

The method and practices of 'Machizukuri' movement in Japan based on the idea 'Linkages' theorized by Fumihiko Maki

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Abstract - The method of 'Machizukuri' has spread out all over Japan. According to Professor Masato Kawamukai, who is the director of Obuse Machizukuri Institute, 'Machizukuri' literally means 'town-building' but does not only concentrate on constructing things but also community-based process of working together to improve the local environment. This method is to revitalize the town by the hands of the people who have grown up in the existing culture, locality and associated with the region of the past to increase social sustainability. The role of an architect is to support them with townspeople as a community architect. As one of the practice used in Japan of 'Scrap and build', how to make a better use of the existing resource of the town in order to advance the town forwards a focused movement.

To begin with, this study is to clarify the definition of 'Machizukuri' method, then to focus on Hillside Terrace Apartments designed by Fumihiko Maki, who is a well-known Japanese architect, to find out the philosophy, which is 'linkage', of Machizukuri. His idea 'linkage' which produces inter-relationship among elements, moreover it can be mainly connected to tangible things as well as intangible things of spiritual, cultural, social and historical concern, which has been come up with through a historical approach. Last but not least, author, who was the vice institutor of the Obuse Machizukuri Institute at Obuse town of Japan, shares some of the concrete ideas and examples of 'Machizukuri' from his 10 year's experiences.

Key Words: Machizukuri, Community-design, linkage, sustainability, historical approach.

1. INTRODUCTION

In Japan the method of 'Machizukuri', which may mean community development or community building even though there are no proper word in English language, have spread it out all over Japan. Its movement is to revitalize the town by the hands of the people who have grown up in the existing culture, locality and association of the region of the past rather than developing any new buildings in this place. In some cases, there is no need to construct any new buildings. An architect would join the activity in the certain place as a coordinator, who could challenge to attempt something new while maintaining buildings through discussion among the townspeople. The attempt is for the long span so that it never completes even after constructing the buildings. While spending for long time, Machizukuri would grow up gradually with townspeople and any stakeholders. The role of an architect must be to

support an association of residents, locality and feature of the site.

This way would not need a hefty amount of money except constructing any new buildings, it is the most important to communicate to town's people/residents of the site. If they organize an enormous community, they may fail this method because of mismanaging due to lack of communication and organization with townspeople. As one of the practice is followed in Japan of 'Scrap and build', architects shall cooperate with residents/ townspeople in this site as well as we have to improve the value of this site, then grow townspeople up while using the source. Thus, the movement is initiated to increase social sustainability.

This paper focuses on Hillside Terrace Apartments designed by Fumihiko Maki, who is a well-known Japanese architect as well as a town planner all over the world. These apartments are the long term project which have been constructed for over 25 years (6 phases of whole construction) till current situation (Fig. 1&2), and are designed by communicating with the owner, who came from one of distinguished family of this area and have been running an own real estate office to manage own lands. In 1967, there was nothing on this site, and at the present time there is a significant atmosphere on the site which is based on his well-organized apartments and surroundings on the tree-lined roadside which lasted 200m. Architect has been running his office on this site and has grown up and maintained the living environment over a long time with the owner as well as communicating with residents and social community of this area. In his word, he is the community architect [1]. Furthermore, a lot of Japanese architects have actually followed his idea "linkage" which he had built up through the design of Hillside Terrace Apartments.

The purpose of this paper is to clarify the definition of Machizukuri, then architectural approach, how the Hillside Terrace Apartments was developed by the architect as well as social community on this site.

Although there are some precedent researches regarding Architect Maki or Hillside Terrace apartments, the aim of this paper is to focus on 'Machizukuri' through Hillside terrace apartments developed by the method of Architect Maki. Author has recognized that the 'Hillside Terrace story' conveys the sequence of events historically [2]. But, in this case, author analyzed not only architectural aspect but also intangible aspect of Machizukuri through understanding his descriptions and drawings by Architect Maki on book as well as all magazines published in those days in Japan [3-11].

Last but not the least, author, who was the vice institutor of the Obuse Machizukuri Institute at Obuse town of Japan, shares some of the concrete ideas and examples of 'Machizukuri' from his 10 years of experience.

2. Definition of Machizukuri

Machizukuri is especially the Japanese movement. According to a historian Kawamukai, Machizukuri literally means "town-building" but suggests not so simple or easy constructing sources or ways as a community-based process means working together to improve the local environment [12]. Compare to other countries, this movement is unique and has a wide range term.

In 1947 Machizukuri carved a niche on the construction field, and it assumed to develop buildings in order to organize the town/city at the time [13]. Although the meaning of the Machizukuri has slightly changed according to the background of society, at present "Machizukuri is, while cooperating and allowing a variety of stakeholders to participate on the sources existing in the regional society, a series of sustainable activities in order to achieve 'the improvement of quality of life' by gradually improving living environment around them and producing the vitality and attraction of the town" in the word of Town planner Sato [14].

Machizukuri could be defined in the following ways ; firstly, the source is not only money but also everything existing on the site/community such as human, culture, tradition etcetera. Secondly, the target and objective of his words are divided in three parts; 1) improvement in living environment around them 2) producing the vitality or attraction of town 3) to achieve the improvement of the quality of life. Hence, these meanings are physical/tangible as much as intangible of improvements. Although there are a lot of case studies of Machizukuri all over Japan, focusing on the Hillside Terrace Apartments, this paper seek to understand how these apartments developed as 'Machizukuri'.

3. ARCHITECTURAL METHOD THROUGH HILLSIDE TERRACE APARTMENTS - PHYSICAL ASPECT OF MACHIZUKURI

3.1 Hillside Terrace and Architect Fumihiko Maki

Hillside Terrace Apartments are situated on the Metropolitan of Tokyo. It has started the planning since 1967, and this project has continued to develop for 25 years in six phases, and it is still developing with the passage of time. Site area is 7,167.7sq.m. and gently sloping. Today, there are eight apartments which consist of housing, shops, public hall etcetera. along the 22m, National Highway for 200m (Fig. 3). In the days of first planning, this site was located in the low-density residential area which had some vacant spaces around the area and controlled height restriction of 10m.

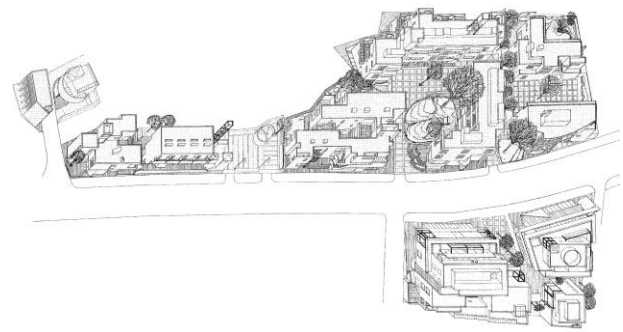


Fig -1: Overall plan of Hillside Terrace Apartments (source: Reference 3)

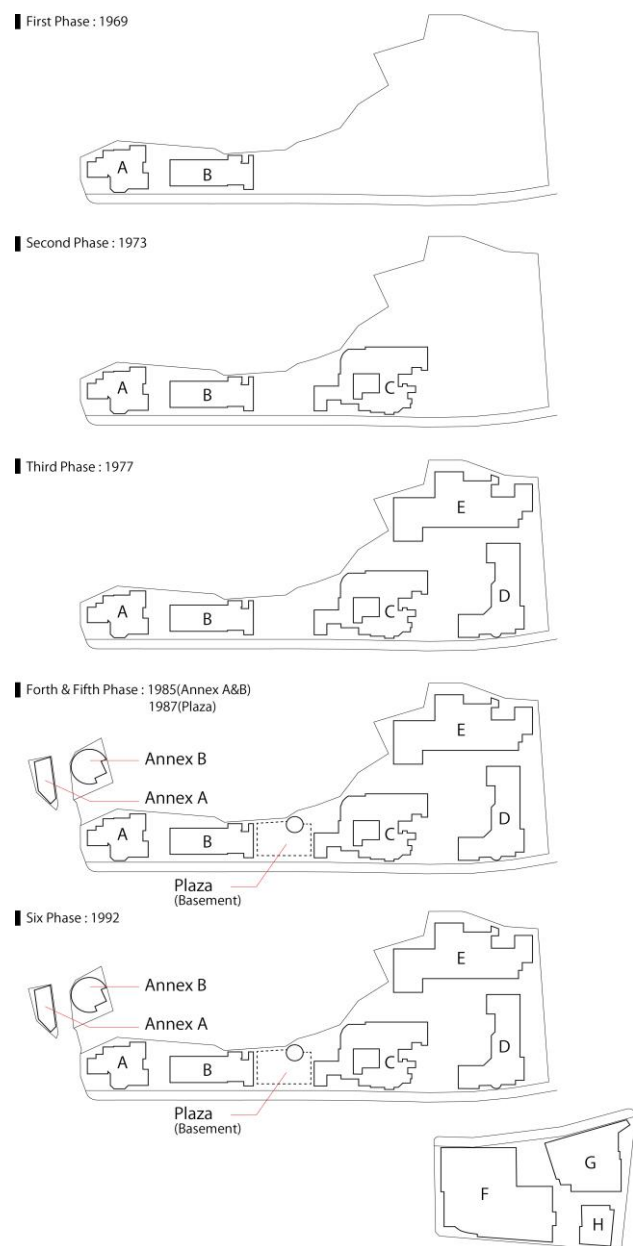


Fig -2: The development process in six phase (source: Author)

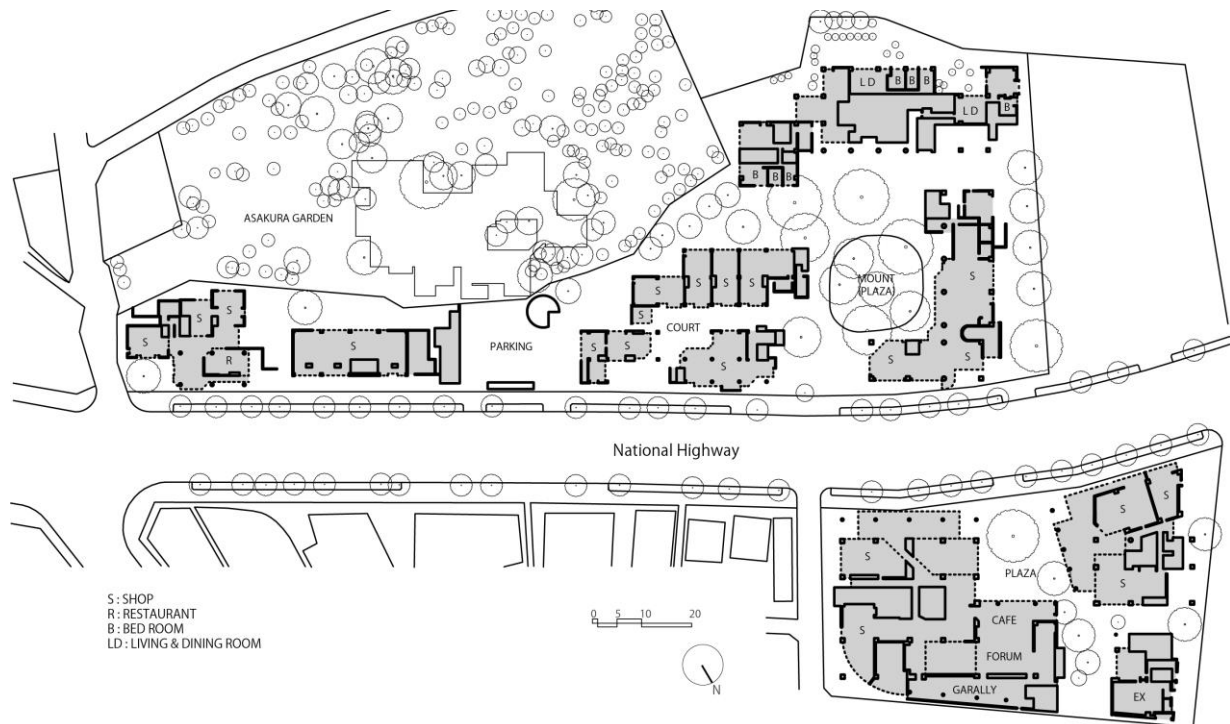


Fig -3: Eight apartments organized on ground floor with site plan (source: Author)

Maki had left from an associate professor at Washington University, then came back to Japan in 1965 to become a professor of The University of Tokyo as well as to establish his own office at that time. After 2 years, Hillside Terrace Apartments Project had begun under his surveillance.

While teaching at Washington University, he had tried to establish his own philosophy and method of the urban planning. As the result, he had published two significant books; one is "Collective form - Three paradigm" in 1963, another is "Movement Systems in the city" in 1964 [15&16].

In those days, a change of generation had taken place from CIAM (Congrès internationaux d'architecture moderne), which mainly Le Corbusier (1887-1965) and Sigfried Giedion (1888-1968) organized, to TEAM 10, which Alison & Peter Smithson (Alison:1928-1993, Peter:1923-2003), Aldo van Eyck (1918-1999), Jacob Bacema(1914-1981), Georges Candilis (1913-1995) etcetera. organized. Maki had also joined the meeting of Team X, and was influenced by their ideas, which new generation architect had focused on inter-relationship among elements such as association, web, in-between and so on [17].

3.2 "Group form" in Maki -linkage

In his book "Collective form - Three paradigm", he had named "Group form" which he had considered ideal of collective form. Maki posited that typical collective form is Compositional form or Mega-Structure (form), but he insisted on the Group form which has supported historical



Fig -4: Three types of corrective form; from left to right, Compositional form, Mega Structure and Group form (Source:Reference 15)

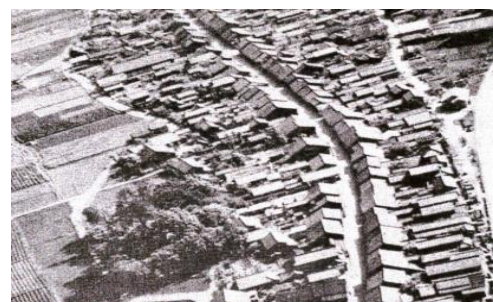


Fig -5: Liner village type in Japan which Architect Maki has Focused (Source:Reference 15)

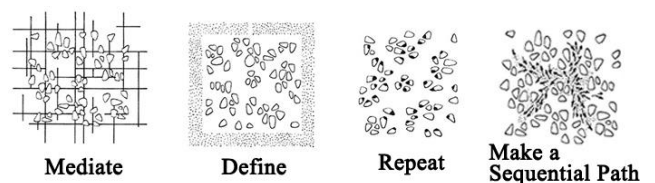


Fig -6: Four types of the linkages illustrated by Architect Fumihiko Maki (Source:Reference 15)

settlements as a distinguish approach of collective form (Fig. 4). Historical settlements are well-organized by a variety of “linkage” (Fig. 5). Furthermore, its linkage must revitalize various activities of residences on the settlements.

According to his latest words [2], the linkages which he has discussed and found out in historic settlements are 4 types; 1) To mediate 2) To define 3) To repeat 4) To make a sequential path (Fig. 6). By the single approach or multiple approaches, linkage types would produce inter-relationship among elements. Moreover, it could be mainly connected to visual/tangible things as well as intangible things of spiritual, cultural, social and historical concern. Then, by the linkage the collective group would get a unity and totality of community. This is, thus, Group form in his definition.

The importance of linkage is basically about relationship among the spaces or buildings and surroundings. In case of Hillside Terrace Apartments, it appears in-between spaces such as pathway, plaza, or public/semi-public spaces in spite of outside or inside spaces.

3.3 Analyzing the configuration of Hillside Terrace

3.3.1 First phase

In the first phase, the plan started to remove the surrounding wall segregating between inside and outside of the site. Then he established two blocks of apartments (Fig. 2). In fact, even though at first, landlord allowed to architect only for a single apartment, architect appealed to landlord to develop two buildings in order to generate relationship between two buildings.

Focusing on relationship between inside and outside of shops through glazed shops, passenger would see a variety of things, for example, activities of inside and outside pathway through glazing, further scene behind apartments. Here it is the urbanity. In case of establishment of apartments, various movements could not come across without idea of linkage by segregating the walled space. Inside and outside one can visually connect as multi-layered of different activity scenes.

In addition to this, it was critical for the architect to persuade government to use the whole site in spite of developing only two buildings on the left corner of the site without subdividing the site (Fig. 2), so as to establish as a group of apartments on the entire site in future. In result, from next phase onward an access path which is for car, will not be needed on the site whenever architect will develop new building. In this strategy, architect mainly contributes to a pedestrian without a risk of car accident.

3.3.2 Second phase

In the second phase the block C of apartment is constructed. Even though it is only single building, it includes a central court which is opened for passengers due to the entry of shops, facing to the court. That is the way passengers feel free to come to the court. Passengers can come inside the building from pedestrian pathway along National Highway then through the court access to the next building as well as go back again (Fig. 7). The point is that shop facing the court is no longer on the backside by well-organized pathway.

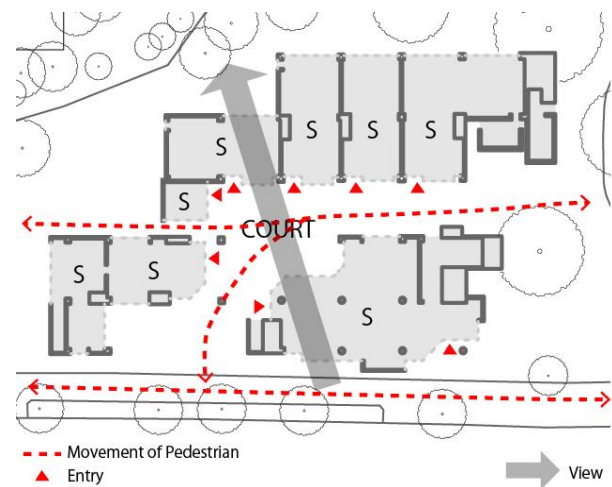


Fig -7: Movement of Pedestrian and view from the roadside of National highway on Block C in the second phase (source: Author)

3.3.3 Third phase

In the third phase, apartment block D & E were developed on larger site in comparison to early times. A mound existing since the 7th century has remained between these buildings (Fig. 8). Similar, with the first and second phase, the pathway was installed as whosoever visit to the site freely from National Highway to access shops facing the center courtyard. In addition, its pathway has connected to the pathway which was established in the previous phase.

The mound existing on this site generates a historical linkage to this site. The view of a passenger/resident/visitor goes through the glazing buildings to inside plaza with the mound, and further the garden behind the buildings. In the way, there are varieties of the linkage which architect has provided.

Buildings in third phase are approximately 10m high, so that this collective housing, Hillside Terrace Apartments, represent a sense of oneness and unity.

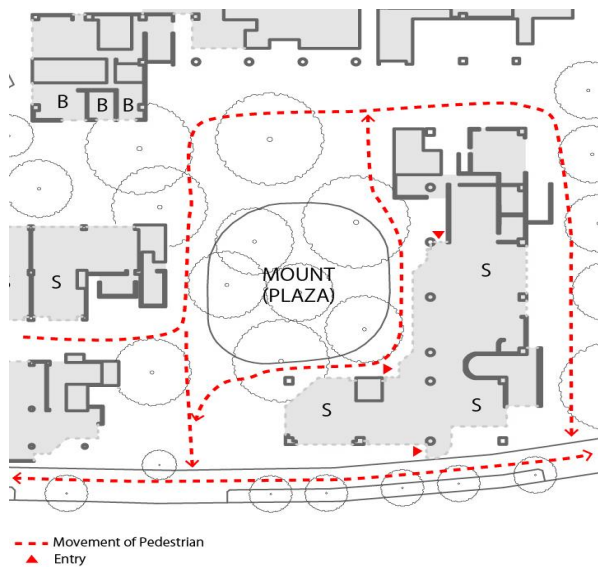


Fig -8: Movement of Pedestrian on Block D & E in the third phase (source: Author)

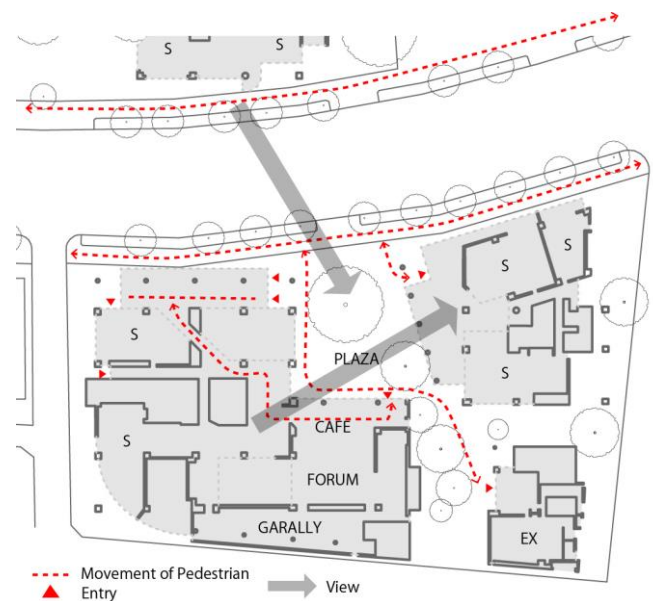


Fig -9: Movement of Pedestrian and, view from the roadside of National high way and from Block F to G on Block F,G and H in the six phase (source author)

3.3.4 Fourth & Fifth phase

Hillside Annex and Hillside Plaza designed by Architect Motokura Makoto, the pupil of architect Maki, was planned and constructed on the site. Hillside Annex was built on the corner of the site. In contrast, although Hillside Plaza was placed on the center of the site, in order not to spoil the scene of the streetscape and linkage from pedestrian pathway along the Highway, placed on the basement. Then, the plan of Hillside Terrace Apartment on this site was completed in this phase.

3.3.5 Sixth phase

Apartment block F, G & H were situated on the another site which is across the Highway from the site. Even if Block F & G are 14m in height, over 10m, in comparison to the phase before, scale of these apartments do not change visually.

Similarly with first and third phase, more than one building, three buildings, were planned. Between these buildings a pathway was installed and was visually connected from another site. Block F, G & H comprise not only of shops but also of a gallery et cetera. as leisure space so that a variety of visitors visit the plaza. In addition, each building includes large public space inside, activities on the pathway or plaza pull inside the building (Fig. 9). As seen from figure 8, by setting varieties of boundary ingeniously passenger/visitors/ residents could see various activities of them through the glass of buildings consistently, that is to say, it realizes the urbanity. Connecting various activities by the linkage based on the architect idea, Hillside Terrace Apartments would become the Group form with a sense of oneness.

4. PARTICIPATORY ACTIVITIES THROUGH HILLSIDE TERRACE APARTMENTS – INTANGIBLE ASPECT OF MACHIZUKURI

4.1 Diversity of function/use

As mentioned formerly, this site has restricted height and is used as a residential area so that facilities of hall and exhibition could not be allowed to develop there. At that time he had shown and negotiated the overall plan of this site with government, then government could permit as a part of apartments complex including public facilities.

Table 1 shows the use of respective apartments. Apartments are located above the first floor and shops and restaurants are located on the ground floor and basement. Later, community spaces such as community hall and exhibition space is added. Moreover, these apartments realized a mixed use of living and work place because apartments were used as office cum housing. According to Kawamukai, “by involving working place next to living space, residential space naturally opens toward outside/town in general.....Then, it would trigger to establish urbanscape which contains various activities of residents” [18].

Furthermore, all apartments are rental so that landlord is able to control how tenants use their room. In word of the landlord, “the potential of the land would reduce suddenly when the land is subdivided into small parts”. In contrast, responsibility of landlord increases more.

Table -1: Usage of respective floor on Hill Side Terrace Apartments (source: Author)

Phase	1		2		3		4		5	6		
Year	1969		1973		1977		1985		1987	1992		
Block	A	B	C	D	E	Annex A	Annex B	Plaza	F	G	H	
f l o o r	4th								apartments (2)			
	3rd								apartments (2)	apartment (1)		
	2nd	apartment (1)	maisonnette	apartments (3)	apartments (4)	apartments (3)	artrier (1)	gallery (1)	apartments (4)	apartments (3)	apartment (1)	
	1st	apartment (1)	apartments (4)	apartments (3)	apartments (4)	apartments (4)	artrier (1)	gallery (1)	apartments (4)	shop (3)	apartment (1)	
	ground	shop (3)	shop (1)	shop (8)	shop (3)	apartments (3)	parking	parking	parking	gallery (1)		
										shop (2)	shop (3)	exhibition (1)
										café (1)		
basement	shop (3)	restaunt (1)	restaurant (1)	shop (2)	apartments (5)	office (4)		gallery (1)	shop (2)	restaurant (1)		
2nd basement	restaunt (1)			restaurant (2)		meeting room (1)						
									hall (1)			

Number in the bracket shows the number of room

4.2 Diversity of person, relation

To begin with, it was crucial to build relationship between Architect and Landlord. Fortunately, it is a meaningful situation that the architect can develop this area/ apartments for over 30 years based on consistent idea as a community architect, supporting for good relationship. Furthermore, landlord who well understands the valuable idea has lived in this place so that the living environment remained without money making only.

Landlord has selected a tenant who understands the idea and is fond of this area, so these apartments could be controlled. For example, all of restaurants, even if one is placed in the basement, principally cannot set any signboard on the external wall as well as place it outside this area. Moreover, glazed shops have not allowed shopkeepers to block a view of pedestrians or visitors in order to look at the other side through inside shop based on Architect's idea. There are many restrictions for tenants to remain a consistent in the idea. Shopkeepers, however, have accepted this restriction in spite of the demerit. In contrast, growing in stature of this apartment, shops which are located in this area have been gaining popularities.

As mentioned above, almost housing was used as house cum working space not only for businessmen but also artists, architects and so forth. They have contributed to organize some events and discussion for residents. That is why residents have learnt themselves regarding their own area and are proud of this area, and have been developing social sustainability.

4.3 Sustained activities, events

Although attraction of architecture pull various people, at Hillside Terrace Apartments this living environment must remain with landlord, architect, residents and so forth who have made effort for improving constantly. Table 2 is a list of events and activities of residents which have occurred before. To increase community sustainability which architect Maki insisted to consider and improve own living environment around them, accordingly, residents are proud of it. That is to say, special attachment of own living

environment causes a new image of sustainable community.

5. THE PRACTICE OF MACHIZUKURI IN SMALL TOWN, OBUSE

At last, Author can share the activities of Machizukuri which he has experienced jointly on Obuse town, which is situated about 300km far away from metropolis Tokyo.

Table -2: The events organized by relevant people of Hillside Terrace Apartments (source: Author)

Year	Events
1971	Establishment of Tenant Friendship Union
1974	Establishment of Artier Hillside
1975	Changing the name from Tenant friendship Union to Tenant Union
1982	Friendship Bazar on Daikanyama (1st - 7th) SD review
1975	Dissolution of Tenant Union
1988	Salon concert in Hillside Plaza
1990	Resuming Tenant Friendship Union
1997	Art fair on Daikanyama
1999	1st Art Instalation on Daikanyama
2000	Urban Village Plan on Daikanyama
2001	2nd Art Instalation on Daikanyama Daikanyama Academy Union of remaining a good living environment on Daikanyama area

Obuse town is roughly 4 kilometer square with a population of about 10,000, and well-organized on the central town as well as spread out townscape scenery on the countryside. The development at the central town has been improved with an architect and townspeople as a participatory design before over 30 years. This development has called the first stage of Machizukuri on Obuse. The second stage of Machizukuri on Obuse has started before 12 years to maintain the living environment and to flush with pride to the own town.

5.1 The philosophy of the development of central Obuse town

While discussion with the architect and some residents who has lead the Machizukuri on Obuse at that time, the idea “Outside is for all townspeople, Inside is for only residence” has been established into a participatory design. That idea is to share with townspeople and connect with historical, cultural and social concerns outside of the house even if it is private garden. As you have already known, this idea closely resembles with Architect Maki’s idea and is the motto of Obuse Machizukuri Institute.

5.2 The presence of Obuse Machizukuri Institute

The epoch-making attempt is to create the Obuse Machizukuri Institute with Obuse Town and Tokyo University of Science, which is the first research Institute to have residence in town. The purpose of this attempt is to build up the foundation of the town by the academic approach to improve the living environment accumulated on the first stage. Moreover, it was important to find out more identified valuable things of the own town by the professionals. As a result, townspeople could identify townscape components by the research findings of the Institute for last 12 years.

The activities of the Institute are not only to survey research findings but also to organize exhibition, symposium to discuss and review the improvements of Machizukuri on Obuse. Other remarkable activities show as below;

1. “Next generation Machizukuri Workshop” with local elementary and junior high school students was to identify and be familiar with the components of Obuse scenery. Local children could communicate with local carpenter and university students as a communication with historical, cultural and social concerns (Fig. 10).

2. “Seven University Machizukuri Workshop” was to invite national/international seven architectural Universities which have took a part in Machizukuri on respective place actively, and to suggest townspeople how and what the town should be designed for the future with discussion and design proposal.

3. “Creating Nodes and community pathways” was the project which is to restore the obsolete buildings and community pathway with Obuse Machizukuri Institute and townspeople together (Fig. 11), then to create townspeople’s whereabouts. Consequently, townspeople could restore and identify own resources through this project.

5.3 The self-activities of townspeople

Several activity community groups at Obuse have triggered a series of Machizukuri activities such as “Open Garden,”

“Planting flower campaign,” “Restoring obsolete buildings,” and so on.

For example, there are already over 100 registered private gardens as an Open Garden, which do not only open the elaborated garden for public but also walk through the private garden across the site.

Furthermore, restoring the obsolete building also has attained remarkable achievements. There are many obsolete silkworm houses so that their houses could be restored into a meeting place by students and townspeople (Fig. 12). Thus, several activates have taken place for connection with historical, social, cultural concerns by opening the place and linking one other.



Fig -10: The scene of Next generation Machizukuri Workshop in 2009 (Source: Reference 12)



Fig -11: The scenery of community pathway on Obuse Town (Source: Reference 12)



Fig -12: Meeting place at the Restored Silkworm house with townspeople (Source: Reference 12)

6. CONCLUSIONS

This paper has illustrated what ‘Machizukuri’ is and how ‘Machizukuri’ develops through the definition of Machizukuri, analyzing Hillside Terrace Apartments designed by Fumihiko Maki and reviewing the own practical experience in Obuse.

'Machizukuri' movement has created its own place in over all places of Japan. It is the way to urge activities by residents who have ambition and motivation to improve the living environment around them, in the limited area/place. Thereby, even though to establish the buildings is not always important, it has many cases that residents trigger to improve the living environment. It is the point to re-think, re-evaluate and re-utilize existing resources on the site.

The concept of Architect Maki focuses on the in-between space and its relation rather than respective spaces. Through analyzing, it is found that Hillside Terrace Apartments have been developed on the concept based on the Maki's concept. Public/ Semi-Public spaces are scattered anywhere on the site, then these spaces are connected by leading passenger along the pathway to backside, and are linked to the outside space behind the building through the glazing interior visually. By the various linkages these apartments would generate sense of oneness.

On the intangible aspect, there are social linkages to support living environment of these apartments. For example, it is to involve the housing with the workplace and to organize regular events by residents, to follow the rule to remain in the living environment. The point is to build relationship between landlord and tenant. Moreover, architect and landlord share the idea and a close connection with each other. Through this process, residents at this site feel attached and confident and increase a sense of community sustainability.

At last, Author shared the own practice of Machizukuri on small town Obuse, where it is totally different situation as metropolis Tokyo. This Machizukuri movement is not going on only in the metropolis, but also various towns in all over Japan, and is being watched with more interested.

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