

How well can privately owned public spaces (POPS) facilitate social interactions in Taipei City? A case study of the community residents' daily life

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Abstract

In Taiwan, the high-density urban environment is the normal urban form as many highly populated counties. The concerns of possible impacts of vertical-developed cities have long discussed for several decades. Since the 1980s, in order to improve the urban environment and increase open spaces, the Taipei City Government granted additional floor area bonus as incentives in exchange of the private developers providing privately owned public space (POPS) for public use. Nevertheless many studies identify that the openness and the publicness of most POPSs are lower than expected. However, other concerns such as the possible external costs of the urban environment i.e. the decline of public service quality, more energy consumptions, increasing residential density, and skyline destruction derived from the additional floor area bonus as incentives for POPS are still to be studied. Early local research regarding the POPS usually focused on the usage of such space, and has given advices on design details. There is a lack of discussion about the impacts on the social behavior of residents by the POPS. Hence, this paper will discuss the possible impacts of the POPS on the social interactions (social relation). We will conduct questionnaire survey and field studies at the selected communities with more POPSs in Taipei. The research results will expect to gather some information about how can POPS benefit residents daily life at the community level and provide policy feedbacks on future POPS in Taipei.

Keywords: privately owned public space (POPS), People-environment fit, social connection

INTRODUCTION

To achieve the goal of improving the urban environment and the capacity for disaster prevention, some building site owners in high density cities can apply for additional floor area bonuses (bulk reward) in exchange for converting part of the private property into privately owned public spaces (POPSs). It is considered as an



effective approach to improve the quality and quantity of existing open space system in many highly urbanized metropolitan areas around the world. In the case of the New York City, since 1890s, a lot of skyscraper builders have joint the competition to build building taller in height and larger in volume and resulted in degradation of urban environment and living quality. As a result, the 1916 zoning resolution came to create a sense of openness, also known as “light and air,” at street level. Further, the Voorhees draft in 1958 proposed the first concept about POPS. “In order to bring more light and air into streets surrounded by tall buildings, as well as to create more usable open space, a bonus device has been established to encourage the setting back of buildings from the street line.” (Kayden, J, S., 2000) Likewise, Taipei as the capital of Taiwan encounters similar problems of poor open space provisions due to the high density built environment and economic development pressures. In addition, the city cannot expand its border due to the limit of basin and range topography geographically. The urban grows close to saturation, so it cannot afford more construction of open space land. Hence, Taipei City Government has been seeking alternatives to improve open space system and adopting approaches of authorizing extra bulk bonus in exchange of POPSs since 1980s.

The promotion of POPS has been encouraged for nearly 40 years until now. However, there was lack of evaluations of the actual contributions that POPSs provided. Questions such as “does it achieve the goal of improving open space system?” or “how well-managed are these POPSs?” popped out frequently. More importantly, “how can those POPSs actual serve citizen’s social life?” Common problems discovered in the New York Cities are poorly management of the POPS environment and quite a lot of POPSs are not open to the public. Nonetheless, scholars and citizens have frequently questioned the effects of POPS. The common criticisms are: the restriction of social interaction, the exclusion of “undesirable” groups and the partiality for private benefits (Kayden, 2000; Mitchell, 2003). The most common critique is of their accessibility to the public. For instance, studies regarding the POPS mostly focus on user experience at the individual POPS sites. 2006). Moreover, in 2014, Taiwanese citizens held “Occupation of POPS Movement” owing to protest the authoritarian ban on entering privately owned public spaces.

Therefore, in this paper, we extend our series discussion of the actual contributions of POPSs in Taipei City. Since 2015, a three-phase study structured by three planning and design spatial level, city level, district level, and street block level has conducted. At the city level phase, we focused on understanding the spatial function of POPSs in the urban planning contexts to further confirm the planning goals and purposes of POPS from urban open space system perspective. A total of 483 POPS sites from 1983 to 2013

was our selected research target sites. In the second (district level) phase, we discussed the relationship between site planning, the pedestrians flow and accessibility of POPSs. Finally, in the third phase, from user’s benefit perspective, we focus on how can POPSs contribute to connecting people’s social life.

Literature Review

1. The Planning Regulatory Background of POPS

The intention for legalizing the establishment of POPS was good, but many have questioned the role of POPSs in the whole open space system in a city due to the lack of instructions in the statutory plans such as master plan and detail plan. Figure 1 illustrates the related regulations for open space system in urban planning and POPSs in Taipei city. It is clear that the location and function of POPSs was not carefully considered and clearly defined at master and detail plan level. A POPS is only an additional patchwork in the open space system. Also, according to the zoning plan and land use control regulation, there is no instruction regarding where and how to allocate POPS. Thus, there is no evaluation tool available for measuring the possible effect and contribution of each POPS.

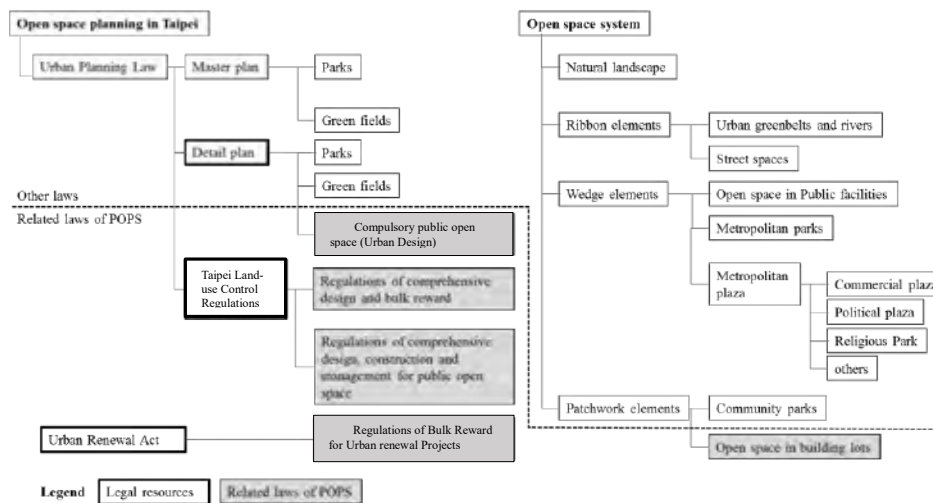


Figure 1. The relationship of POPS, regulations and open space system

As a result, in 1997, POPSs became a concerning issue regarding to the location and poor managements. After that, regulations on Taipei Land Use Control were amended to cancel the bulk reward, extra floor area rewards for new residential building construction projects. Until 2014, doubts and concerns of POPS arose again and many reported illegal usage or poor management of existing POPSs in order to avoid public

usage. On the other hand, over the past decade, the developed ratio of public open space in the statutory plan has only increased 7.9% from 43.0% to 50.9%. By 2014, there are still half of open space proposed in detail plan failed to develop. That is to say, the planned open space system has difficulty to be realized and also each district ended up with very low average open space. For instance, the green resources per capita of the five districts, Wanhua, Zhongzheng, Songshan, Da'an, and Datong, are lower than 10 m². These districts are mostly located in the eastern part of the city. They are all old developed quarters with poor public facilities in quality and quantity as well as lower social economic status. For such deprived areas, it is most impossible to provide public open space due to fully developed built environment. Hence, although current policies encourage urban renewal projects to provide POPS in exchange of bulk rewards, the actual amount and quality of POPS provided is still questionable.

We argue that although POPS has long been ignored by the statutory plan system, the ever existence of POPS is no doubt a trade-off between private floor areas and public right of POPS usage. To keep POPS open for public use is to practice public justice. It is also land owners' obligation to keep it open for public. In addition, the locations of POPSs were chosen on the basis of the laws without considering the entire planning scope.

2. Related research of POPS

Research on POPS traditionally tends to focus on different aspects of the issue: the legal approach discusses it in relation to floor area ratio incentive policies, and often cites New York City as a model of this system; from the perspective of Economics, the emphasis is on the shift of urban spaces from the public realm to private ownership; the Urban Design approach analyses the spatial arrangement of POPSs, and their relation to the built environment (Kayden, 2000; Webster, 2007; Wei, Z. C., 1994). In Taiwan, however, research on privately owned public spaces tends to be less complex, only discussing urban design aspect, quality of the urban environment, and user behaviour when evaluating the „publicness“ of such places, and pays less attention to issues of supervision and property rights (Tung, Y. Y., 1999; Chiang, W. C., 1993). Besides, research is mainly based on observation of individual cases, hence lacking in objective, quantitative indicators derived from a large sample, which arouses doubts of subjectivity, and makes it impossible not only to get a full view of POPS, but also to use the results as a basis of evaluating the publicness of POPS in general. Furthermore, since user preferences and behaviour differ significantly in Taiwan and in other parts of the World, therefore it is not possible to use international indicators to evaluate the

degree of public access to POPS in Taiwan (Wei, Z. C., 1994).

3. Person-Environment Fit (P-E Fit)

Person–environment fit (P–E fit) is defined as the degree to which individual and environmental characteristics match (Dawis, 1992; French, Caplan, & Harrison, 1982; Kristof-Brown, Guay, 2011). It is considered to be similar with ‘the theory of supplementary fit’. Based on compatibility that derives from similarity, a person fits into some environmental context because he/she supplements, embellishes, or possesses characteristics that are similar to other individuals in the environment (Kristof-Brown & Guay, 2011) It is also believe that urban dwellers could develop various P-E fit patterns according to their surrounding environmental settings. Thus, as Jane Jacobs emphasizing on appropriate design elements such as openness and inclusiveness in the public realm can create good place for people to meet, we argue that it is crucial to examine the P-E fit level of current POPSs to see what spatial pattern works and what don’t.

METHODOLOGY

1. Phase One: Evaluation of the spatial distribution pattern of POPSs and relationship between other public-owned open spaces

Many local research have examined the possible effect of the individual POPS on its local users and discovered problems in terms of limited usage and poor management of POPS in case study. On-site observation or questionnaires are most frequent methods adopted. However, only very few have debated about the relevance of entire POPS system with open space network. Spatial analysis was rarely adopted at city scale in discussing POPS issues. (Yoon & Srinivasan,2015)

This study is conducted at both urban and local scale to discuss the relationship between existing POPSs and the public open space system. Thus, we selected 6 administrative districts in Taipei as our research sites based on the amount of existing POPSs, similarity of spatial contexts and average open space per capita. (Figure 2) There are 315 public open spaces and 228 POPSs available in the selected research area. The average size of each POPS is 1314.25 m².

At city scale, this study discuss the suitability of POPS location in terms of overview on open space system in Taipei city by using bivariate local Moran’s I analysis. We adopted and revised the method by Yoon & Srinivasan (2015) and study the

relationship between the lack of public open space and the provision of POPS in each district. We would like to confirm and identify the types of the possible misallocation of the POPS in 6 districts in Taipei City. The result of Spatial Correlation analysis and bivariate local Moran's I analysis can identify the compatibility of open space system and allocation of POPS in each district. Four types of compatible combination are categorized. (Figure 3) In the phase two, at local scale, we further selected two types out of four in the previous stage to conduct field investigations on the spatial layout of each POPS in order to observe the level of openness and usage characteristics of POPS in different district according to the compatible types of public open space and POPS. Wanhua District, with lack provision of both public open space and POPS, and Songshan District, with both abundant public open space and POPS were selected as research sites in the second phase.

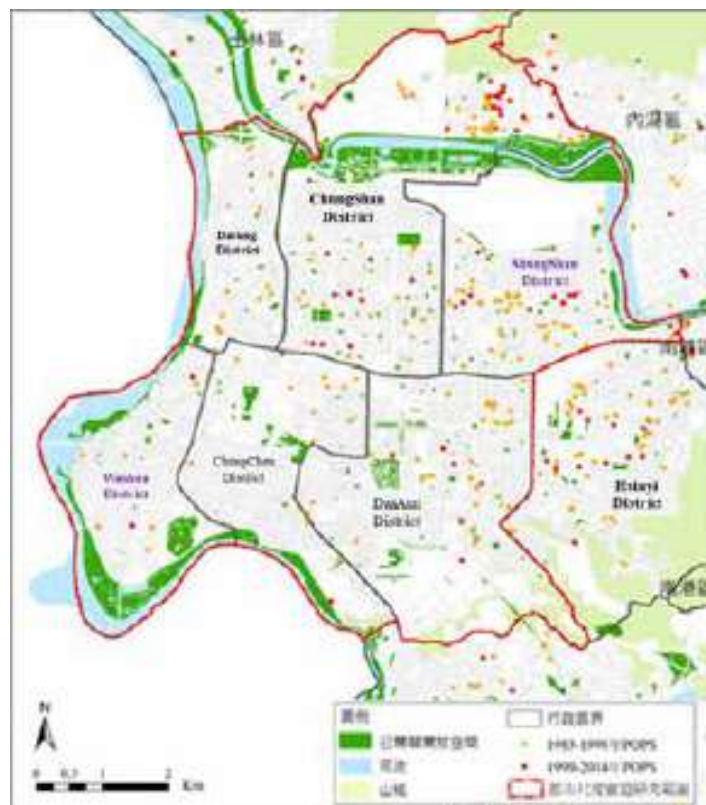


Figure 2 The Selected Research Districts and distributions of public open spaces and POPS

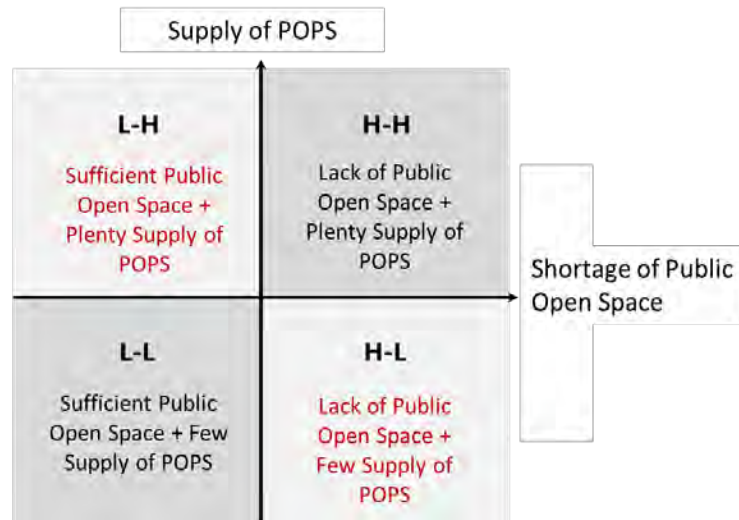


Figure 3 City-level Open Space System bivariate LISA analysis results

2. Phase Two: The Pedestrian flow and site plan of POPSs

Among the existing 483 POPS sites in Taipei City, we further use urban and local scales to discuss the publicness and accessibility of existing POPSs. In urban scale, we evaluate the accessibility and connectivity of the location of POPSs by using the Space Syntax Analysis in order to explore whether the POPS can enhance the pedestrian flows. In addition, at community context, on-site investigations of the design and usage of POPSs through Visibility Graph Analysis method in Shinyi District and Zhongshan District were conducted. (Figure 4) AutoCAD and Depthmap software were applied. (Figure 5) The main point of investigation is to document the actual quality of POPSs from user perspectives.

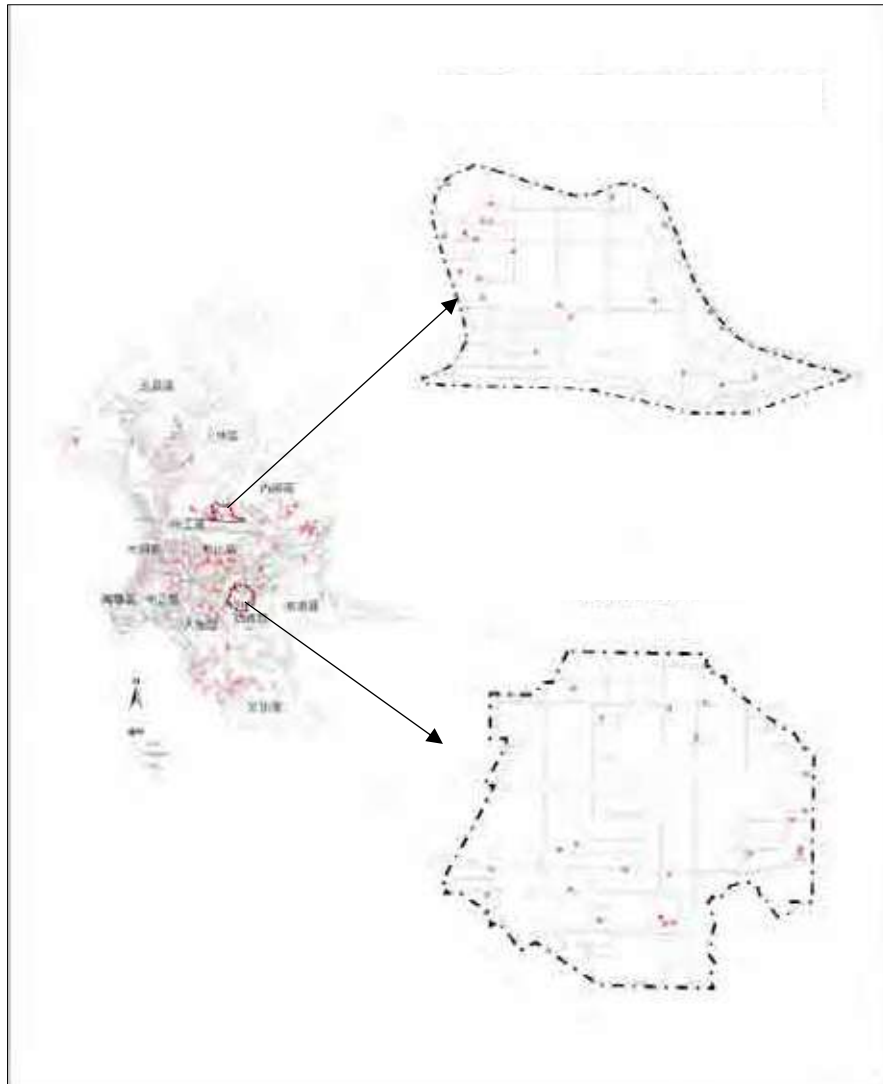


Figure 4. Site selection for Space Syntax Analysis

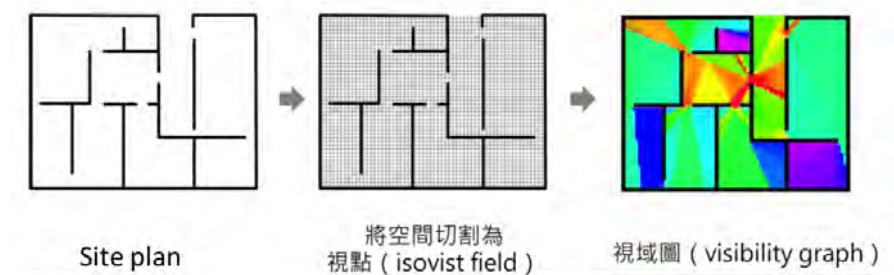


Figure 5. Visibility Graph Analysis

3. Phase Three: P-E fit evaluation

Owing to the lack of user-experience study feedback to the design guidelines of the POPS, as a result, design concepts applied in POPSs in Taipei City are mostly from developers' perspectives instead of users' perspectives. By applying the P-E fit theory

and environmental psychology, we argue that it is necessary to obtain the actual information of P-E fit level of POPSs in Taipei City. Through user's questionnaire and focus-group interview of local residents, we could identify the users' purposes and activities occurred in the selected POPS sites. Also what kind of design elements of the POPS facilitate the social connections among users and what failed.

RESULTS AND DISCUSSION

1. The relationship between POPSs and other public-owned open spaces

It is our argument that a good POPS should be able to compensate to the shortage of public-owned open space provision by the planning tools at city or district level. Hence, master plan or land use zoning plan should instruct the location choice criteria for POPS to instruct POPS happening at the preferable location that benefit the whole open space system. However, the result of bivariate LISA indicates that the current distribution pattern of POPSs has no correlation with the citywide open space system. The High-Low (H-L) area, which means the area lacks of both public open space and POPS, gathered in Wanhua district. However, the developed ratio of land use of open spaces is 99.5%, indicating difficulties to provide sufficient public open space by the city government. That is to say, the demand of open space in the Wanhua district is still high but we can only expect POPSs to meet the demand. On the other hand, the Low-High (L-H) area, which means that such area has sufficient public open space and more than enough POPSs, mostly locate in Songshan district. The spillover effect of oversupply open space can be also considered as a waste of resources. Therefore, whether POPS in Songshan district achieve the intended purpose, which is to improve open space environment, have to be verified by local scale analysis.

At local scale, the main point of field investigation is to obtain the spatial form and user behavior information in L-H and H-L areas to further initiate the dialog between quantity and quality of open spaces. Wanhua district belongs to H-L area, and it has a long development history and most land has already built up. Because it lacks of public facilities and public open space, the real estate price is lower than other district. There are only a number of POPS located in the Wanhua district mostly existed for more than 20 years. The design of such POPS 20 years ago were lack of openness and connections to public areas. Clearly, with limited available land to acquire as public open space, it is even more important to promote POPS in Wanhua district. As one of the priority areas for urban regeneration, land use plan of urban renewal project should

address the need for POPS and provide more incentives, i.e. bulk rewards, for private developers to provide POPS. Also, urban design code should require the design contexts of POPS to ensure the openness and publicity of the POPS.

On the other hand, most residents in the L-H area enjoy good open space environment in both quality and quantity. It has sufficient POPSs as well as public-owned open spaces. It might raise another concerns such as over-supply of open spaces and inequality of planning gain. For instance, most of the POPS located too close to other public open space and it will cause user competition and result in under-use of both good quality open space.

2. The Pedestrian flow and site plan of POPSs

According to the fundamental purposes of providing POPS, the location choice of open/public space can have significant impact on connectivity of the overall pedestrian network. In other words, the location and spatial configuration patterns of POPS in each development site can be a facilitator for the overall enhancement of pedestrian environment.

From the comprehensive survey of POPS conducted in our research, different design approach and spatial configuration patterns would affect actual usages of POPS. For instance, the plaza type POPS is more attractive for local people, but the utilization rate also related to its design for the level of pedestrian friendly. Furthermore, we compare the POPS developed by different developer, government and private, and realize that POPS developed by private developers usually has poor openness than the one provided by public developers.



Figure 6. Shinyi District Case: Pedestrian flow and POPS

The Space Syntax Analysis conducted in two districts where POPSs mostly clustered further confirms that the existence of POPSs in both districts enhance the connectivity and pedestrian flow. For instance, in the Shinyi District, by adding all POPSs to the connectivity evaluation, the average connectivity value (C_n) increases from 4.422 to 4.674. Also, the average global integration value (R_n) increases from 0.709 to 0.803. (Figure 7.) It is to say, at the district level, when considering granted permission of POPSs, local planners should take the location and the potential contribution to the overall pedestrian connectivity into account.

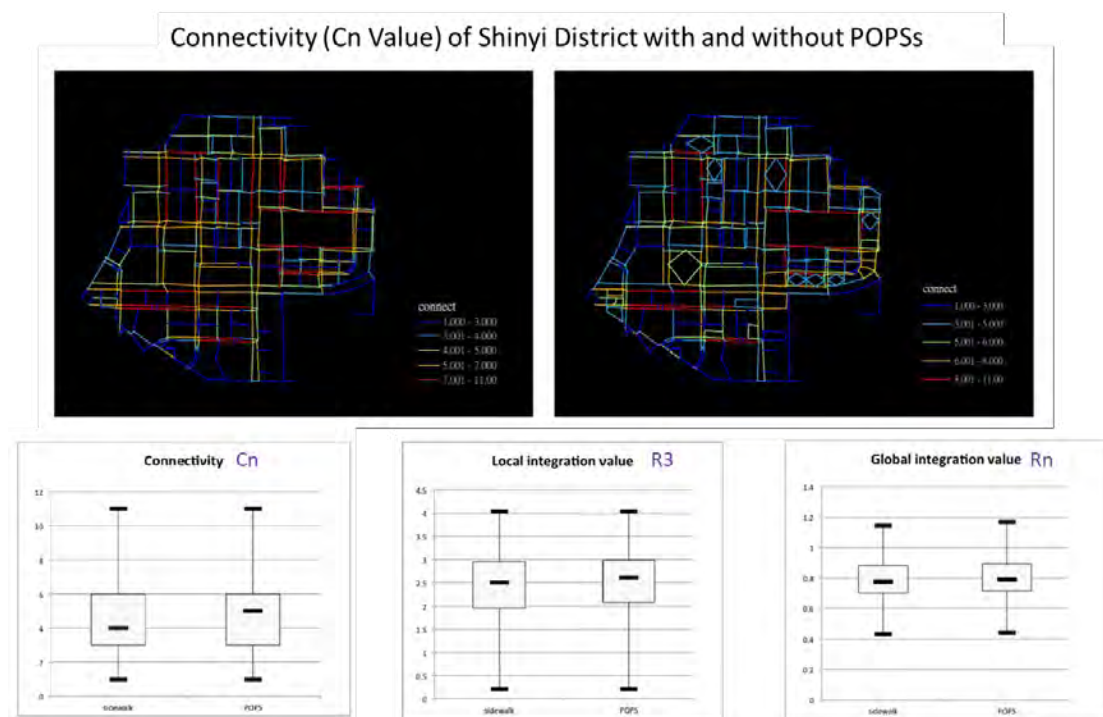


Figure 7. Space Syntax Analysis result of Shinyi District

3. The activities and the design of POPS

The other important expectations of POPS is to promote social interactions and activities at the single site level in terms of place-making. However, a place has to be visible first for people to have interactions in it. In the cases of Taipei city, we realize that although the regulations required the POPS to open to the public and property owners to design the place accessible for the public, most of them still intentionally 'design' to be less visible for users from outside. Eight spatial configuration types of POPS were selected to do the Visibility Graph Analysis in Shinyi District. Figure 8 illustrates the result of one case. The POPS in the following case was allocated at the

back-side of the main building and away from the main road. The visibility graph map indicates the POPS was not visible from the main road where most pedestrian would pass by without noticing the existence of such public space. As a result, very few activities occurred in the POPS and it is almost impossible to enhance the social interactions between POPS users.

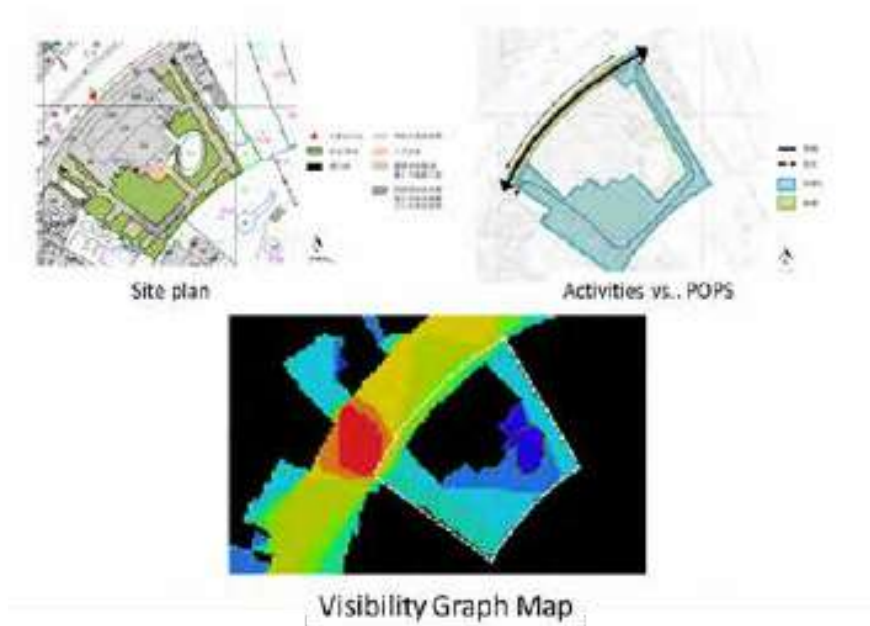


Figure 8. Visibility Graph Analysis

CONCLUSION

This paper presents the results of our 3-phase systematic research of the actual function of POPSs in different spatial level. First, we examined the relationship between existing POPSs and the public open space system in the Taipei City. Second, we evaluated whether the POPS can enhance the connectivity of public spaces and provide a better walkable path network for urban pedestrian at district level. Thirdly, we investigated the design and spatial configuration of POPS in each development projects to see if such space can enhance the social interactions.

The research results confirm that POPSs in Taipei fail to function in terms of fulfilling urban planning aim and enhancing public interests. At urban master plan level, there is no overall considerations of the possible collaboration between public-owned and privately-owned public space. According to the LISA analysis result, Wanhua district, the most deprived area, lacks both open space and POPS but Songshan district, the prosperous area in the city, has too many POPS and public open space at the same time. This raise a concerning issue of the fairness of public interests due to the

inequality of public space distributions. Hence, there is an urgent need for city-wide planning, design and locational guidance for POPS. From local scale investigation result, the plaza type POPS and POPS developed by government have better design quality than the other type and could stimulate more activities in it. Also, the location decision of the POPS in single building site should be further examined before the permission granted in order to ensure the visibility of such areas for all citizens. Finally, due to the housing price and real estate market will influence the developers' decision of providing POPSs, as a result, the distribution of POPSs don't match the demand of open space. Therefore, this study recommend that floor area incentive standard should be different according to the availability of existing open space. More incentives should be granted in the area which lacks of publicly-owned open space. The concept and purpose of open space system, both public-owned and privately-owned, should be included in detail plan as a guiding principles. In addition, in urban design review process, we should require proper location choice and design for future POPSs to facilitate the positive social interactions among users.

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