Participatory and Ecological Design of Medaka Spring Park

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Abstract

In Japan, professionals from various fields such as landscape architecture have addressed issues of eco-friendly infrastructure construction in recent decades. But there are still few case studies on the issues by practical approach of the design work. Randolph T. Hester points out that ecological democracy will produce radically new forms of habitation; stressing the direct involvement of citizens in local decision making, future habitation will be designed at the grassroots level through direct face-to-face participatory actions.

This paper describes the results achieved by a participatory park improvement project for the ecological relocation of an endangered fish species in the case of Medaka Spring Park in Japan. It discusses the processes and outcomes of the project by collaboration with elementary school students and residents, and bears out the effectiveness of the park design project based on the ecological democracy.

The project area is located in the Chinu district within Tsukumi City. The district carried out a land redevelopment project starting in 1995; a stream where the Medaka lived was filled in as a road. The students and Tsukumi City Hall workers moved the Medaka to an orange grove belonging to one of the Chinu area residents. The students also made a small pool for the Medaka in their schoolyard. The Tsukumi City mayor promised to create a public space for the Medaka. Tsukumi City got a subsidy for town development in 2006. The project to create a park where the Medaka could live was planned.

The workshops' participants were the students, residents, Tsukumi City Hall workers and the staff of my laboratory, the Landscape Architecture and Community Design Laboratory at Fukuoka University. First, we discussed not only the existing conditions of the project area but the issues and history in the whole Chinu district. Second, we performed a site visit to confirm the needs obtained from workshops. Then, my laboratory designed a proposed plan and made a model to explain the plan. We built a consensus for the final plan with the model. Finally, the students and residents helped lay sod at the park.

The points of the achievement for this project are as follows: 1) A decade-long effort to protect the Medaka by the students and residents resulted in an ecological project creating a park where the Medaka could live. 2) The participatory design process produced an attractive park that has a play pool for children and a new place where people can relax, taking advantage of the surrounding landscape and the spring from the nearby mountains.

1. Introduction

In Japan, professionals from the fields of landscape architecture, urban design and civil engineering have addressed issues of eco-friendly infrastructure construction in recent decades [1, 2]. But there are still

few case studies on the issues by practical approach of the design work. Randolph T. Hester points out that we have designed cities which do not take advantage of natural factors, and then cities that are inspired by their regional characteristics could provide recreational amenities, local identity, and sense of place [3]. As an example, he mentions that residents were denied access to wildlife along the stream by the underground culvert of a city flood-control plan which was seen as a modern improvement. He also says that ecological democracy will produce radically new forms of habitation; stressing the direct involvement of citizens in local decision making, future habitation will be designed at the grassroots level through direct face-to-face participatory actions. These actions are said to be holistically informed by local wisdom, attachment to place and networks of interconnectedness and ecological thinking.

This paper describes the results achieved by a participatory park improvement project for the ecological relocation of an endangered fish species in the case of Medaka Spring Park, Tsukumi City, Japan. It discusses the processes and outcomes of the project by collaboration with elementary school students and residents, and bears out the effectiveness of the park design project based on the ecological democracy.

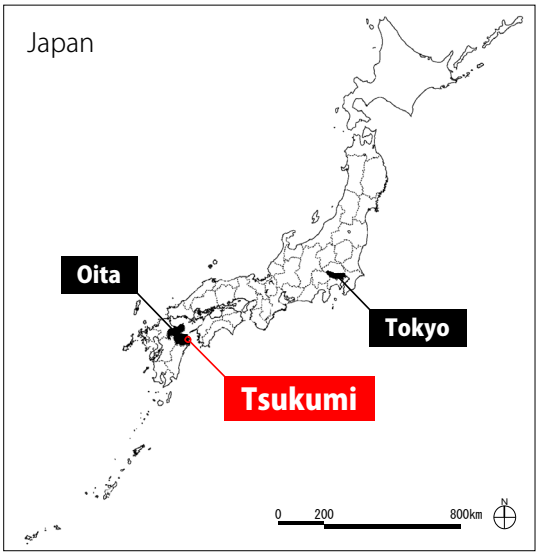

Fig.1 Tsukumi city location

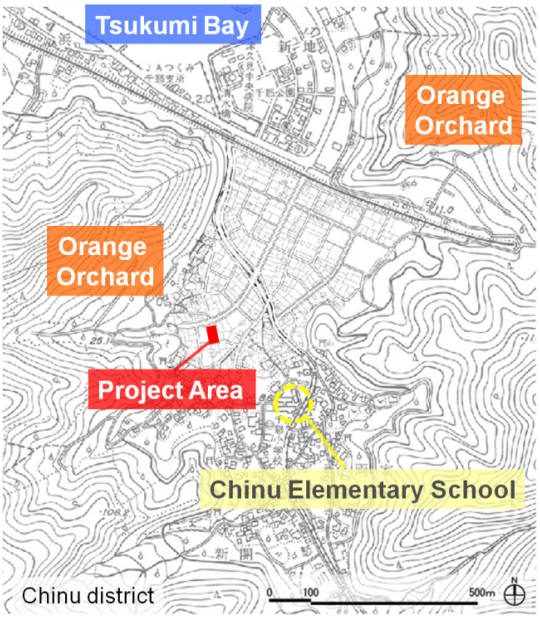

Fig.2 Chinu district location


Fig.3 Before and after the land redevelopment project

2. Background of the Project

Tsukumi City in Ooita Prefecture is surrounded by a bay and mountains (Figure 1). The city has a wet, temperate climate, and natural disaster frequency from like an earthquakes, typhoons and floods is low. The city is well known as a production center of cement and oranges. The project area is located in Chinu district. There's a view of an orchard on the mountains from this area because the area is surrounded on three sides by green mountains. One characteristic is that there is spring water from these mountains. As mentioned above, Chinu Elementary School is located near this area (Figure 2).

Chinu district carried out a land redevelopment project starting in 1995. In doing so, the stream where the Medaka fish (designated in February 1999 as an endangered species on the Red List of the Ministry of the Environment) lived was filled in as a street and bike path (Figure 3). Chinu Elementary School students launched a movement

to protect the Medaka. The mayor promised to create a space for the Medaka for the students in 1999. Then, Tsukumi City got a subsidy for town development from the Ministry of Land, Infrastructure and Transport in 2006. Using the subsidy, the project to create a park where the Medaka could live was planned. The participatory design project for the park shifted into high gear in 2009. My laboratory, the Landscape Architecture and Community Design Laboratory, collaborated with citizens and students in multiple workshops. Medaka Spring Park was finally completed in March, 2010.

3. A Decade-long Effort to Protect the Medaka

Students asked Tsukumi City Hall workers about the land redevelopment project of Chinu area in 1999. Students and Tsukumi City Hall workers moved the Medaka to an orange grove belonging to one of the Chinu area residents (Figure 4, 5). They also released some of the Medaka into a pool in the Chinu area woods in 2001 (Figure 6, 7). Students made a small pool for the Medaka in their schoolyard themselves in 2002 (Figure 8). They improved and increased the size of the pool themselves (Figure 9, 10). These steady activities by the students and residents have increased the spaces in which the Medaka can live.


Fig.4, 5 Moving of Medaka


Fig.6,7 Students released some of the Medaka into a pool in the Chinu area woods

Fig.8 Students made a small pool for the Medaka in their schoolyard themselves

Fig.9 Building the small pool for Medaka

Fig.10 Small pool

4. The Participatory Design Process

We implemented four field surveys and six workshops with elementary school students and residents. In the first survey, we looked at existing and geographical conditions (Figure 11, 12). Firstly, we saw that there was a view of an orange orchard on the mountains from this area as landscape resource (Figure 13). Second, there was a community center close to the area, but the wall is unsightly and drab (Figure 14). Third, there was a utility pole obstructing the view of the mountains (Figure 15). Finally, we visited a pool in the Chinu area woods, and acquired local knowledge about the Medaka's habitats such as river-bed form

Fig.11 Panoramic view of the area

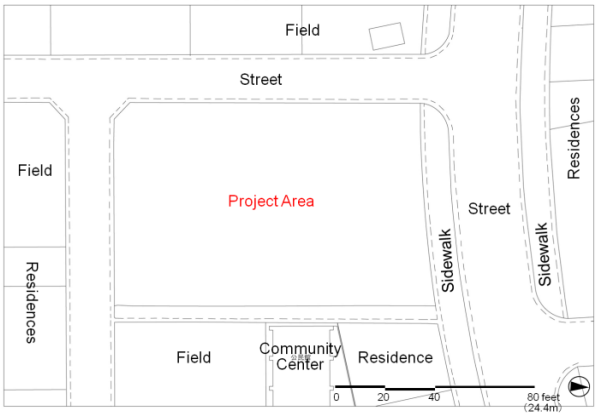

Fig.12 Existing condition

Fig.13 View from the area to the mountain

Fig.14 Community center

Fig.15 Utility pole

Fig.16 We acquired local knowledge

and suitable waterweed from the residents (Figure 16).

The participants of the first workshop, called “Let’s grasp the current situations and the history of the surrounding project area”, were residents, Tsukumi City Hall workers and my lab staff including students. Providing guidance, the designer (First Author) wanted the residents to understand the importance of a sense of place, landscape, history, and environmental issues in the project. The residents learned from a specialist’s knowledge such as required works and the cost problems in the park design process. Also, the residents understood the existing conditions and issues in the whole Chinu district. The designer listened

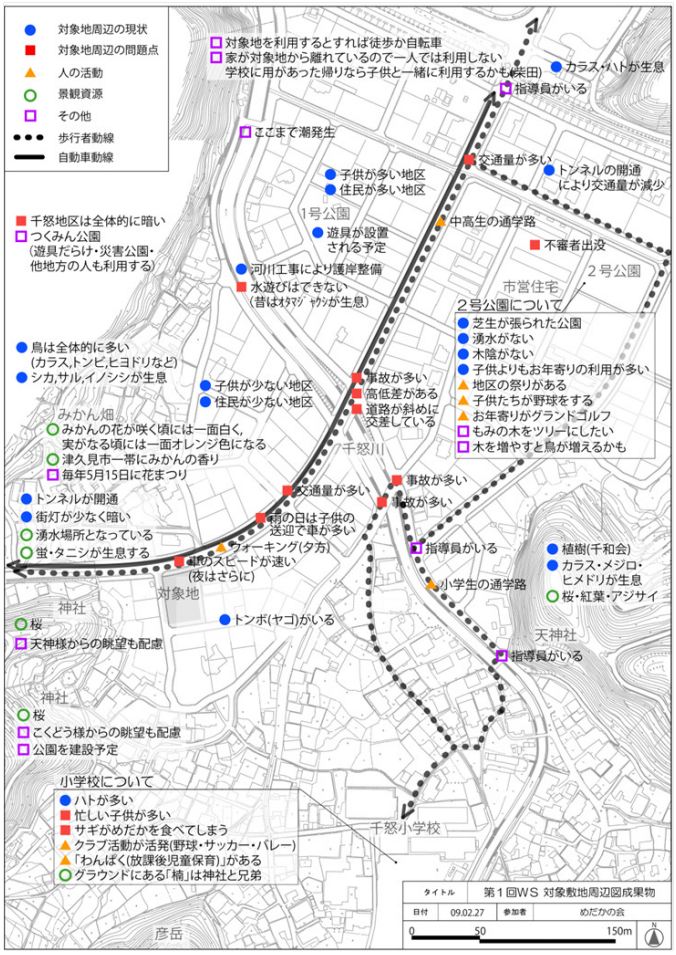

Fig.17 The maps of existing conditions of Chinu district

Fig.18 The second workshop, called “Let’s Try to Design the Park”

Fig.19 The third workshop, called “Let’s Try to Know the Needs for the Park Design with a Site Visit”

to the residents’ requests for the project area. We mapped the current situations of Chinu district from residents’ and students’ information. These maps turned special places into a pattern that previously was experienced but not grasped (Figure 17).

The participants of the second workshop, called “Let’s Try to Design the Park”, were Chinu Elmentary School students (52 students in fifth and sixth grade), residents, Tsukumi City Hall workers and my lab staff including students (The participants from 2nd to 4th workshops were the same). Again, the designer wanted students to know the importance of a sense of place, landscape, history, and environmental issues in the project. The students learned from a specialist’s knowledge and then told about activities in the whole Chinu district (Figure 18). The designer understood the community’s needs and the potential activities for students in the project.

The third workshop was called “Let’s Try to Know the Needs for the Park Design with a Site Visit”. Firstly, the students and residents reconfirmed the needs from the second workshop with a site visit (Figure 19). They paused to determine the needs for the park from the site visit and got more ideas for the design. The students worked in groups to discuss their ideas. Each group presented their ideas to the whole workshop.

As a result, my laboratory made the model of the design proposal, and then the fourth workshop, called “Let’s Build a Consensus for the Final Plan with the Model”, was implemented. The designer explained his proposed plan for the project’s needs discussed in the workshop (Figure 20).

Fig.20 The fourth workshop, called “Let’s Build a Consensus for the Final Plan with the Model”

Fig.21 The students flagged the parts they liked and those they had concerns about

In groups, the students reviewed the model and drawing of the project, and then the students flagged the parts they liked and those they had concerns about (Figure 21). The students and designer discussed additional ideas for the final plan, and they agreed on a consensus for the plan.

Then, Tsukumi City Hall workers and my lab staff had meetings about making detailed technical drawings of the plan. They also confirmed the construction documents, and the estimate of the cost.

5. The points of the Final Plan

The Medaka Spring Park contains trees, a stream, a gently sloping hill and shallow pool, a roofed deck, concrete benches, and a water faucet with a sundial (Figure 22).

a) Trees

Three of the trees are cherry, whose blossoms embody spring. In contrast, the orange orchard is colorful in the autumn. Residents can enjoy the various landscapes from season to season. Tree alignment is designed to give shade for the Medaka to breed and for people to have a shady resting space (Figure 23). The trees’ alignment aims to make an impressive perspective of the open space with a view of the orange orchard in the background, and it delimits the center and focuses the view, first inward, and then down the axis to the orchard.

b) The stream

A headspring was installed in the hilltop by underground conduit from the surrounding mountains. The winding form of the stream was designed from the original terrain slope. A small pond contains water grasses and is shaded by trees to allow Medaka to breed (Figure 24). The spring passes out of the park into the Chinu River using a storm sewer.

c) Sloping hill and shallow pool

The gently sloping hill provides an area for children’s activity (Figure 25). The hilltop is a vantage point from beneath the shade of a tree. The headspring of the stream for the Medaka was placed into the hilltop. A spring water gate opens, allowing the water to fill the shallow wading pool, cascading down the gentle incline. We actually have grasped existing conditions that there is not a place to play with water in Chinu district, and have received the requests for such place from residents and students. The depth of the shallow pool is 4 inches (10 cm) so young children can splash about there. A bench installed beside the

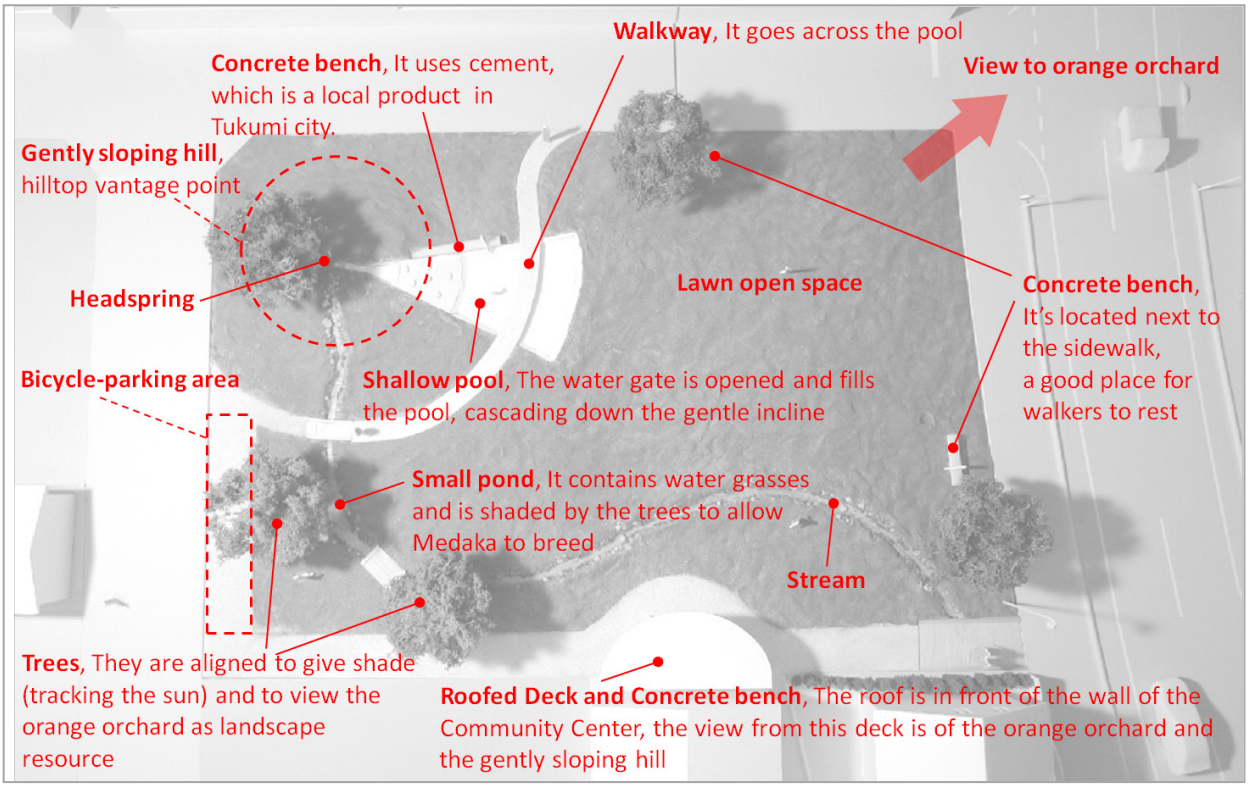

Fig.22 Site plan

Fig.23 Tree alignment: model

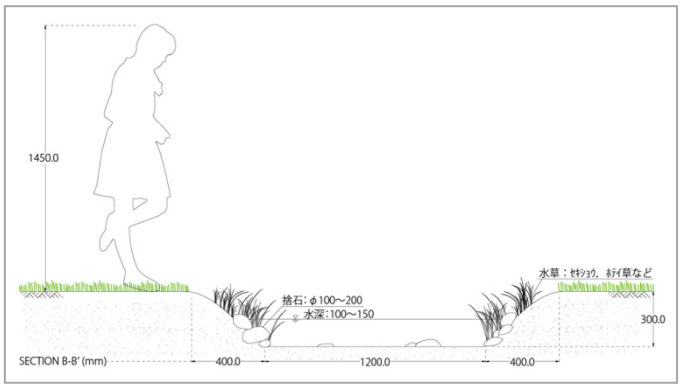

Fig.24 Small pond: section

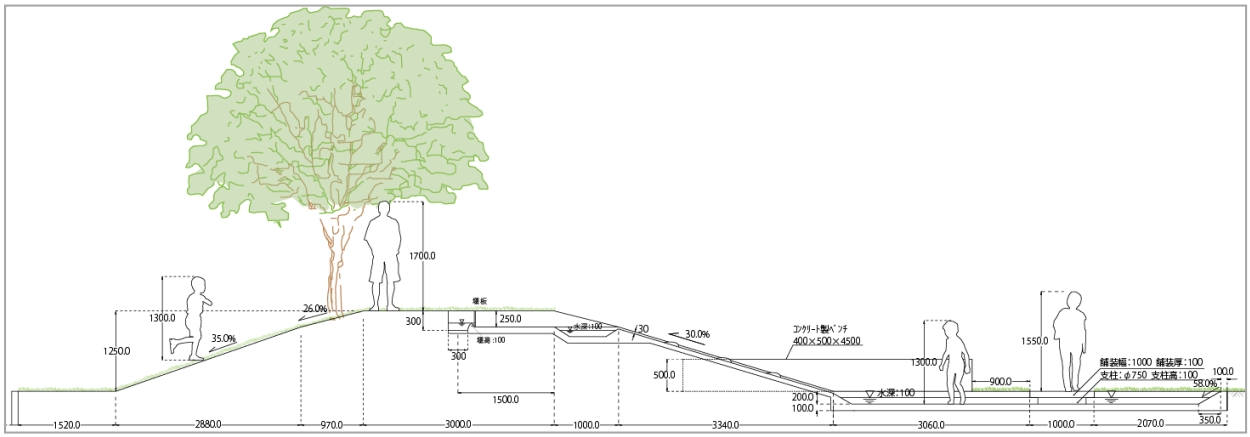

Fig.25 Sloping hill and shallow pool: section

pool allows parents to rest while watching their children play. The walkway across the pool aims to look as if it is floating on the water when the pool is full. The pool water goes under the walkway and empties into a nearby storm drain.

d) The roofed deck and concrete benches

The roof is in front of the wall of the Community Center; the view from this deck is of the orange orchard and the gently sloping hill. The roof is set to the height of the community center's roof and the outdoor lights so that the deck and the center get a sense of unity. The deck and concrete bench use cement, which is a local product in Tukumi City. With the view from the deck, the designer tried to get a visual interrelationship between the park and the shrine by pruning the surrounding bushes. The place is expected to promote a sense of community and facilitate connections between neighbors. The utility pole which disrupted the scenic view of the surroundings from this park, it was moved to outside of the park with the backing of students' opinions.

e) The water faucet with the sundial

The water faucet with the sundial was installed near the eastside walkway taking into account the flow of people and the shadowless position in consideration of students' requests in the forth workshop and adjustment of the budget. The sundial is set at a height to be viewed comfortably by the students. A waste pan is made by assorted stones.

In addition, the sign for Medaka Spring Park is the same design as nearby parks. The nearby parks are Regional Garden Park, designed by my laboratory during much of the same period, and Community Green Park. Medaka Spring Park is designed so that there are no functional overlaps between these parks.

6. Cooperative Activity in Construction Phase

In the fifth workshop, called "Let's Participate in Construction", the students and residents helped lay sod at the park (Figure 26). The sodding work was done by all the students of Chinu Elementary School. The final workshop called, "Celebration for Completion of the Medaka Spring Park", was held after the project was completed for everybody involved (Figure 27). The participants included the mayor and the people who began the movement to protect the Medaka ten years ago. The grown children said "We are very appreciative that the students and residents have kept up the activities to protect the Medaka," "It's a dream come true," and" We're so glad that people-to-people links have come to fruition as a form" (Figure 28, 29, 30, 31, 32). The participants released the Medaka protected in other places. This project appeared in the newspapers, the celebration was closely watched by the local media and reporters from all local television stations.

Fig.26 The fifth workshop, called "Let's Participate in Construction"

Fig.27 The final workshop called, "Celebration for Completion of the Medaka Spring Park"

Fig.28 Sloping hill and shallow pool

Fig.29 Shallow pool

Fig.30 Medaka Spring Park: perspective

Fig.31 Stream and small pond

Fig.32 View from the park to the orange orchard

7. Achievement for This Project

The points of the achievement for this project are as follows: 1) A decade-long effort to protect the Medaka by the students and residents resulted in an ecological project creating a park where the Medaka can live. 2) The participatory design process produced an attractive park that has a play pool for children and a new place where people can relax, taking advantage of the surrounding landscape and the spring

from the nearby mountains.

Based on these achievements, this park project produced an opportunity of ecological education for children and residents in the surrounding living environment, and attachment to the place through communication across the generations for Madaka protection efforts. In general, administrative organization tends to carry out public works projects in legal, efficient and economic framework. The participation of academic organization has a huge potential for expanding on an idea for the project. Despite many parks are surrounded by safety fences in Japan, Medaka Spring Park design project achieved the landscape architecture without the fences. But there are still few cases of creative interaction between local community and university stuff including students. It is suggested that university specialists such as landscape architect and community designer should address regional collaboration with residents more.

Randolph T. Hester says that Ecological democracy can change the form that our cities take creating a new urban ecology. In turn, the form of our cities, from the shape of regional watersheds to a bench at a post office, can help build ecological democracy[3]. The future challenge is to make and encourage further ecological democracy through community interaction at the Medaka Spring Park.

References

[1] Ushio Saito, Masato Dohi, Hisashi Shibata, Naoto Tanaka, Kenji Ueshima, Tamesuke Nagahashi (2004) Environmental and Urban Design, Gakugei publishing company.

[2] Yukihiro SHIMATANI (2009) Procedure of Research on Ecological Engineering Assessment in the Taihu Lake Watershed, The 1st International Symposium in Aquatic Environment and Biodiversity Conservation in the Lake Taihu Basin.

[3] Randolph T. Hester (2006) Design for Ecological Democracy, Cambridge: MA, MIT Press