PARTICIPATORY ACTION FOR TEMPORARY REDEVELOPMENT OF PRIVATELY-OWNED VACANT LOTS IN URBAN NEIGHBORHOOD OF BANGKOK

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Abstract - This paper proposed a new model of stakeholder partnership in providing a decision to manage privately-owned vacant lots in the neighborhood in Bangkok, Thailand from landowner himself/herself as one actor to multi-actors as the research project was engaged bya sample of residentsaround the vacancy, district officers and experts related to urban planning and design. Even though theunused landswould be temporarily convertedby the redevelopment effort before landlords soldthem for profitability, the useful patterns brought by participatory mechanisms of exploratoryapproach illustratingneighborhood impacts from vacant lands by GIS maps, land priority selection regarding indicators and criteria, and land design process seem to, not only resolve the issue but also drive innovation of vacant land managementbased on local solutions.

Keywords - Vacant Land, Redevelopment, Stakeholder Participation, Urban Neighborhood.

I. INTRODUCTION

Managingabandoned landparcelstriggered by disinvestment [1]andexpectancy of landowners for future profitability[2] is one of the biggest challenges for big cities in order to comply with sustainable agenda, in that the undesirable effects ofover a piece of land that has remained unutilized for long period are related to many aspects of community life [3] comprisingtrash build-up, rodents and other animals, mental health and crime[4].Most of neighborhoods in Bangkok metropolis, the capital city in Thailand, also has been faced this problem, for example, Lat Phrao District as a case study. The Lat Phrao neighborhood located in northeast side of Bangkok suburb emerged as the strategic location and transportation where newmass rapid transit (MRT)line is under construction that will be launched in a few years.The district exhibits vacant land of 167 parcels with the total area of 2,502,677m²[5]. The characteristics of vacant lots in this neighborhood are disconnected with different shape and size scattered inside manysois (referred as side streets or smaller streets) as landlords generally hold their landsfor a while before sellingthemwhen returns are optimized.These unutilizedlands cause environmental, social and economic impacts that impose costs on the local community and districtauthorities to maintain vacant lots and their consequences [6].

So, this study aims to develop mechanisms for temporarily transform unused privately-owned vacant lots into useful land patterns at local scalewith participatory action research by using Lat Phrao District, Bangkok as a case study. As district budget deficits, the local authorities need a tool for vacant land development decisionthatacquirean understanding of needs and readiness of all actors as one of main criteria. The stakeholders engaged in provision of vacant lot design alternativesinclude not only landowner or district officers but also residents nearby vacant lots. With the participatory process of the study, the production of vacant land design tends to respond the needs of all stakeholders that would become the best practice of vacant land management at the urban neighborhoodscale in other cities.

II. METHODS

A. Study Area

Lat Phrao District is an urban neighborhood in Bangkok, Thailand that are characterized bymixed use area that combine residential, commercial, institutional, parkand entertainment uses. The area is a hub of Bangkok mass transit networksas well as the extension of the mass transit line – MRT Yellow line (Lat Phrao – Samrong)expected to commence in 2021. Based on district officer interview, the range of vacant parcel size in the neighborhood is varied from less than 400 m² to larger than 1,600 m² that most of them are privately owned land. The study used a digital map to divide the area into 109 specified grids that each grid size is 500× 500 m² with the purpose of area exploration. In this regard, the neighborhood was divided into 10 zones according to vacant lot concentration.

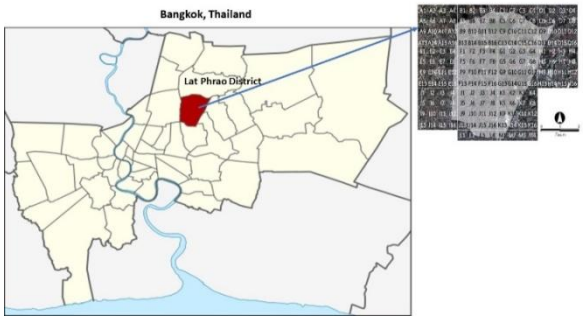


Fig.1. Study area

B. Samples

Vacant land redevelopment action was taken by four groups of stakeholders including 5 district representatives, 10 landlords (one from each vacant zone), 15 academic experts related to urban planning and design and 400 households within 500-meter radius from the vacant lots in Lat Phrao neighborhood.

C. Measures

This studyappliedparticipatorymethods in three steps of the research process comprisingexploration, identification of priority development and designof vacant lots inLat Phrao neighborhood.

In the first step, the study team together with district and landlord representatives, academic experts, and community leaders collaboratively explored vacant lots in the neighborhood scale of 109 grids within 10 zones based on a map developed by aerial photographswhich covered portions of the Lat Phrao area in the 2017. Each grid square identified by one letter and one digit running from A8 to M1 was surveyed by using GPS to represent the locations of vacant lots in order to illustrate map of privately-owned vacant land in Lat Phrao neighborhood. This process was completed within three months.

The second step includesstakeholder participation in identifyingpriority development of vacant zones. As Lat Phrao District had little financial aid for supporting vacant land management in the neighborhood, so we need to set a priority of vacant zone development for the fiscal year. In this regard, we applied in-depth interviews and focus group discussions in a process of indicators and criteria selection to provide a decision for the district. Main questions in the in-depth interview encompassed: "What criteria and indicators can be used for determination of priority location of vacant zone development?". After we had a set of indicators, we asked expert participantsto weigh a score of each criteria and indicators using a five-point Likert item [7] (from "1 = very low" to "5 = very high").To check the validity of this structure, a reliability test was done to measure accuracy regarding 'Cronbach's coefficient alpha' [8] and item-total correlation score. By this step, the zone obtained maximum average score will be a first priority for development. After selecting vacant zone development, the last step involves participatory designwithfocus group discussion.All participants from each group of stakeholderswere asked their perceptions onalternative design patterns of vacant lands (i.e. community gardens, parks and public green space, weekend market, playground, urban farm, etc.) at selected zone in the neighborhood. In sketching patterns of vacancy, we used purposive sampling to choose focus group participants including a vacant landowner who is a volunteer to temporarily transform the land into useful patterns, district officers, our design research team and representatives of households near selected vacant lot in order to characterize the loton the themes ofuseful land use patterns.

III. RESULTS AND DISCUSSION

A. Characteristics of Participant Samples

With qualitative research,400 representativesof households within 500-meter radius from the vacant lots in Lat Phrao neighborhood were invited to engage in interviews. Participants were consistently split in ten zones (40 from each). According to descriptive characteristics of participants, 52.8% were women, and most were in the age range of between 31 – 40 (34.3%), followed by between 41 – 50 (29.7%). The rest were between the ages of 18 and 30 (22%) and above the age of 50 (14%). A half got a bachelor's degree and 86% were employed.40% of the respondents lived in the neighborhood for more than 5 years. For 5 participants from government officials, theywere 3 males and 2 females fromPublic Cleansing and Public Park Section, Lat Phrao District Office which are directly responsible for vacant land management in the district in terms of maintainingland cleanliness and reducing empty-lot dumps that would generate environmental pollution and health effects as well as conserving parks, trees and shrubs. In terms of 10 landowner participants whowere invitedto collaborate infocus group study in order to find good practices of vacant land redevelopment. They owned vacant parcels with the sizes between 400 – 3,200 m². The last stakeholder group included 15 experts related to landscape planning and design team from Faculty of Architecture and Planning, Thammasat University (Rangsit Campus) and Chandrakasem Rajabhat University including 5 Ph.D. students and 10 professors that involved in depth interview and group discussion.

B. Participatory Vacant Land Survey Results: Neighborhood Sustainability Impacts

Fig. 2 illustratesGIS map of 10 zones of privately - owned vacant parcels in Lat Phrao neighborhood, Bangkok as of 2017. We found that thelocation and quantity of vacant lotswere changedfrom the previous version of BMA City Planning Department as the map demonstrates the cluster of vacant parcels in neighborhood scale.

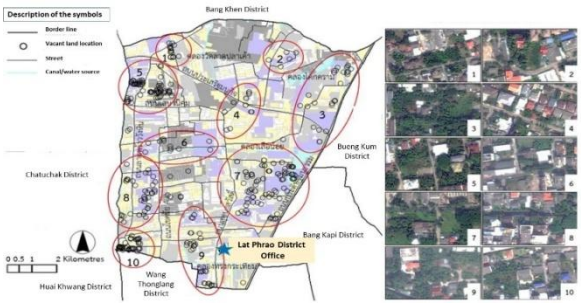
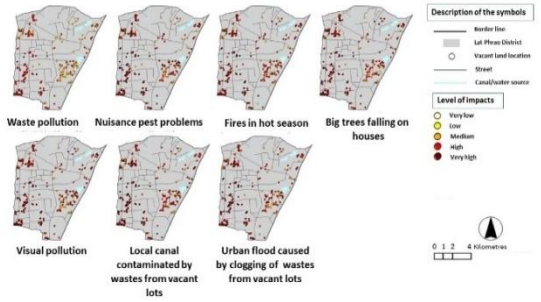
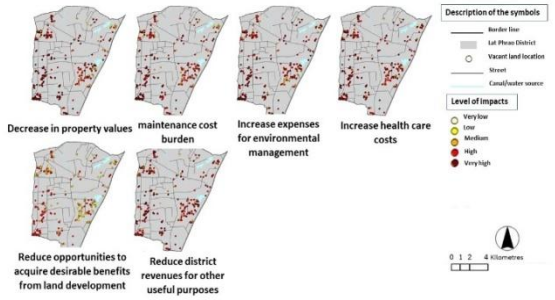


Fig.2. Location of Vacant Lots in Lat PhraoDistrict, Bangkok regarding the 2017 Participatory Survey

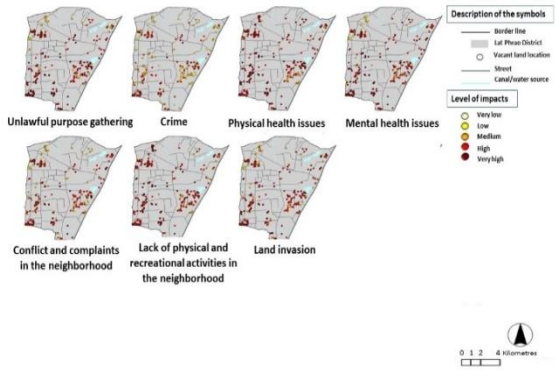
In participatory exploration of 109 grid cells, we divided the survey team into 10 zone groups. Each group characteristics was mixed with representatives of stakeholders and our research team in order to collect vacant location dataand photos, and collaboratively assess the impacts of vacant lands to nearby communities using five-point Likert rating scalefrom "1 = very low" to "5 = very high". Our team used smart phones to gather all GPS-based location information. Both vacant spot and impact assessment data were convertedinto GIS software to provide map illustration as shown in Fig.3 (a) – (c).



(a) Levels of Physical Environmental Impacts of Vacant Lots to Nearby Communities According to Collaborative Assessment



(b) Levels of Economic Impacts of Vacant Lots to Nearby Communities According to Collaborative Assessment



(c) Levels of Social Impacts of Vacant Lots to Nearby Communities According to Collaborative Assessment

Fig.3. Levels of Neighborhood Sustainability Impacts Regarding Participatory Survey

Concerning a neighborhood physical environmental impacts of abandoned lands to nearby communities, community participants explicated that vacant parcels near their homes affected both adults and children living in the area due toillegal waste dumping(see Fig.4) that caused land and water pollutions, floods as wastes blocking drainage system, anddiseasestransmitted by insects and rodents (i.e.common house mosquitoes (or "Yung Lai" in Thai), cockroaches, ratsand other nuisance pests). Furthermore, unusedparcelsalso posed serious issues on firesduring hot season causing smokewith PM2.5 emissions, trees falling on properties and aesthetic issues.



Fig.4. Illegal Dumping Situations on Vacant Lots in Lat Phrao Neighborhood

In regard to economic impacts, participants concerned land value diminution. People felt that vacant lands near their homes, especially lots with trash piles may bring down the value of their properties. District officers also agreed with this point of view and gave us more information that vacant parcels in Lat Phrao neighborhood generated maintenance cost burden for the district. Director of Public Cleansing and Public Park Section of Lat Phrao District said "Many complaints aboutillegal dumping on vacant lots putting communities at risk were informed to the district.Contactingthe vacant landowners to monitor their own landsis not always easy, so we have to spendgovernment budget to dispose waste dumped onvacant parcels and build simple fences around vacant lots by ourselves". Other issues on this concern involve indirect economic effects. This explanation is associated with assessment resultsin Fig 3. (b) that participants indicated high level of economic concerns onreduction of property value near vacant lots, budget burden on vacant land cleanliness as well as money spending to remedy any consequences from land misuse i.e. health impacts of residents near the lots, effects of land, water and land pollutions.

Other negative externalities caused by unused lots surrounding the neighborhood includes social impacts such as crime and immoral purposes, public health issues and mental health.The presence of vacant lands contributed to a sense of stress among Lat Phraoresidents. Most of residentsfeltvery depressed and said that vacant lots triggered neighborhood decline.

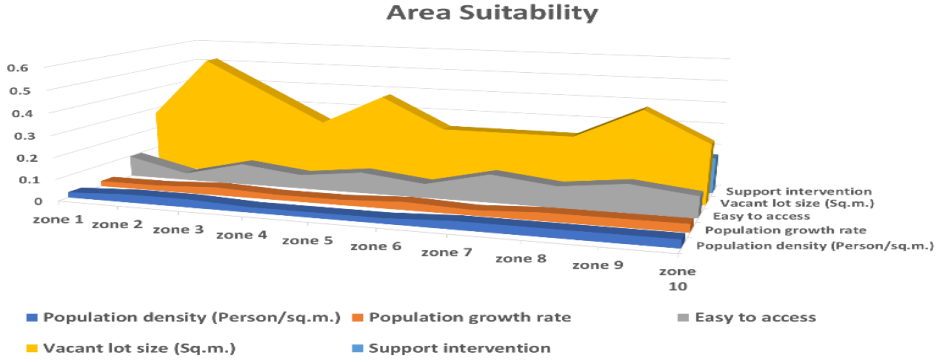
C. Identification of Zone Priority Development with Stakeholder Participation: Indicators and Criteria

Based on participatory assessment of which neighborhood zone should be a first priority development, vacant land management decision model was developed considering3main aspectsof area suitability, urban sustainability impacts and land owners and communities' needs and readiness indicators. A set of indicators of each aspects and weight mean results were illustrated in Table 1 below.

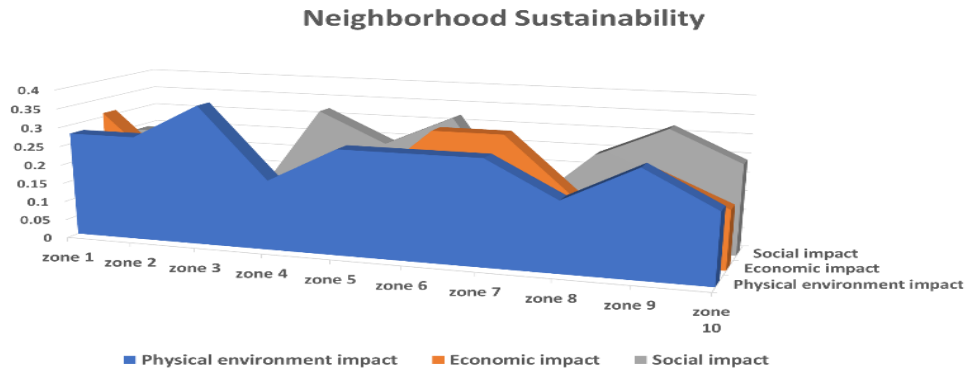
Table 1 A Set of Indicators for Vacant Land Management Decision Model

Indicators (Weight score)	Criteria				
	1 (0.00)	2 (0.25)	3 (0.50)	4 (0.75)	5 (1.00)
Area suitability (0.33)					
Population density (Person/ sq.m.) (0.05)	<=1,000	1,001-2,000	2,001-3,000	3,001-4,000	>4,000
Population growth rate (0.05)	<=0.05	0.06-0.10	0.11-0.15	0.16-0.20	>0.20
Easy to access (0.13)	Very low	Low	Medium	High	Very high
Vacant lot size (Sq.m.) (0.55)	<=100	101-200	201-300	301-400	>400
Support intervention (0.22)	Very low	Low	Medium	High	Very high
Neighborhood sustainability (0.33)					
Physical environment impact (0.37)	Very low	Low	Medium	High	Very high
Economic impact (0.31)	Very low	Low	Medium	High	Very high
Social impact (0.32)	Very low	Low	Medium	High	Very high
Stakeholder's needs and readiness (0.33)					
Community's needs and readiness (0.40)	Very low	Low	Medium	High	Very high
Land owner's needs and readiness (0.55)	Very low	Low	Medium	High	Very high
District's needs andreadiness (0.05)	Very low	Low	Medium	High	Very high

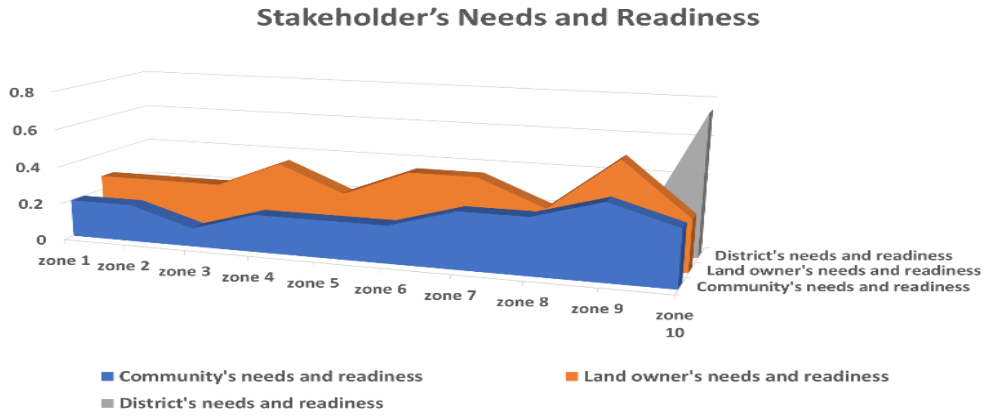
We considered weight mean results based on expert assessment of 10 zones by each aspect that can be illustrated in Fig.5 (a) – (c).



(a) Area Suitability Aspect



(b) Neighborhood Sustainability Aspect



(c) Stakeholder's Needs and Readiness Aspect

Fig.5.Assessment Results for a Decision of Privately-owned Vacant Land Development

When considering average weight mean regarding evaluation results from model, zone 9 – vacant lots on west side of NakNiwat Road in Lat Phrao District showedmaximum weight mean of 0.236 that presented the highest priority area for development. In selection of zone development through this model that indicators and criteria were collaboratively chosen by stakeholder participation and expert technique according to weight process, this task can be a scenario for a decision of privately-owned vacant land development ifpublic grants are offered for vacant land management in the city.

D. An Example of Collaborative Design in TransformingVacant Lotsinto Useful Land Use Patterns in Lat Phrao Neighborhood, Bangkok

In vacant land transformation process after identifying area priority development, useful design patterns need to be proposed to vacant landowners and the district. By this research, we completed the redevelopment design process based on multi-actor engagement through focus group discussion. This procedure was willingly responded by a landlord of vacant lot on west side of NakNiwat Road in Lat Phrao District(Grid J-11; Zone 9)in collaborative with communities surrounding the lots and the district to supportthe investment and workforce neededto make vacant land projects happen.Selected parcel as a pilot project of vacant land management in the district wasa big unit with area of 1,600 m^2 ("1 rai" in Thai unit) surrounded by middle-income households with land zoning controls allowing more types of larger property developmentdue to the coming of new Yellow line monorail system (Lat Phrao-Samrong) near the landexpected to launchin a few years.

Group discussionwiththe purpose of participatory design of the J-11 vacant parcel was proceeded in March 2018, 30 participants from different groups shared several ideas and experiences for solutions to transform the targeted lot. The results of group discussion represented in Fig.6.

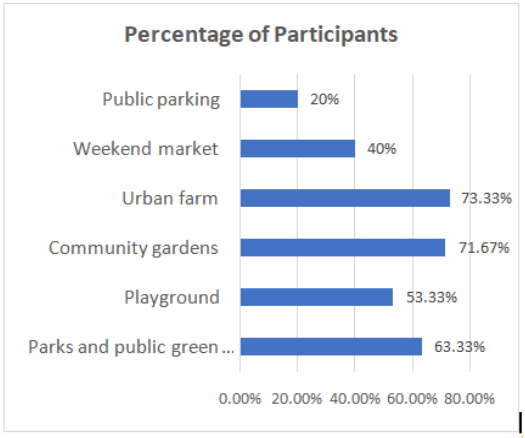
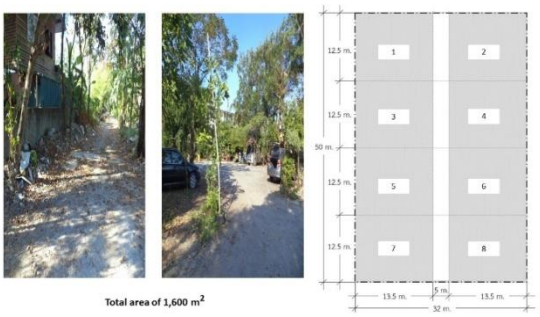


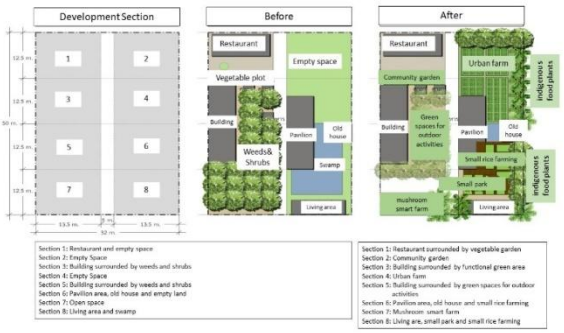
Fig.6.Group Discussion Results Regarding the Topic of J-11 Vacant Parcel Redevelopment

Based on the results, 30 participants expressed interest in reshaping the vacant lot to urban farm (73.33%), community gardens (71.67%), parks and public green space (63.33%), playground (53.33%), weekend market (40%) and public parking (20%). As part of urban agriculture patterns, participants proposed mushroom cultivation in greenhouses, indigenous food plants and small rice farming without soil. As well, many participants proposed to change some parts of land into a simple community garden. In the second meeting with landlord and representatives of district in August 2018, our research team proposed new landscape plan of the J-11 vacant parcel based on participatory design. Fortunately, the proposed plan was willingly accepted by the landlord with partial adjustment.

Fig.7. illustrated the J-11 vacant parcel before and after participatory design process.



(a) J-11 Vacant Parcel Before Providing New Development



(b) J-11 Vacant Parcel Development Plan According to Participatory Design

Fig.7. Participatory Design Vacant parcel(Grid J-11; Zone 9) in Lat Phrao Neighborhood, Bangkok

CONCLUSION

To reshape vacant lands in Lat Phrao Neighborhood, the study developed multi-stakeholder joint development model comprising three steps of area exploration, priority identification and design. It can be regarded as a new scheme of privately-owned vacant land management not only in Bangkok but also in other cities. As regards a scope of this research mentioning only privately unused lots, a scheme can be also applied for publicly-owned vacant land management as but the form of stakeholder engagement may be relevant to different organizational units. In addition, the scheme formulated by this study are not meant to be a finalized solution astheconstructionprocess needs to be launched by landowner and community workforce. Future research might either compare privately-owned vacant land management schemes of different cities or propose innovative implementation mechanisms such as financial initiatives drivingvacant land development happen.

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