating the strategies proposed by the government from the top-down and the visions described by the community residents from the bottom up. The final result is the best solution to solve the actual problem and help restore community resilience.

A curatorial approach is explored through tripartite stakeholder collaboration for systematic and sustainable regeneration planning in community public spaces. Based on several workshops, a summary of residents' opinions on the public space environment, and their votes, the final spatial scope of the design intervention was focused on a linear public street in the community. This street, the most frequently used street by the residents, became the spatial design object of this project (Figure 2).

A Community Curation Process

Curatorial Theme

Due to the lack of publicness of some spaces, there are more leftover spaces in this street, resulting in severe spatial fragmentation. Therefore, a curatorial approach was produced in the synergistic process to develop solutions through catalytic, small, and progressive steps. The leftover space is used to the maximum to meet the daily interaction needs of the community residents. The primary purpose of the curation is to make the community a "public exhibition hall" and a "community living room." The concept of a "15-minute community living circle" is conveyed to the public through an immersion experience, and the 15-minute walkable area is taken as the basic unit of urban life. At the same time, the essential public service functions and public activity spaces needed in the area are set up to form a network of community living circles within walking distance.

The main subject of the curatorial exhibition is urban furniture. Urban furniture, public art, and other public service facilities are introduced in the leftover space of the site so that they can operate as an adaptive link, connecting space with space and people with space. It generates a neighborhood effect and promotes the recovery of community resilience (Zautra et al., 2008). Meanwhile, to create a sustainable, resilient community, all exhibits will be permanently retained in the community space for residents' use after the exhibition ends (Figure 2).



Figure 2. Exhibition route and community exhibition photos.

Specific Implementation

The community exhibition of this project is run by an exhibition line that contains five parts: a systematic exhibition of urban furniture themes, a community gallery, two pocket

garden updates, a series of co-creation activities for community residents, and sustainable exhibition visual materials.

- A systematic exhibition of urban furniture themes. We organized curated urban furniture currently available in the community versus urban furniture designed to address the remaining community space and meet users' needs, including a range of sitting furniture, child-friendly play installations, public art vignettes, and a sustainable exhibition of reused public phone booths. Given the proportion of people in the community, most of the exhibited urban furniture has aesthetic characteristics and practicality, aiming to solve space problems while meeting community residents' needs and improving the community's environmental quality. Through the interaction with urban furniture, we hope that community residents will experience the "small but beautiful, old but beautiful" public living room atmosphere of the community.
- A community gallery. Transformed from a community center, the community's cultural spirit and historical stories are distilled into a 100% recyclable towel material printed display. Through reading, feeling, and communicating, community residents can enhance the cohesiveness within the community and promote the restoration of social resilience in the old community.
- Two pocket garden updates. During the preliminary co-creation research stage, two street corner spaces were identified that needed to be improved in quality. Combining the needs of community residents, the two spaces were renewed and became community pocket parks.
- A series of co-creation activities for community residents. During the exhibition process, we maintained close contact with the residents. Through the exhibition's community co-creation activities, the design team enhanced the residents' emotional identification with the community. These activities include the "Poetry One Way Street" story collection, the "Community A to Z" jogging event, and the "My Favorite Community Space Collection" online and offline activities.
- Sustainable exhibition visual materials. The community exhibition upholds the concept of sustainable design, and all urban furniture will be permanently preserved in the community space. In addition to the urban furniture, the visuals of the exhibition also became a highlight. The exhibition materials are innovatively made of towels; and the road flags, display cloths, and posters can be recycled, minimizing the waste of exhibition materials and realizing the concept of green curation. The materials will be distributed to community residents by the community volunteer team after the exhibition to carry on the whole life cycle of the materials (Figure 3).



Figure 3. A community gallery and sustainable exhibition of visual materials. Renewal Model and Resident Feedback through Co-Creation of Outputs

Renewal Model of "Exhibition for Building"

As a cultural tool, curatorial exhibitions gradually extend more artworks into open urban spaces rather than being confined to museums or galleries. Curatorial exhibitions systematically involve public art in the community, penetrate daily life, and make close contact with the public, forming a place for interaction between people and people and people and art. In this process, curatorship actively contributes to the quality improvement of urban space and the connection between people and space (Cheng et al., 2020).

Through the specific design study of this project, a new type of urban micro-renewal model, the "exhibition for building" model, is derived from the overall logic. It aims to intervene in the leftover spaces with aesthetic public service facilities in a curatorial way. It aims to catalyze the positive connection between residents and community space, reinvent the vitality of space, and improve old communities' adaptability to modernization.

Residents' Evaluation and Feedback

The curatorial activity implanted a large amount of urban furniture into the community and reserved it permanently for residents' use, solving the problem of nearly 70% of the leftover space in the exhibition area and significantly increasing the utilization rate of the leftover space. Feedback from residents during the exhibition showed that community residents were much more satisfied with the spatial environment.

Therefore, the project's conclusion is in line with the expectation that the co-curatorial approach has contributed to the community's micro-renewal and improved the residents' happiness index; it will serve as an example for more community renewal projects.

Conclusion

In summary, as China's current urban development shifts from sprawl to the sustainable development of stock land resources, many older communities can use this boom to improve their resilience in large cities. This paper focuses on collaborating with various stakeholders to participate in the renewal of old communities, effectively empowering

residents and creating a new “exhibition for building” model to promote the adaptive recovery of old communities. It also combines top-down and bottom-up strategies to coordinate a curatorial perspective to improve the spatial and social resilience of the community and systematically integrate urban furniture and other facilities as a link between people and the environment. The act of curation promotes the neighborhood effect and explores the potential of curation for urban micro-renewal.

The project practice also reflects on the future of resilient and sustainable community development. From a macro perspective, this paper provides an innovative idea for urban micro-renewal that helps Chinese cities move toward more sustainable and resilient development. From a micro perspective, through the mutual coordination of government, residents, and designers, design empowers a community to meet users’ actual needs and improve residents’ happiness. The design thinking approach creates well-being for the residents and promotes social innovation.

References

Ahmad, M. S., & Talib, N. B. (2015). Empirical investigation of community empowerment and sustainable development: Quantitatively improving qualitative model. *Quality & Quantity*, 49(2), 637-655.

Cheng, X., Xu, Z., & Luo, X. (2020). Art for the city curatorial exhibition: Urban planning display concepts and strategies from the perspective of public art. *Urban Development Research*, 09, 35-40.

Holling, C. S., Gunderson, L. H., & Ludwig, D. (2002). *Panarchy: Understanding transformations in systems of humans and nature* (chapter 2, pp. 25-62). Island Press.

Putnam, R. D. (2015). Bowling alone: America's declining social capital. In R. T. LeGates & F. Stout (Eds.), *The city reader* (pp. 188-196). Routledge.

Keck, M., & Sakdapolrak, P. (2013). What is social resilience? Lessons learned and ways forward. *Erdkunde - Archive for Scientific Geography*, 67(1), 5-19.

Lou, Y. (2010). Enabling society: New design processes in China: The case of Chongming. *The Journal of Design Strategies*, 4(1), 23-28.

Ni, M., & Cattaneo, T. (2019, July). Design for urban resilience: A case of community-led placemaking approach in Shanghai China. In *International Conference on Human-Computer Interaction* (pp. 207-222). Springer.

Pearson, L., Newton, P., & Roberts, P. (2014). *Resilient sustainable cities. A future*. Routledge.

Thorpe, A., & Manzini, E. (2018). Weaving people and places: Art and design for resilient communities. *She Ji: The Journal of Design, Economics, and Innovation*, 4(1), 1-10.

Wang, J., & He, D. (2015). Sustainable urban development in China: Challenges and achievements. *Mitigation and Adaptation Strategies for Global Change*, 20(5), 665-682.

Webb, R., Bai, X., Smith, M. S., Costanza, R., Griggs, D., Moglia, M., Neuman, M., Newman, P., Newton, P., Norman, B., Ryan, C., Schandl, H., Steffen, W., Tapper, N., & Thomson, G. (2018). Sustainable urban systems: Co-design and framing for transformation. *Ambio*, 47(1), 57-77.

Zautra, A., Hall, J., & Murray, K. (2008). Community development and community resilience: An integrative approach. *Community Development*, 39(3), 130-147.