

A Study on Roles of the Community Design in Crime Prevention: Focusing on Project called Root out Crime by Design in South Korea

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Abstract— In the meantime, there were lots of hardware solutions like products or urban facilities for crime prevention in the public design area. Meanwhile, people have growing interest in public design so by making a village; community design in public design is getting active by the society. The system for crime prevention is actively done by the citizens who created the community. Regarding the social situation, in this project, we saw it as a kind of community design practices and researched about ‘how does community design influence Crime prevention?’ The purpose of this study is to propose the community design as a way of preventing the crime in the city. First, we found out about the definition, elements and methods of community design by reviewing the theory. And then, this study analyzed the case that was enforced in Seoul and organize the elements and methods of community design. This study can be refer to Public Design based on civil participation and make the community design area contribute to expand the way of solving social problems.

Keywords—Public Design; Sustainable Community Design; Crime Prevention; Participatory Design.

I. INTRODUCTION

AS there in an increasing world-wide interest of well-being and citizen welfare, there is also a movement to attain competitive advantage in the city’s public cultural facilities and the public spaces. This is an important factor in determining the viability of the city, as well as improves the quality of life of urban residents. [1] Seeing these social trends, the Korean government also took action to improve the design of public spaces in Seoul by strongly promoting the ‘Design Seoul’ project. In 2008, Seoul was chosen as the first city in the World Design Capital. Through this, they were able to have more expertise in the field of design, moreover, improve the quality of the city’s environment design. The importance of designing public spaces was acknowledged once the government continuously took action in these projects, but there were some criticisms on the design approach between the design world and the civic groups. Some academics discussed an alternative to the existing public design approach and were looking for new public design approach, calling it the Public Design 2.0. One of the alternatives was called ‘Maul-Mandulgi’ project, one of its tools being the ‘community design’. Community design is a

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type of public design for a specific community, where the design can be kept while actually reflecting the people’s needs.[2] With the active participation of the citizens and the cooperation between the government and the design experts, the ‘Maul-Mandulgi’ has become a nation-wide project.

In 2012, the <Root Out Crime by Design> project which has the CPTED(Crime Prevention through Environmental Design) was launched in the crime-ridden districts of Seoul; Yeomri-dong and Gayang-dong Kongjin Middle school.[4] CPTED is a multi-disciplinary approach to deterring criminal behavior through environmental design. As of 2012, most implementations of CPTED occur solely within the built environment.[11] The Seoul Metropolitan Government’s crime prevention design project is a CPTED project. It contains the original environment design as well as the community design, which includes the community participatory element. In this paper, the CPTED with the community participatory element will be referred to as CPTED 2.0. The new generation of CPTED includes strategies to enhance social cohesion. These strategies may include techniques to connect people to surrounding neighborhoods and groups; maintain a careful balance of activities, housing, or types of business; and providing opportunities for the growth regional culture, what is often called placemaking.[12] This will be an innovative crime prevention design that will reflect the opinions and the direct needs of the stakeholder.

Yeomri-dong, one of the locations where the Seoul Crime Prevention Design Project took place, used to be an important location for business. It was an area with many salt warehouses and the neighborhood people were known to be generous. However, now, it is known as a typical poor hillside area where many poor tenants and foreign workers live. There are many conflicts in this area. There are a high percentage of female residents but because of the poor street lighting, narrow streets, and the lack of crime prevention facilities, there is a high possibility of crime. At night, most of the shops will close, so even if there was a crime, there was no place to ask for help. To solve this problem, the Government of Seoul decided to launch the crime prevention design project <Root Out Crime by Design> with CPTED. This project was the first project of ‘Seoul Designs to Solve Social Issues’. The plan for this project was to change the existing public space design policy focused on reading facilities to a design policy that focuses on people and considers the disadvantaged citizens.[4]

The main purpose of this project is crime prevention, but enhancing the community identity and creating a system for the residents to participate shows similarities to the function of community design.

We plan to present this project and show the similarities to community design, and by showing this, we plan to prove the possibility of preventing crime by 'Maul-Mandulgi' through community design. First, we will define what community design is talk about the methodology and the elements. This will be done by literature reviews and with this information; this study will make a frame analysis. According to the frame analysis, line up the elements of the crime prevention design cases and evaluate if they have the community design elements. This paper will organize this information and predict if community design can bring crime prevention.

II. LITERATURE REVIEW OF COMMUNITY

A. Community Design

Community Design is a compound of the word 'Community', from regional community, and the word 'Design', meaning the act of planning, designing, and modeling. It can also be understood as the modeling activities to ensure the socio-cultural identity of the community. The main objective of community design is to bring regional revitalization through community formation and active participation of the community.[3] Community Design, which aims to the harmonious integration of a variety of design fields, is akin to the concept of Total Design, because it comprehensively covers the various elements to reflect the identity of the regional culture and placeness.[13]

The community design has the properties of Design 4.0, which is the emerging design these days. Depending on social change, the meaning of design also has changed from the traditional product-centered design to the human-centered design through user participation. In this flow, NextD presented a framework about Design 1,2,3 and 4. Design 1.0 is traditional design as making. Design 2.0 is product and service design as value creation and design integrating. Design 3.0 is requires a inclusive design process as organizational transformation design.[6] And design 4.0 is social transformation design. In Design 3.0 and Design 4.0 there is more need for open challenge framing, more need for deep local human-centered sensemaking. Design 4.0 has challenges of country, society and planet.[7]



Fig. 1 When Design Begins is changing [8]



Fig. 2 Challenge Scale [8]



Fig. 3 Challenge Fuzziness Shift [8]

On the other hands, Korean academics have been talking about how the Public Design 1.0, which is to design public spaces in the traditional method, has changed to Public Design 2.0. There are three purposes to public design 2.0. First is for the government, design specialists, and the civil society to have seamless communication and cooperation. Second, is to have a design that has a long-term infrastructure in the perspective that public projects' resources should not be wasted because it uses the people's taxes. Third, is to make a more elaborate process which includes the vision, mission, and action plan, etc.[1] To fulfill the three purposes of public design 2.0, the participation of the people will be necessary, and it is expected that the community design will encourage participation, moreover, work as the role model for the public design.

B. Elements and Methods of Community Design

The information above mentions that community design is a form of citizen participation type design that forms communities and promotes regional revitalization. Community design is composed of design through participation, people sharing the same goal of improving the quality of the design method, and the behavioral environment.[9] Community resources, the community, and community design activities allow sustainable community design to work. Community resources are based on the features of the area and can be made through Place Making. Also, the community can be divided into the community school, community design, and community business. Each of these factors plays an important part in the community design and they affect each other. Through community design activities community schools can make use

of community mapping, each region can have its own community infrastructure, and each region can have town management activities to foster businesses in each community.[3]



Fig. 4 Sustainable Community Design [3]

The “Maul-Mandulgi” is a step-by-step community participation program with three stages: planning, execution, and maintenance.[10] The community design process made by Korea’s Community Design Laboratory has four stages. The learning community project is in the first stage, the planning stage. In the second stage, execution stage, there is the community design project and the community business model. And finally, in the maintenance stage, there is the building sustainable communities’ stage.[3]

TABLE I
 CITIZEN PARTICIPATION FOR COMMUNITY DESIGN [10]

Step	Goal	Cases
Planning	Define the vision of town and draw some common ground	Reviewing Village
Actualizing	Leading residents’ participations to actualizing resolve differences among the stakeholders	Supervision System by Residents
Maintenance	establish self-manage system of residents	POE(Post-Occupancy Evaluation)

1) 1st Step: a project-based community learning where there will be R&D of cultural and artistic development methodology. [3] The planning stage of the community design will be to have the residents participate in a workshop. In this stage, the community will identify which area of the community needs maintenance and improvement and discuss the future image of the town by asking questions such as ‘what type of community should be created’. The residents will look back on their community and through investigating case studies of more advanced towns; they will be able to be more objective. Through this process, the residents will be able to recognize

themselves distinct from other areas and have identity for their community. [10] The process for the design project of the learning community can be divided into process design, mapping, place making, and planning and design. The design plans and community after these four stages will influence the following stages. The detailed information is organized in the following table.

TABLE II
 1ST STEP PROCESS [3]

No	Step	Detail
1	Process Design	Understand the composition of the learning community and the community design and then discuss the plan to revitalize community.
2	Mapping	2. As an essential element of the community design, understand the people of the community and understand the city based on the period and its humanistic values.
3	Place Making	In the mapping stage, make a story for each location based on the insight of the residents. Implement ideas hypothetically.
4	Planning & Design	In the planning stage of the community design, make a brand for community business and plan an operating system.

2) 2nd step: Based on the 1st stage results of the learning community project, create a specific regional development model, and actualize it. [3] During this stage, the residents can directly participate in the designing process or even take a supervising role in order to prevent any conflicts between the companies and the community. The residents can also take a role in bridging the gap between the design and construction. [10]

3) 3rd step: Creating Community Business Model: With the community infrastructure developed in the 2nd step of the community design project, there will be systematization process of the community base through cultural arts programs and mediator training courses. Furthermore, product training, branding, and the building of an operation system will be developed.

4) Build sustainable community: From the product training, branding, and building of operation system mentioned in the preceding step, the community’s common resources will be developed and distributed. As a community with business activities, the learning community will develop into an business community. [3]

A management cycle can be made from steps 1 to 4 and the learning and business community can be the town management that will take the role of managing and evaluating. The purpose of the sustainable community design it to create a community that can self-manage and create a sustainable system that can solve problems creatively. [3]

To analyze and evaluate the crime prevention design project, we took in to reference the theories in the documents above.

To analyze the project, we first organized the elements of the

project and the descriptions including the people, design activity, design resources. Then we checked the involvement of the residents and the community potential. Second, we made a detailed list of how the design services that are created through design prevention design are functioning. We also checked to see if they had an element for community welfare.

III. ROOT OUT CRIME BY DESIGN PROJECT

Before any further analysis, this paper will describe the specific details of the crime prevention design project. This project was launched in Seoul to revitalize the community and to promote natural surveillance to prevent and control crime. It enabled residents to live peacefully in crime-ridden districts.



Fig. 5 Revitalization of the street through community design [5]



Fig. 6 Revitalization of the street through community design [5]



Fig. 7 Revitalization of the street through community design [5]

The Seoul metropolitan government and the crime prevention design team first decided to survey the resident's insecurity of crime and create an 'insecurity map'. As reflected in this map, they identified the places where people felt most fear they were able to make walking areas and improve the environment of the 'insecure' areas.[5]

The roads in the crime ridden areas were called 'So-geum-gil (salt road)' and these roads became an area promoting health, culture, and community gathering. Near these 'So-geum-gil', Salt cafes and children libraries run by the residents were built. Crime prevention guards' headquarters run by the Green Mother's club and Yumsan Church were established. IP cameras and CCTV's were installed and there was active participation of the residents. All this has made the community safe. For more residents to actively participate in the crime prevention design, the community center, Mapo-gu office, and the Mapo police cooperated in creating a maintenance management system.[4]

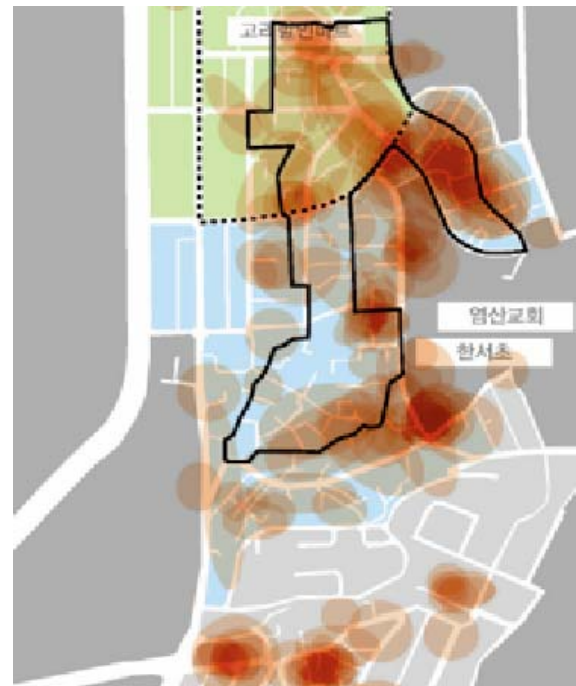


Fig. 8 Insecurity map [5]

What is interesting is that they created a regional brand called 'So-geum-gil (Salt road)'. The Logo of the brand was placed in the walking trail. Exercise manuals were also placed in the trail to make it more fun and interesting. [5]



Fig. 9 So-geum-gil(Salt road) Symbol mark[5]

In the map of the 'Salt road', marked in yellow is course A which is 1.1 km, and marked in light blue is course B which is 0.6 km. Each course has different themes such as meditation road, power walking, healing point, resting area, etc. In the area where course A and course B meets, there is a place called the 'So-geum-na-ru (salt port)'. This area is open 24 hours a day. It is not only used as a surveillance area, but also a 24 hour convenience store where residents can easily purchase good and medicine, even at late hours.[5]



Fig. 10 Exercise program guide of So-geum-gil [5]

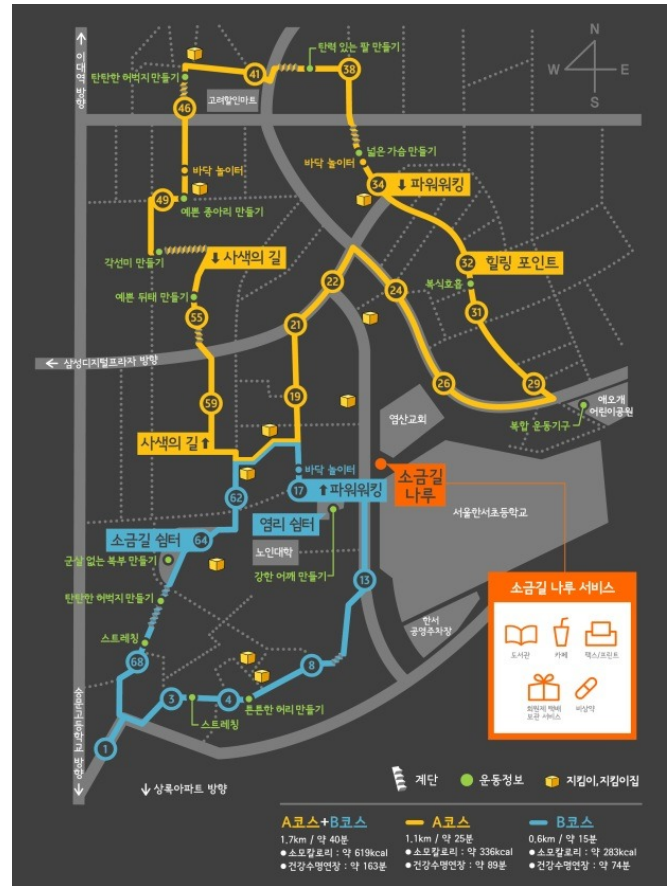


Fig. 11 A Map of So-geum-gil [5]

Also, this area works as a cultural complex where there are libraries, sports facilities, and coffee shops. They also have community programs and storage services for parcel deliveries which enhances the community welfare. The Seoul government created a system where the 'So-geum-na-ru managing system' will be composed of the residents, and they themselves will maintain and develop their own community services. Also, to solve the problem of the deserted looking alleyways, the residents participated in the 'Alley Atelier' project where they will draw murals on the wall in front of their houses. Through this project, the residents of the community were able to acknowledge themselves as one community and form some intimacy. Also, by painting the wall with the color they want each household was to express their identities.[5]



Fig. 12 The residents who participated in 'Alley Atelier' Project [5]

IV. ANALYSIS

A. Frames for Analysis

To analyze and evaluate CPTED 2.0 of <Root Out Crime By Design> project from a vantage point of community design, this study took in to reference the theories in the documents above and made a couple of frames for analysis. In consequence of analysis with these frames, this study can show possible junctions of community design methods onto CPTED 2.0.

To analyze the project, the study first organized the elements of the project and the descriptions including the people, design activity, design resources. Then we checked the involvement of the residents and the community potential (Frame A). Second, we made a detailed list of how the design services that are created through design prevention design are functioning. Then we also checked to see if they had an element for community building and community welfare (Frame B). To check whether each subject has the function of community design, this study marks 'O' if a subject has the function or marks 'X' if it hasn't on each item.

TABLE III
 THE FIRST FRAME 'FRAME A' FOR ANALYSIS

Elements	Details & Goal	Citizen Participation	Community Potentiality
S1	D1	O or X	O or X

S1 that means 'subject' and D1 that means 'description' is description in the first frame.

TABLE IV
 THE SECOND FRAME FOR ANALYSIS

Designed Services	Particulars	Community Building	Community Welfare
S2	D2	O or X	O or X

S2 that means 'subject' and D2 that means 'description' is description in the second frame.

B. Analysis

The following three tables show the evaluation factors that are checked after classifying the first analysis frame.

TABLE V
 ANALYSIS OF PEOPLE IN ROOT OUT CRIME BY DESIGN PROJECT USING BY FRAME A

Elements	Details & Goal	Citizen Participation	Community Potentiality
The Seoul Metropolitan Government	Plan crime prevention design in the design policy department of the culture and tourism design headquarters	X	X
Seoul Design Foundation	Design organization in Seoul government	X	X
Mapo-gu office	The ward office responsible for Yeomni-dong	X	X
The Police Department	Provided crime information and cooperation	X	X
The committee of Root Out Crime by Design	Create group of 10 Professions in area of crime, psychology, and design	X	X
Citizen Autonomy Committee	Support for the residents participation	O	O
Yumsan Church	Provide area, volunteer work	O	O
Social Enterprise	Provide welfare services	X	X
Samsung Corp.	Gave financial support for So-geum-Na-ru	X	X
Samhwa Paints Corp.	Talent donation for design and artwork	X	X
Designers' Talent Donation	Design for spaces of the village	X	X
Volunteers	Support in each stage	X	X
The Residents of Yeomridong	Participation in the crime insecurity survey, participation in design maintaining activity	O	O

TABLE VI
ANALYSIS OF ACTIVITIES IN ROOT OUT CRIME BY DESIGN PROJECT USING BY FRAME A

Elements	Details & Goal	Citizen Participation	Community Potentiality
A survey, interview and The hearing of The Fear of Crime	identify location where people feel insecure	O	O
Insecurity map	Based on information from interview, make map and designate areas that need design	X	X
Organizing and Operating Communities of Yeomridong	Form and manage 10 communities such as 'Yeomridong foreigner community' and "So-geum-gil(salt road) community'	O	O
Activities of So-Geum Guard Houses	Have residents apply to voluntarily guard area once they receive behavior conduct training from police	O	O
Activities of The So-geum-Na-ru Operating Community	Create community that manages the convenient facilities of So-Geum-Na-ru	O	O
'Alley Atelier' as Community Arts	30 households to draw mural on the walls outside their homes	O	O
Self-manage Crime Prevention Guards	School parents to patrol school area, Yeomsan Church's 'So-geum-gil(salt road) walk'	O	O
Intension of a foot patrol of Mapo Poice	Mapo Police to strengthen the patrol – patrol the narrow roads where cars cannot pass	X	X
Parcel delivery and storage service	be considerate of the old and the disabled that cannot personally pick up packages from the parcel storage and delivery service	X	X

TABLE VII
ANALYSIS OF RESOURCES IN ROOT OUT CRIME BY DESIGN PROJECT USING BY FRAME A

Elements	Details & Goal	Citizen Participation	Community Potentiality
Visual identity of So-geum-gil	Named the road 'So-geum-gil', bring awareness to area by marking with yellow	X	X
The walking trail of So-geum-gil	form near area with high fear of crime and insecurity	X	O
Exercise program guide of So-geum-gil	participation of exercise expert, design manual for walking and exercising	X	X

The artwork of So-geum-gil	putting life into the empty alley ways with art		
Safety facilities, Location Guides on So-geum-gil telephone pole	Put sign on telephone pole showing location, guide map, and safety tips	X	X
Signing LED & Security numbers So-Geum jikimi Houses	Device for crime prevention and management Sign for 'So-geum-jikimi' Houses that help those in dangerous situation, sign light, IP camera	X	X
Wall paintings of residents	Establish identity for own home	O	O
So-geum-na-ru 24hour-Guard Post	A Space for crime prevention and management	X	O
Sales of goods and medicines at So-geum-na-ru	purchase goods after store closing time	X	X
Parcel storage place services of So-geum-na-ru	A service space operated by a social enterprise	X	X
Community Art Education Space in So-geum-na-ru	Cultural education activities & Building communities	X	O
So-geum-na-ru Café & Village library	provide area for strengthening community bond	X	O
Exercise equipments in So-geum-na-ru	residents' health and welfare facilities	X	X

By applying the second frame analysis, we organized the main design categories and the specific information inside those categories. We checked if there is any community formation and community welfare elements.

TABLE VIII
THE LEVEL OF CONTRIBUTION TO COMMUNITY

Designed Services	Particulars	Community Building	Community Welfare
So-geum-gil (salt road)	Prevent crime by naturally gathering local residents	O	X
	be equipped with reporting and location guiding facilities	X	O
	provide exercise program informations	X	O
	road with bright light and bright colors, display art work	X	O

So-geum Guards Houses	risk-informing facilities using sound and light so that residents can deal with problem immediately	X	X
	behavior conduct training from police	O	X
So-geum-Na -ru	24hour-guard post	X	X
	'So-geum-na-ru' managing community operated by residents	O	O
	Function of 24hours convenience store	X	O
	Education of Community Art	O	O
	install sports facilities	X	O
	Parcel storage services by a social enterprise	X	O
	cafes and libraries for exchange between residents	O	O
Alley Atelier	improve environment and prevent criminal psychology	X	O
	form intimacy among residents by having them work together at the same time	O	X
	through homemade wall art create sense of ownership and identity	O	X
Autonomous crime prevention	through community of school parents patrolling and guiding, guarantee safety of child	O	X
	local religious groups patrol area	O	X

V. RESULTS OF ANALYSIS

A. Results of First Analysis

The first analysis is that among the design participants, the rate of citizen participants and the community potential was low. Usually the government or the group of professionals does it. In terms of the activities of community design, many residents participated and there was many potential to form a community. In terms of community resources, there were many resources designed by the government and the professionals. However, through these design resources there was relatively a high possibility for a community to be formed. Designing the community by gathering the opinions of the residents and forming a community based on the design of the area is very similar to the goals of community design. But by seeing the overall process of the crime prevention design project, there was more involvement of the government and the professional. It is different to community design, where the local community is in the center of all operations.

B. Results of Second Analysis

The second analysis shows that each and every design

service not only prevents crime but also helps foster community building and welfare. According to criminal psychologists, theft and violence, which accounts for the majority of crime, usually occurs where there is an absence of community and indifference among neighbors.[12] Therefore the Seoul Metropolitan Government's crime prevention project includes elements that can recover the physical space and the community. We can predict that there will be crime prevention through community design.

VI. CONCLUSION

In 2013, the Seoul Metropolitan Government will evaluate and supplement the project supervised by the Korean Institute of Criminology. Rather than ending with one project, new projects supporting the community will continuously be launched and crime prevention institutes for CPTED 2.0 will be established as well. For a medium to long term goal, an MOU will be signed with institutes for the crime prevention such as the DAC in London and the DOC in Australia.[5] Through these agreements there a manual will be created through information sharing and joint research. These efforts made by the Seoul Metropolitan Government are not only good in the eyes of an expert but it is also good in solving the problems occurring in the citizen's life, which will possibly progress to public design. If public design 2.0 is a solution to not only crime, but also issues involving environment, economy, human rights, ageing society, and suicide, then community design will be seen as the alternative. In this study we were able to see the scope of how community design can be applied as crime prevention design. This study supports the developing the CPTED as community design and be a basis of creating CPTED 2.0. However this study only dealt with the design methodology and element analysis. Therefore there should be a study showing how this crime prevention project had an effect on crime prevention and do evaluation and supplementation. We hope there will be new innovative public design research combining the design methodology of Seoul Metropolitan Government and community design.

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