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Critical Success Factors for Effective Resident Participation in Community Retrofit: A Systematic Review

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Abstract

Community residents possess first-hand knowledge of the community and effective execution of retrofit methods. Their understanding, acceptance and ultimately participation determine the smoothness of working process and the success of the project. Although the introduction of regulations and policies has increased resident participation in retrofit projects in China, the effectiveness of participation is far from guaranteed. This may be partly due to a failure to identify critical factors underlying. Thus, this paper aims to develop a set of critical success factors (CSFs) for effective resident participation in community retrofit projects. Based on the findings of the systematic review and data analysis, 29 CSFs are identified, which will influence resident participation from four dimensions: context, project, process and stakeholder. The review is presented for the reference of governments and practitioners, especially when it comes to policy making and promotion of community retrofit by improving resident participation.

Keywords: community retrofit; resident participation; critical success factors

Introduction

Our common future is threatened by climate change and resource depletion. As an energy-intensive industry with high environmental impacts, the building and construction sector accounts for over 30% of global greenhouse gas (GHG) emissions and 40% of primary energy consumption (Commission, 2019; J. Li et al., 2017). Meanwhile, the majority of buildings existing in 2050 have already been built in developed countries due to its long lifespan nature (SBCI, 2009). In European Union, 97% of the existing buildings are considered inefficient with an annual renovation rate ranging from 0.4% to 1.2% in 2019 (Commission, 2019). For developing countries, such as China, one third of the existing buildings (around 27.8 billion square meters) was built before the year of 2000 and has reached the stage of functional

failure and degradation (Qiu, 2016). Considering the inefficient energy performance and high stock volume with a limited replacement rate, retrofitting is a desirable way to mitigate environment issues and achieve the goal of energy conservation and GHG emission reduction in existing building stock (Ma et al., 2012).

Community retrofit preserves and upgrades residential buildings and their neighbourhood environment through a series of physical works and the complementary services. In addition to the conservation or upgrading of individual building within the neighbourhood, community retrofit looks at the district as a whole, taking the environmental quality of common area, efficiency of resource utilization, arrangement of traffic and sanitation facilities, and operation and maintenance of property into consideration. As such, renewal of urban district can not only alleviate the negative environmental effects caused by inappropriate human activities, but also tackle social issues that are hard-to-reach by physical renovation methods.

Community residents possess critical information about existing conditions of the community, or the way in which retrofit measures can be implemented. Therefore, they are encouraged to participate in various stages of retrofitting, including decision-making, planning, construction and operation. But in practice, inefficient and ineffective participation occurs and results in residents' lack of understanding and support. This seriously maximizes the cost and delays the progress of the retrofit programme (D. Li et al., 2020; Mo, 2014). The optimal operation of the retrofitting measures is constrained as well (W. Liu et al., 2015).

Citizen's potential impact on the success of construction projects has long been recognized and constantly emphasized by academic researchers as well as policy makers in western and developed countries since the 1960s (Arnstein, 1969; Beierle et al., 2002; Davidoff, 1965; Smith, 1984; Wulz, 1986). With a rising urbanisation rate, it has also gained increasing attention from developing countries in the last decade (B. Liu et al., 2018a; Luo et al., 2020; Mo, 2014). Since 2017, the central and local governments in China have promulgated regulations and guidance to promote residents' participation in community retrofit projects. Publicity efforts have been stepped up in parallel to build public awareness of participation. Although the introduction of laws and regulations has increased resident involvement in practice, the effectiveness of their participation is far from guaranteed. (Mo, 2014).

Considering opportunities and challenges in resident participation practices, this research aims to improve the process from a perspective of critical success factors (CSFs). A method of systematic review is adopted to retrieve most relevant journal articles from three academic databases. Based on the selected publications, this paper fulfils the research aim by identifying a set of CSFs for resident participation in community retrofit projects, as well as their relative importance.

The rest of this paper is outlined as follows: Section 2 outlines the existing literature on community retrofit, resident participation process and critical success factors. Section 3 introduces the research methodology and protocol, i.e. the methods for data collection, presentation and analysis. Section 4 summarizes the findings of the data analysis. Section 5 concludes the study and points out possible directions for future research.

Literature Review

Community Retrofit — A Sustainable Way of Urban Renewal

In comparison with newly built neighbourhoods, old urban communities are less liveable, with difficulty in meeting the daily living demand of residents, greater safety hazards in residential buildings and aging public infrastructure. Like the shantytowns, they are old urban areas with deteriorating living conditions that have failed to keep up with the pace of the urbanization process. However, in contrast to shantytown redevelopment project, the retrofit of old urban community is a revamp of the site and buildings rather than a complete replacement. It makes full use of the essence of existing buildings and infrastructure and preserves the historical and social value of the original site to the greatest extent. In this sense, community retrofit is a promising way of sustainable urban renewal. It breathes new life into the neighbourhood in

a comparatively economic, eco-friendly, and socially stable manner.

Based on the national conditions and regulations in China, the term “community” in community retrofit stands for a specific geographic area with residual as its primary purpose of land use. This notion can be interpreted differently in academic research and practices, such as residential district, residential area, or neighbourhood. As the primary unit of modern society (Hui et al., 2021), 220,000 urban residential communities were built before 2000 across China and over two thirds of them have reached a stage of functional failure and degradation (Hou, 2020). On the basis of the existing conditions in the residential area and renovation needs, economical and reasonable technical measures are used to carry out a comprehensive and systematic upgrading of residential buildings, neighbourhood environment, facilities and infrastructure, and services (Province, 2018). In a nutshell, community retrofit aims to improve the physical and social environment of deteriorated neighbourhoods while maintaining existing urban fabrics.

Resident Participation in Community Retrofit

Since the introduction of the concept ‘participatory democracy’ in 1960, the definition of public participation has long been a battleground for debate. Public participation can refer to public engagement, public involvement, citizen participation or involvement, or in a broad sense, stakeholder involvement, etc. It is ‘an umbrella term that encompasses diverse definitions of who the public is, how the public is represented, why the public is involved, and what the public is involved in’ (Beierle et al., 2002).

Regarding to public participation in urban planning, Davidoff (1965) emphasized that citizen participation was not about reacting to agency program but presenting their understandings of appropriate goals and future actions. Based on the analysis of three urban renewal projects in the United States in the 1960s, Arnstein (1969) argued that ‘citizen participation is a categorical term for citizen power’. The emphasis is on the redistribution of power to the have-nots. Citizen participates to share ‘the benefits of the affluent society’.

With old urban community retrofit, in this study, residents refer to those who reside and live within the old neighbourhood. Resident participation in community retrofit is an organized process for consulting and involving the resident in retrofit planning and decision-making. It is a pattern of reciprocal communication, interaction and education between decision makers and the resident, through which resident’s concerns, needs and values are incorporated into the final decision.

In view of the critical role of residents in retrofit program (Creighton, 2005), central and local governments in both developed and developing countries formulate laws and regulations to affirm residents' power and value of their participation. Since 2017, two rounds of pilot projects have been launched in China to explore appropriate mechanism and framework for stakeholder coordination and resident involvement. Meanwhile, technical guidance and economic incentives are rolled out to promote resident participation in the whole life circle of community retrofit. However, as for community retrofit practices in China, the effectiveness of residents' participation remains uncertain (Mo, 2014). One of the main reasons for this is a failure to identify critical factors underlying.

Critical Success Factors for Effective Resident Participation

Taking ‘success factors’ as origin, the concept of critical success factor (CSF) was introduced by a research team led by John F. Rockart between 1979 and 1981 (Bullen et al., 1981; Rockart, 1979). CSFs are defined as key factors or activities that contribute to the success of a project. Identifying CSFs is absolutely essential for managers to determine the information required to meet their expectations as well as well-being of their organizations (Rockart, 1980).

Given that participation process is an ad hoc organization or stakeholder assembly, CSF identification has attracted great academic attention for the purpose of improving the effectiveness of public participation in various construction related fields, including sustainable energy projects (B. Liu et al.,

2018a), community settlement (Serrao-Neumann et al., 2015), urban conservation (Yung et al., 2012), and urban renewal (B. Liu et al., 2018b).

Compared to new building, retrofit project, especially community and residential building retrofit represent some of the riskiest, most complex, and most uncertain projects to manage (Liang et al., 2017; W. Liu et al., 2015; Xin et al., 2015). The involvement of heterogeneous stakeholders results in more interests and conflicts to be balanced and handled. However, there is still a dearth of research directly related to CSFs for resident participation in community retrofit. To fill this gap, this research employs a method of systematic review to collect, select and analyse publications associated with community retrofit and resident participation. Then, the selected papers are reviewed to identify and categorize a set of latent factors that are critical to the success of resident participation process.

Research Methodology

A two-step framework is developed to fulfil the study aim. Firstly, a method of systematic review is employed to collect and collate a list of factors affecting the successful implementation of resident participation in retrofit projects. Secondly (ongoing), semi-structured interviews will be conducted with stakeholders involved in public participation in renovation projects in China. This step will validate and modify the initial list of CSFs to meet Chinese context. As the second phase of the study is currently in progress, this paper focuses on presenting the results from the systematic review.

Before a comprehensive exploration of the databases, a test search is employed to identify interchangeable concepts of the keywords “resident participation” and “community retrofit”. The identified alternatives are synthesized into a search query to collect publications relevant to the factors affecting the organization and operation of resident participation in retrofit projects. The publications studied are limited to English papers that have been published in peer-reviewed journals before the search date (21st May 2021). Academic databases used for retrieving include Scopus, Web of Science (WoS) and ProQuest. In all, 336 papers are retrieved from these three databases.

The title, abstract and text of the identified articles are scanned to determine whether they are eligible for the research dataset. By applying the quality appraisal criteria to the collected studies, 18 publications are left for further process. Seven additional papers are found after examining the reference lists of these papers. In total, we develop a dataset of 25 journal articles to conduct a full paper review.

Data Analysis

Ranking of CSFs

The content of the 25 papers is carefully analyzed to develop a comprehensive list of CSFs. By counting how many times the CSFs have been mentioned in the database papers, a preliminary understanding of the relative importance of these factors to resident participation is obtained. It is worth noting that, on one hand, there is a lack of uniform terminology among scholars to describe similar factors in general. On the other hand, scholars can have varied interpretations of the scope that a CSF should cover. Therefore, considering the results of the cross-sectional comparison of the dataset papers and personal understanding of the proposed concepts, authors recapitulate the scope and content of the identified factors.

Categorize the Identified CSFs

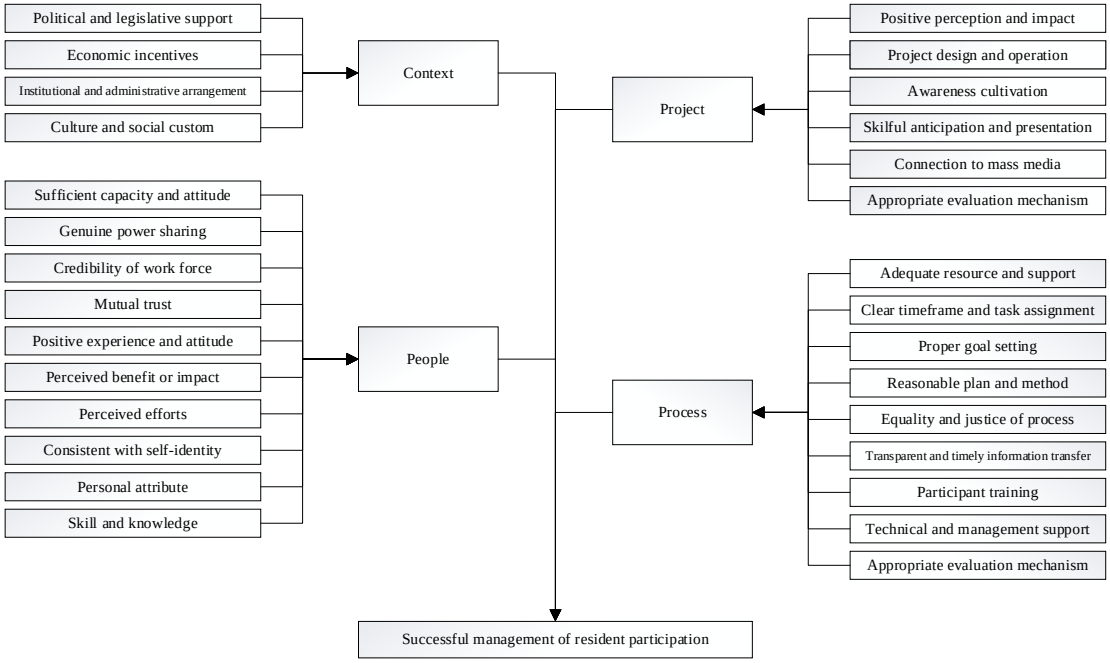
In practice, a large number of CSFs can be identified in literature studies. Taking *few* and *vital* as the keywords of CSF approach (Benchtell, 2002; Lu et al., 2008), to obtain a more concise list of CSFs, scholars employ school of thoughts or theories as a reference for classification (Ebrahimigharehbaghi et al., 2019), heritage classification methods of similar studies (T. H. Li et al., 2012; B. Liu et al., 2018a; G. Liu et al., 2020) or utilize statistical models to combine interrelated variables (Lu et al., 2008; Xu et

al., 2011). A smaller set of new extracts allows research audience to directly capture the source of the factor and the potential area of its influence. Based on B. Liu et al. (2018a)'s way of classification, this review incorporates the research of Plummer et al. (2013) to compensate for the lack of attention to contextual variables in such method. The 29 CSFs identified in the previous phase of the literature study are expected to affect the success of resident participation from four dimensions: context, retrofit project, participation process, and people.

Results and Discussion

Based on the findings of data analysis, in general, 29 CSFs are identified from the database literature. As is shown in the concept model in Figure 1, these factors are further categorised into four groups regarding their proximity to issues of context, retrofit project, participation process, and people. Among the identified factors, most of them (10) arise from people dimension, 9 factors from the process. 6 factors affect the effectiveness on a project level. The least but the most important, 4 factors affect from a macro level.

Figure 1. The Concept Model of Success Resident Participation in Community Retrofit



Among these factors, five more important ones, from most mentioned to least, are: 1) **reasonable planning of process and method selection** (Aitken, 2017; Boyle et al., 2020; Brown et al., 2016; Dickens, 2013; B. Liu et al., 2018a; B. Liu et al., 2018b; Moran et al., 2019; Plummer et al., 2013; Serrao-Neumann et al., 2015; Uittenbroek et al., 2019; Webler et al., 2001); 2) **adequate resource and support for participation process** (Boyle et al., 2020; B. Liu et al., 2018a; B. Liu et al., 2018b; Plummer et al., 2013; Serrao-Neumann et al., 2015; Uittenbroek et al., 2019; Wiseman, 2006); 3) **capacity and attitude of organizer** (Aitken, 2017; Fahmi et al., 2016; B. Liu et al., 2018b; Plummer et al., 2013; Raerino et al., 2021; Wiseman, 2006); 4) **equality and justice of participation process** (B. Liu et al., 2018a; B. Liu et al., 2018b; Moran et al., 2019; Niitamo, 2021; Serrao-Neumann et al., 2015; Webler et al., 2001); and 5) **positive experience and attitude of residents** (Aitken, 2017; Brown et al., 2016; Dickens, 2013; B. Liu et al., 2018a; Niitamo, 2021; Uittenbroek et al., 2019).

As can be noticed in concept model, three of five the most important factors come from the group of participation process. Resident participation in community retrofit is an organized process for consulting and involving the resident in retrofit planning and decision-making. Therefore, it is plausible that the careful planning of participation process and deliberate selection of engagement methods can contribute

to effective participation. Meanwhile, sufficient time, adequate financial resources and a diverse mix of human resources are prerequisite for success as well. Furthermore, managers should not lose sight of the equality and fairness of the process when organising it.

On people dimension, as a temporary organization, community retrofit can no longer exist without stakeholders' support. Therefore, manager's capacity to identify and coordinate relevant stakeholders and their objectives is crucial to the achievement of project goals. The other widely accepted concept among scholars is that perceived benefit is the underlying motivation for participation. If the resident can anticipate tangible benefits for themselves, they are willing to and can really make creative decisions. However, it is worth noticing that the practical barriers and efforts participant perceived, including a lack of capability, money, venue and time can constraint the engagement.

Conclusion

Through comprehensive upgrading of residential buildings, neighbourhood environment and service systems, community retrofit attempts to bridge the gap between residents' growing demand for a better life and their dilapidated living environment. As one of the crucial stakeholders, residents' understanding, acceptance and further participation in the project determine the smoothness of implementation process and further the success of the project. (Creighton, 2005).

In practice, the efficiency and effectiveness of resident participation are far from guaranteed, which results in residents' lack of understanding and support. This in turn seriously maximizes the cost and delays the progress of the retrofit programme (D. Li et al., 2020; Mo, 2014). The lack of understanding of underlying critical factors has led to unsuccessful efforts in promoting resident participation in retrofit projects. To fill this gap, this paper aims to summarize and categorize critical success factors (CSFs) for resident participation in community retrofit projects. The findings are as follows: a total of 29 CSFs is identified through a critical review of 25 journal articles retrieved from three academic databases. These factors are categorized into four clusters and are expected to influence the effectiveness of resident participation in following dimensions: context, retrofit project, participation process, and stakeholder. Also, with reference to their frequency of use in the selected papers, the five more important factors are: 1) reasonable planning and method selection; 2) adequate resource and support for participation process; 3) capacity and attitude of organizer/manager; 4) equality and justice of process; and 5) positive experience and attitude of participants.

However, the list of 29 factors hardly satisfies the *few* and *vital* principles of the CSF methodology (Lu et al., 2008; Rockart, 1979, 1980). Therefore, in authors' subsequent research, the concept model will be validated in the Chinese context. With the help of local stakeholders, review identified factors will be reduced to manageable ones that deserve more attention from policy makers and process organizers in China.

References

Aitken, D. (2017). The Influence Fallacy: Resident Motivations for Participation in an English Housing Regeneration Project. *Planning Theory & Practice, 18*(4), 549-565.

Arnstein, S. R. (1969). A ladder of citizen participation. *Journal of the American Institute of planners, 35*(4), 216-224.

Beierle, T. C., and Cayford, J. (2002). *Democracy in practice: public participation in environmental decisions*: Resources for the Future.

Benchtell, M. (2002). On target: How to conduct effective business review. In: Berrett-Koehler, San Francisco.

Boyle, L., and Michell, K. (2020). Key ingredients for a collaborative urban regeneration strategy in the Global South. *Construction Economics and Building, 20*(2), 150-164.

Brown, H. L., Bos, D. G., Walsh, C. J., Fletcher, T. D., and RossRakesh, S. (2016). More than money: how multiple factors influence householder participation in at-source stormwater management. *Journal of environmental planning and management, 59*(1), 79-97.

Bullen, C. V., and Rockart, J. F. (1981). A primer on critical success factors.

Commission, E. (2019). *The European Green Deal*. (COM(2019) 640 final). Brussels Retrieved from https://ec.europa.eu/info/sites/info/files/european-green-deal-communication_en.pdf

Creighton, J. L. (2005). *The public participation handbook: Making better decisions through citizen involvement*: John Wiley & Sons.

Davidoff, P. (1965). Advocacy and pluralism in planning. *Journal of the American Institute of planners, 31*(4), 331-338.

Dickens, B. (2013). *ENGAGING TO HARNESS COMMUNITY CREATIVITY FOR SUSTAINABLE URBAN PLANNING*. Paper presented at the Proceedings of the 57th Annual Meeting of the ISSS-2013 HaiPhong, Vietnam.

Ebrahimigharehbaghi, S., Qian, Q. K., Meijer, F. M., and Visscher, H. J. (2019). Unravelling Dutch homeowners' behaviour towards energy efficiency renovations: What drives and hinders their decision-making? *Energy Policy, 129*, 546. doi:10.1016/j.enpol.2019.02.046

Fahmi, F. Z., Prawira, M. I., Hudalah, D., and Firman, T. (2016). Leadership and collaborative planning: The case of Surakarta, Indonesia. *Planning Theory, 15*(3), 294-315.

Hou, L. (2020). Urban renovations to aid economic growth. *China Daily*. Retrieved from http://english.www.gov.cn/news/pressbriefings/202007/22/content_WS5f17806cc6d029c1c263670f.html

Hui, E. C.-m., Chen, T., Lang, W., and Ou, Y. (2021). Urban community regeneration and community vitality revitalization through participatory planning in China. *Cities, 110*, 103072.

Li, D., Gu, T., and Zhu, S. (2020). Influencing Factors of Residents' intention to Participate in the Governance of Old Community Renewal: A Case Study of Nanjing. *Modern Urban Research*(02), 19. doi:10.3969

Li, J., Ng, S. T., and Skitmore, M. (2017). Review of low-carbon refurbishment solutions for residential buildings with particular reference to multi-story buildings in Hong Kong. *Renewable and Sustainable Energy Reviews, 73*, 393-407. doi:10.1016/j.rser.2017.01.105

Li, T. H., Ng, S. T., and Skitmore, M. (2012). Public participation in infrastructure and construction projects in China: From an EIA-based to a whole-cycle process. *Habitat International, 36*(1), 47-56.

Liang, X., Yu, T., and Guo, L. (2017). Understanding stakeholders' influence on project success with a new SNA method: A case study of the green retrofit in China. *Sustainability, 9*(10), 1927.

Liu, B., Hu, Y., Wu, X., Yu, J., Yu, Z., and Wang, A. (2018a). Critical Factors of Effective Public Participation in Sustainable Energy Projects. *Journal of Management in Engineering, 34*(5). doi:10.1061/(ASCE)ME.1943-5479.0000635

Liu, B., Wang, X., Xia, N., and Ni, W. (2018b). Critical success factors for the management of public participation in urban renewal projects: Perspectives from governments and the public in China. *Journal of Urban Planning and Development, 144*(3), 04018026.

Liu, G., Li, X., Tan, Y., and Zhang, G. (2020). Building green retrofit in China: Policies, barriers and recommendations. *Energy Policy, 139*, 111356.

Liu, W., Zhang, J., Bluemling, B., Mol, A. P. J., and Wang, C. (2015). Public participation in energy saving retrofitting of residential buildings in China. *Applied Energy, 147*, 287-296.

Lu, W., Shen, L., and Yam, M. C. (2008). Critical success factors for competitiveness of contractors: China study. *Journal of Construction Engineering and Management, 134*(12), 972-982.

Luo, J., Wu, H., and Peng, Y. (2020). Research on Community Planning under the Concept of Co-Governance and Sharing —— A Case of the Micro-Reconstruction of Shuilu Community in Wuhan. *Urbanism and Architecture, 17*, 52-59.

Ma, X., Guo, H., and Shang, L. (2012). Analysis on Owners' Behavior during Energy-saving Retrofit of Existing Buildings Based on Market Characteristics. *Building Science, 28*, 52-56.

Mo, W. (2014). A Classification Study of Western Public Participation Approaches in Urban Planning: Based on the Theoretical Perspective. *Urban Planning International, 29*, 76.

Moran, S., Perreault, M., and Smardon, R. (2019). Finding our way: A case study of urban waterway restoration and participatory process. *Landscape and Urban Planning, 191*, 102982.

Niitamo, A. (2021). Planning in no one's backyard: municipal planners' discourses of participation in brownfield projects in Helsinki, Amsterdam and Copenhagen. *European Planning Studies, 29*(5), 844-861.

Plummer, J., and Taylor, J. G. (2013). *Community participation in China: Issues and processes for capacity building*: Routledge.

Province, D. o. H. a. U.-R. D. o. H. (2018). *Guidelines for the renovation of old districts in Hubei Province*.

Qiu, B. (2016). Green Retroftting of Old Urban Communities - A New Way to Increase Effective Investment in China. *Urban Development Studies, 23*, 1-6+150-152.

Raerino, K., Macmillan, A., Field, A., and Hoskins, R. (2021). Local-Indigenous Autonomy and Community Streetscape Enhancement: Learnings from Māori and Te Ara Mua—Future Streets Project. *International Journal of Environmental Research and Public Health, 18*(3), 865.

Rockart, J. F. (1979). Chief executives define their own data needs. *Harvard business review, 57*(2), 81-93.

Rockart, J. F. (1980). The changing role of the information systems executive: a critical success factors perspective.

SBCI. (2009). *Buildings and Climate Change: Summary for Decision-Makers* (978-92-807-0000-0). Retrieved from https://ledsgp.org/resource/buildings-climate-change-a-summary-for-decision-makers/?loclang=en_gb

Serrao-Neumann, S., Harman, B., Leitch, A., and Low Choy, D. (2015). Public engagement and climate adaptation: insights from three local governments in Australia. *Journal of environmental planning and management, 58*(7), 1196-1216.

Smith, L. G. (1984). Public participation in policy making: the state-of-the-art in Canada. *Geoforum, 15*(2), 253-259.

Uittenbroek, C. J., Mees, H. L., Hegger, D. L., and Driessen, P. P. (2019). The design of public participation: who participates, when and how? Insights in climate adaptation planning from the Netherlands. *Journal of environmental planning and management, 62*(14), 2529-2547.

Webler, T., Tuler, S., and Krueger, R. (2001). What is a good public participation process? Five perspectives from the public. *Environmental management, 27*(3), 435-450.

Wiseman, J. (2006). Local heroes? Learning from recent community strengthening initiatives in Victoria 1. *Australian Journal of Public Administration, 65*(2), 95-107.

Wulz, F. (1986). The concept of participation. *Design studies, 7*(3), 153-162.

Xin, L., Geoffrey Qiping, S., and Li, G. (2015). Improving Management of Green Retrofits from a Stakeholder Perspective: A Case Study in China. *International Journal of Environmental Research and Public Health, 12*(11), 13823-13842. doi:10.3390/ijerph121113823

Xu, P., Chan, E. H.-W., and Qian, Q. K. (2011). Success factors of energy performance contracting (EPC) for sustainable building energy efficiency retrofit (BEER) of hotel buildings in China. *Energy Policy, 39*(11), 7389-7398.

Yung, H. K. E., and Chan, H. W. E. (2012). Critical social sustainability factors in urban conservation. *Facilities*.