

Urban Design Charrette by Using Advice Maps in Nagata, Kobe

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Abstract

"Charrette", originally a French word, denotes an intense work session that includes analyzing a focused area and proposing future designs for the area. It is becoming popular in the urban design field. GIS seems to be useful in charrette because GIS can provide considerable geographic information to participants efficiently. Therefore, we held a Japan-US collaborative charrette using GIS. This paper is intended to report the method and its results. Results show that GIS is actually useful in design processes.

1. Introduction

Urban Space Design Charrette "Revitalizing Nagata" was held during six days (March 20–25, 2006) by the Urban Space Design Charrette Team that was organized by young members of Kobe University 21st Century COE Program "Design Strategy towards Safety and Symbiosis of Urban Space". This project was held at the Kobe Field Studio (KFS), which is affiliated with the COE and situated at Nagata Ward, Kobe.

"Charrette" indicates an intensive work session by specialists from various fields. It is used as an urban design and community planning technique. Normally, in a charrette, participants work for about a day to a week while hearing residents' opinions and proposals for urban design and community planning. This technique is used merely for initiating actual urban design and community planning, but it leads to actual urban design and community planning.

The goal of this Urban Space Design Charrette "Revitalizing Nagata" was to propose the urban space design using this "Charrette" technique with the collaboration of graduate students from Kobe University and the University of Washington. Focus areas were three neighborhoods (Shinyo, Mikura and Takatoriyama) in Nagata Ward, Kobe City. These three neighborhoods have persistent social, economic, and environmental problems, even though 11 years have passed since it was affected by the Hanshin-Awaji Great Earthquake. Therefore, the theme of this charrette was "Design the Start of Changes".

Our COE has promoted many urban studies, with particular emphasis on "Safety and "Symbiosis". Our COE also intends the creation of a new research domain that applies an "Integrating Process". Such an

"Integrating process" will integrate some research results about "Safety" and "Symbiosis" and apply them to practical urban design and planning. Before this charrette, we collaborated with some specialists of various research fields, such as geo-technical engineering and urban climate, to create an "Advice Map" or "Hint Map" for charrette participants using GIS. Its intent is to integrate some results from some research domains and apply them to urban space design.

In addition, on the final day, we held the Final Presentation. Residents from three neighborhoods and specialists of urban planning, community planning, and architectural design also joined the Final Presentation. This paper introduces the project outline, proposals for the three neighborhoods, discussions about using GIS in the charrette.

2. Outline of the Project

2.1 Goal

In 1995, Kobe was subjected to a 7.2 magnitude earthquake: the Hanshin-Awaji Great Earthquake. Especially, Nagata Ward suffered severe damage. After the earthquake, residents, local government, designers, and planners made various efforts in its rebuilding. Even now, however, difficulties persist there, including social problems, economic problems, and environmental problems.

Therefore, the goal of this charrette was to propose the urban space design for the three neighborhoods in Nagata Ward. The theme of this charrette was "Design the Start of Changes". This includes the meaning "propose a new direction from fresh eyes". In addition, concrete contents of the proposal are the following.

- 1) Concept of the proposal
- 2) The goal of the plan and narrative for achievement (Short Term / Medium Term / Long Term)
- 3) Plan for the entire neighborhood (Medium Term / Long Term)
- 4) Satellite images of some sites
- 5) Prior action that should be completed in 3–5 years

2.2 Focus Neighborhoods (Fig.1)

1) Shinyo Neighborhood (Area: circa 65.4 ha)
Shinyo is located in southern Nagata Ward. Some shopping streets are located there, along with residential buildings and small factories. The number of customers and shops has continued to decrease. Although they had physical damage in 1995 in some

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parts of this neighborhood, the main landscape was unaltered. Consequently, they have had some physical problems such as high density of old wooden houses and narrow streets. They also have persistent social problems such as decreasing population and aging of residents.

2) Mikura Neighborhood (Area: circa 6.3 ha)

Mikura is located in central Nagata Ward. Its many small factories are located among the residential houses. This neighborhood suffered severe damage physically and socially in 1995. After the earthquake, land readjustment projects were undertaken by local government. However, many vacant lots exist now because rebuilding is difficult in some cases. In addition, social problems such as the decreasing and aging population confront residents, just as in Shinyo.

3) Takatoriyama Neighborhood (Area: circa 103.7 ha)

Takatoriyama is located in northern Nagata Ward. This neighborhood is a residential area including part of a mountain: Takatoriyama. Therefore, these residents enjoy a rich natural environment. Notwithstanding, there are many steep slopes, and natural hazard risks such as floods and land slides. In addition, many narrow streets exist there as well. This neighborhood had no severe damage in 1995. They have social problems such as decreasing population and aging of residents, just as in Shinyo and Mikura.



Fig.1 Focus Neighborhood

2.3 Process

0) Introductory session

We held lectures for the participants at Kobe University on March 10, and at the University of Washington on February 6. At the lectures, we explained the outline of the project as an introduction.

Participants were 19 graduate students (Kobe University, 9; University of Washington, 10) whose majors were architecture, landscape architecture, and urban design and planning. We divided the 19 students into three teams of 6–7 persons at this session. (One team had targeted one neighborhood.)

1) Monday, March 20

Introduction (Morning) (Greetings from organizers, Explanations of the charrette outline, Explanations of the three neighborhoods by residents)

Field Survey (Afternoon)

Studio Work (Evening)

2) Tuesday, March 21

Studio Work (All day)

3) Wednesday, March 22

Interim Presentations (Morning) (Residents and representatives of local governments also joined.)

Studio Work (Afternoon)

4) Thursday, March 23

Studio Work (All Day)

5) Friday, March 24

Day Off (Studio work was done according to the team's conditions.)

6) Saturday, March 25

Studio Work (Morning)

Final Presentation (Afternoon) (This Final Presentations were opened to the public.)

2.4 Geographic Information System (GIS)

In the charrette, participants were able to use computers in which GIS software had been installed. The GIS provided much information (GIS Layers) to the participants.

These layers are divisible into four categories "Base Map", "Symbiosis (Society)", "Symbiosis (Environment)", and "Safety". The Charrette participants examined the plan while overlaying these layers and producing new layers. We prepared GIS images with a screen projector to enable two or more people to conduct a discussion smoothly while viewing these layers. (Fig.2)

1) "Base": Basic information on the focus area

2) "Symbiosis (Society)": Advice map or hint map for "Social symbiosis" of the focus area

3) "Symbiosis (Environment)": Advice map or hint map for "Environmental Symbiosis" of the focus area

4) "Safety": Advice map or hint map of "Safety" of focus area

Tab.1 shows the list of GIS layers we prepared before the charrette.

3. Summary of Proposals

3.1 Shinyo Neighborhood

Although immigrant residents from South Korea, Korea, China, and Vietnam offer many advantages of rich cultural internationalism, the Shinyo neighborhood faces various problems such as a shopping street on which an empty store stands out as a symbol of decreased customer traffic, manufacturing that keeps decreasing, bad manners, residents' dwindling knowledge about the history and cultural heritage of the neighborhood, high density of narrow streets, aging residents, and sparse natural scenery. This team thought that techniques that impatiently change neighborhoods are unsuitable for this neighborhood because social problems and physical problems are so complicated. They also thought that a careful planning technique that gradually infiltrates the neighborhood is suitable there. Actually, "Node + Pass" indicates various resources in the neighborhood that exists as points. Then lines are assumed to be a concept of the proposal. The team intends to solve various problems by "cultivating" (adding new functions or reinforcing the functions of) nodes and passes. For example, changing vacant lots to attractive open spaces (short term), making a park along the river (medium term), and changing an industrial area to a water front area to a large park are examples of this strategy of "cultivation".

3.2 Mikura Neighborhood

The Mikura Team thought that earthquake and land readjustment projects that were undertaken after the earthquake that particularly examined infrastructure building and disaster prevention extinguished the good points of this neighborhood (connections of residents, vitality, and so on). For such reasons, they set four goals of their plan as follows. 1) Recover human-scale streets again with consideration of disaster prevention. 2) Recover mixed-use land use and vitality. 3) Connect residents, halls, parks, and rivers, and connect Mikura and surrounding areas. 4) Recover lively Mikura again through the vitality-increasing measures of 1)–3). Actually, the plan is classifiable into three phases. At the first phase, they defined the characteristics for each street such as a ring road on which emergency cars can run, pedestrian paths, and so on. They designed a main pedestrian street that connects attractive places and the center of Mikura. They called this street a "spine" and planned mixed-use public residential houses at vacant lots along that "spine". At the second phase, they planned the connection between Mikura and surrounding areas. At the third phase, they planned compound developments at other vacant lots. They



Fig.2 Analyzing Neighborhood Environment by Using GIS Projected on the Wall

Tab.1 GIS Layers

Area	Layer Name
Nagata Ward Area	Base Map
	Population
	Population Density
	Population (Over 65 years old)
	Rate of Over 65 years old persons
	Building Use
	Subway
	Geology
	Geomorphology
	Elevation
	Water
	Vegetation
	Old Pond
	Landfill (Old Valley)
	Old River
	Old Sea
	Flood Area in 1967
	Tsunami Hazard Grade A
Tsunami Hazard Grade B	
Takatoriyama Neighborhood	Aero Photo 2002
	SurfaceNightTemperature(Takatori)
	SurfaceDaytimeTemperature(Takatori)
	Flood Hazard
	Well(Shinyo)
	Building Stories(Takatori)
	Park(Takatori)
	(Ventilation)Path
	Debris Flow Hazard Stream
	Landslide Hazard Zone
Mikura Neighborhood	SurfaceNightTemperature(Mikura)
	SurfaceDaytimeTemperature(Mikura)
	Building Stories(Mikura)
	Favorite Place (Residents)
	Residents don't like.
	Park(Mikura)
Shinyo Neighborhood	SurfaceNightTemperature(Shinyo)
	SurfaceDaytimeTemperature(Shinyo)
	Well(Shinyo)
	Building Stories(Shinyo)
	Park(Shinyo)
	Aging people behavior research results
	Road Width

thought that land readjustment, which made much of "safety", extinguished the "symbiosis" of the residents. Therefore, the pillar of this proposal is to make streets for residents' "symbiosis" while retaining "safety" by defining the characteristics for each street. This proposal is intended to integrate "symbiosis" and "safety". It seems to be an example of "safety based on symbiosis", or so-called "Symbiotic Safety".

3.3 Takatoriyama Neighborhood

The Takatoriyama Team inferred that steep topography increases natural hazard risks such as land slides and floods, while creating difficult situations for access to the houses. It also prevents aging residents' free mobility and decreases community connections. Therefore they proposed the "Satoyama-Open Space" as a buffer zone between the natural area and residential areas at the foot of Takatoriyama Mountain. That proposal was intended to return residential areas on the slopes to natural areas as population decreases. We can find the following characteristics by watching GIS layers.

- 1) Natural hazard risks are high.
- 2) Many houses have access problems.
- 3) A wind path exists there.
- 4) A rich ecosystem exists there because this area is adjacent to a large forest.

This proposal is intended to cultivate environmental and social "symbiosis" by maintaining the wind path, conserving the ecosystem, and creating a recreation area, and "safety" by reducing land-slide risk and flood risk, while improving access to the houses, by changing this area to "Satoyama". It also seems to be an example of "Symbiotic Safety". (Fig.3)

4. Discussion

The Kobe University 21st Century COE Program "Design Strategy towards Safety and Symbiosis of Urban Space" serves the intention of creating a new research domain that addresses "Integrating Process". "Integrating Process" will integrate some research results about "safety" and "symbiosis" to facilitate their application to practical urban design and planning.

I heard about the "Charrette" for the first time when I visited the University of Washington in 2004. Then I thought that we might produce an "Integrating Process" situation using "Charrette" and "GIS".

This time, we proposed an "Integrating Processes" using two techniques "GIS" and "Charrette", and practiced it. Results show that the urban space design proposal introduced in this report was completed. Some proposals considering "safety" and "symbiosis" were



Fig.3 One Part of Proposals by Takatoriyama Neighborhood

included in it. Therefore, it seems that the technique we proposed in this project can serve as one method for urban space design that considers "safety" and "symbiosis". However, information we prepared this time is insufficient for urban space design. Advanced examinations are necessary to make it a practical planning technique that will serve future tasks. On the other hand, from the view of the goal of this charrette "Design the Start for Change", we should do some outreach activities.

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