

Phase Change: Waning Fishing Villages on the Northeast Coast of Japan

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Program Authorized to Offer Degree:
the Department of Architecture
in the College of Built Environments

University of Washington

Abstract

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Chair of the Advisory Committee:
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This thesis investigates the rhythms of a particular place, and creates an architecture based on this analysis. The Tohoku Tsunami stripped the shores of northeastern Japan, mixing landscape with artifact everywhere from 0 to 25 feet above sea level. Afterwards, rural depopulation has accelerated, and the lack of successors in heritage industries has become a national issue. Along the coast, however, fishermen returned to work almost immediately after the tsunami. Returning to a rhythm – cleaning up, raising oysters, and sharing food and firelight – functioned as a kind of therapy. This thesis argues that institutions of social capital generate the spatio-temporal rhythms of a place. How can architecture articulate and direct the rhythms that bind a place together? What is the role of architecture where there will be no heroic future?

The proposal begins by converting a salinated rice paddy to a field of flowers. The subsequent moves take place upstream and downstream of this field, combining existing and intervening elements along a path from sea to mountain, in juxtaposition to more heavily used routes between sea and road. These elements include a shrine, a bathhouse, a convenience store, a field of flowers, a smokehouse, and a fishing cooperative. The result draws relationships between inside and outside, cycles of short and long duration, and especially relationships between newness and age into tension. From solid footing, the resulting assemblage expands and contracts in time to a variety of rhythms.



Tsunami marks a cemetery on the Oshika Peninsula, Japan

Acknowledgements

From Oct 2010 to March 2012 I lived in Japan to research the relationship of public bathhouses to social capital, hosted by Kobe University. I am very grateful to have received a fellowship facilitated by the University of Washington and funded by the Japanese Government (Monbusho).

During my time studying in Japan, the March 11 Great Northeastern Japan Earthquake and Tsunami occurred, although I was quite far from the epicenter. I had the opportunity to volunteer several times. At first we cleaned mud and debris, then later we built small structures according to what was needed on site. I helped to build a bathhouse and a seaweed processing warehouse. I visited the site several times over the year following the event, in May, June, and then via bicycle in late February, for a net time of two or three weeks. During this time I connected most deeply with Japanese rural people. As a volunteer with the International Disaster Recovery Organization led by Robert Mangold, I was welcomed into the home of Mr. and Mrs. Sasaki, who fed and bathed us and gave us shelter. Their grace helped me to perceive the true scale and effect of this natural disaster.

In addition, my advisor at Kobe University, Dr. Yoshiharu Shiozaki is an expert on post disaster urban planning, and I benefited greatly from his insight and quick wit. My mentor at Kobe University was UW alumni and former Kobe scholar Dr. Liz Maly, a student of Shiozaki sensei for many years. She provided much needed friendship and counsel during my entire trip. As an intern at Atelier Bow Wow during the last five months of my stay, the principals Tsukamoto san and Kaijima san allowed me to listen in on meetings of their academic network for recovery, Archi Aid. After visiting the site, thinking about its conditions for reconstruction became the topic of my thesis.

I am deeply grateful to my advisors at the University of Washington. Rob, Jennifer and Ken have been steadfast mentors during my entire tenure in graduate school, and especially during the development of this thesis. They have each offered unique guidance and encouragement, and I am indebted to them.

Finally, the generosity and support of my family is beyond measure or limit.

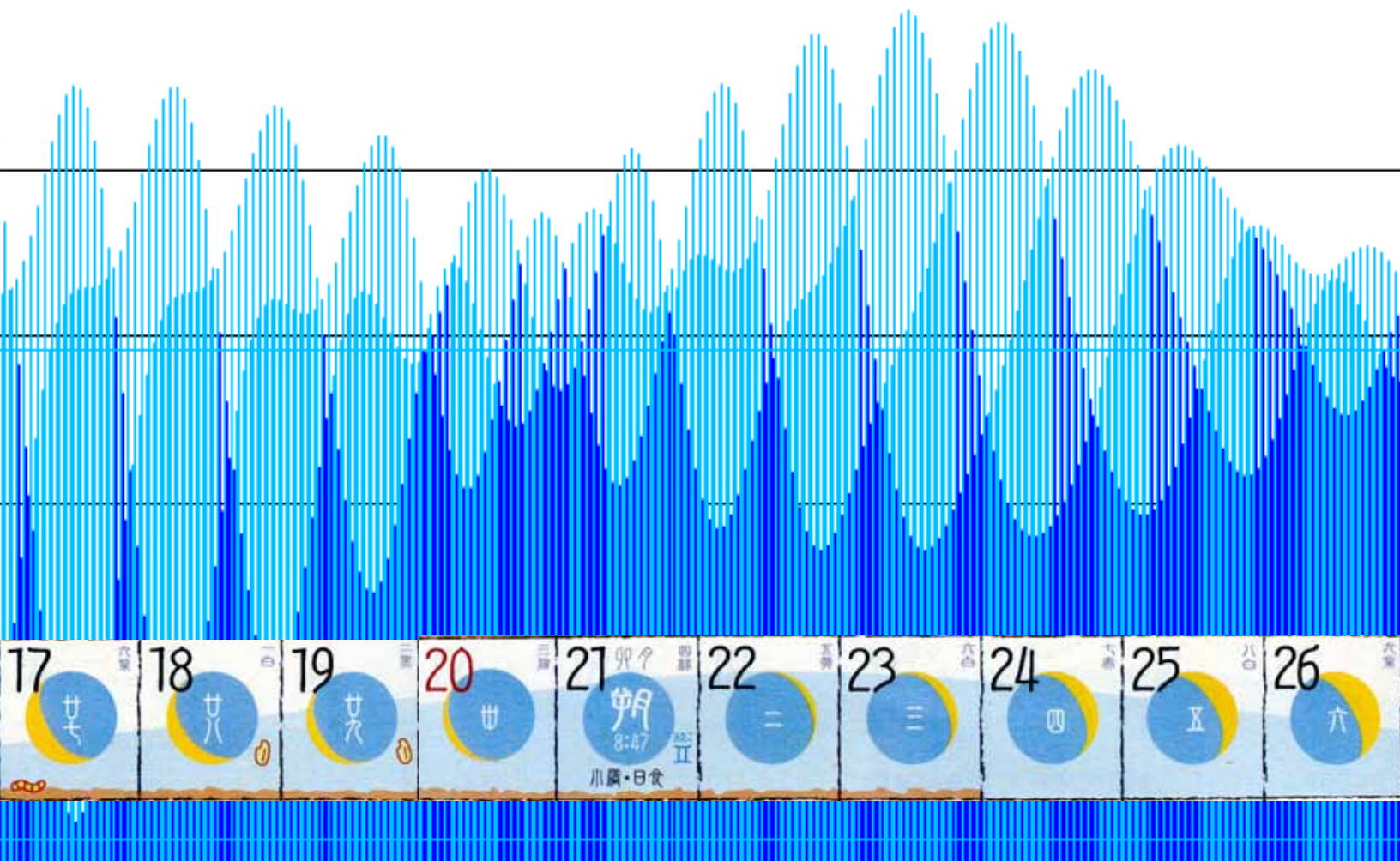
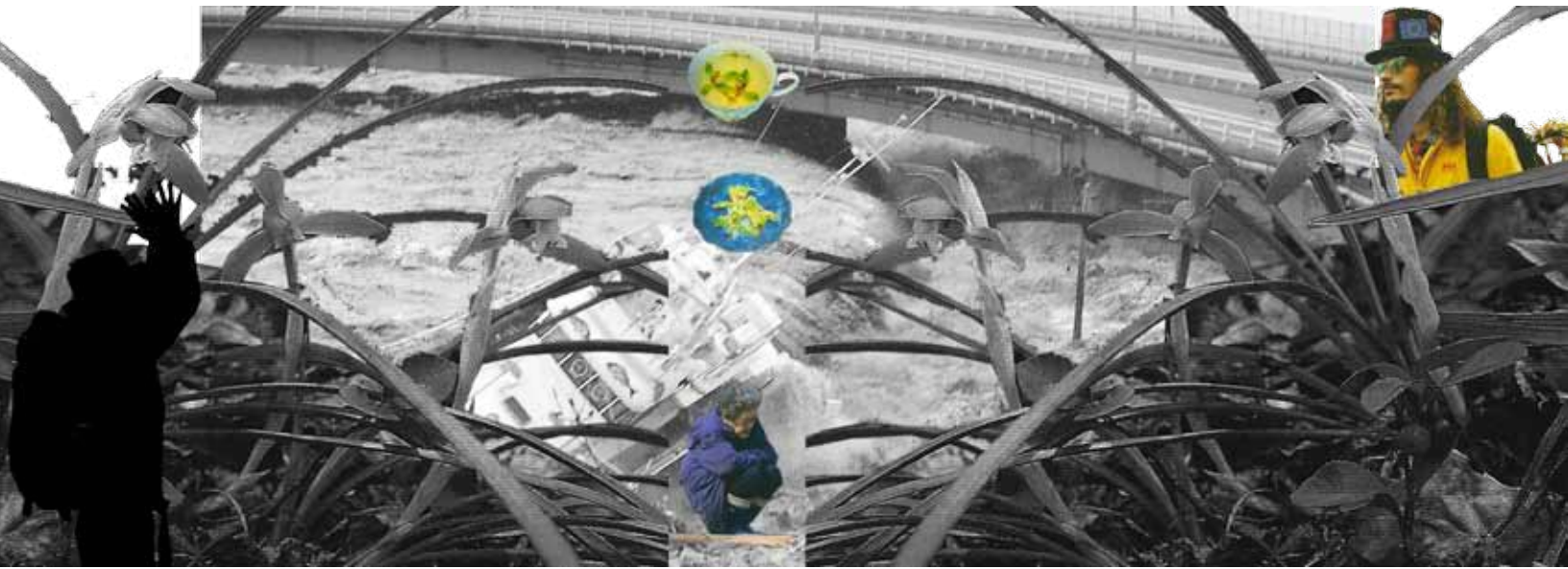


Figure 1. Two year Onagawa tide chart and 2012 tidal calendar produced to raise money for tsunami survivors

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Collage to empathize with tsunami survivors

“Japanese architecture and urbanism, in the tradition of ‘ritual’ building and rebuilding, constitute a culture of making-and-remaking rather than of making-and-holding; what is preserved is thus the way of acting, the ritual of doing.” Botand Bognar

ELEPHANT CAR WASH, SEATTLE CENTER

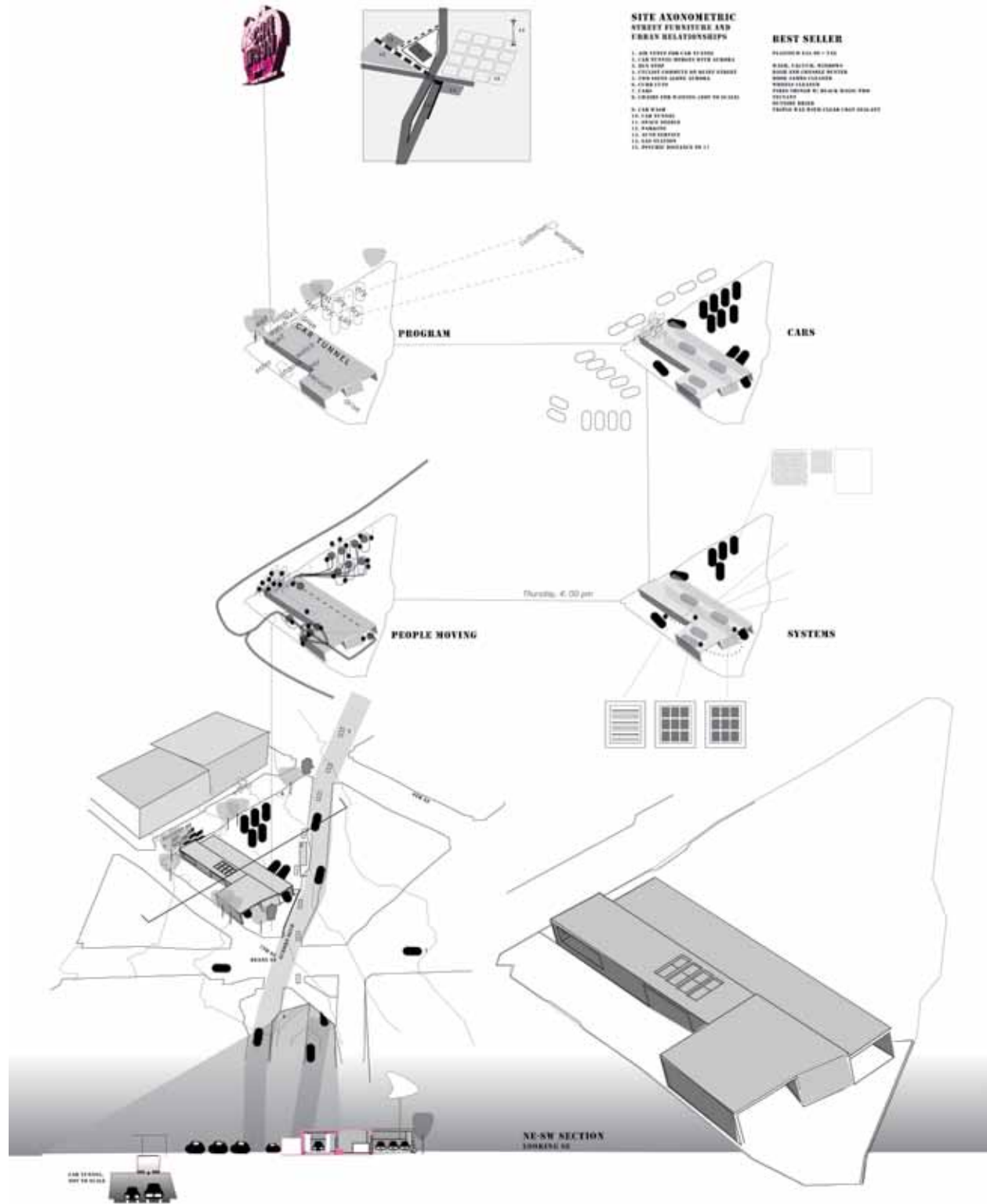


Diagram to understand the relationship between water infrastructure and spatial practice at the Elephant Car Wash, Seattle, WA

1. Introduction, Summary of research and findings

The goal of this writing is to lay down a path into the future. The first attempt I made at writing this thesis was in Spring 2010, before I left for Japan on an 18 month travel study program.

Plumbing my interests, I found them to be diverse and without unity or cohesion. I felt confused and frustrated by my lack of vision. Looking back on it, I would frame the inquiry with the following questions:

What is public space? Is public space a resource, in and of itself? Or is it a parasitic condition on pure necessity?

Up until modern sanitation and water purveyance infrastructure antiquated it, a defining purpose of public space in an urban environment was the availability of fresh water. With this mammalian concern solidly in the spotlight, secondary and peripheral activities became possible. Play, excess, community, territoriality, social rules and norms, exhibition/observation, the human connection to the physical environment and cosmos mediated by infrastructure/artifice/machine, gendered space, and belonging/conformity/subversion were the dominant themes that emerged from research on typologies of water infrastructure and public space throughout the world.

Overwhelmed by the breadth covered by these themes, I elected to narrow the investigation by conducting experiential research on a specific typology. I set out for Japan to study the public bath, or *senzo*. As it turned out, I could justify visiting the bathhouse about once a week for the first several months. I tried a great variety of bathhouses, and reasons for visiting bathhouses, and means of finding bathhouses, to get a sense of the true place of this typology in the wider culture of Japan. Even so, after six months, in the depths of February, I was painfully bored.

Juhani Pallasmaa once gave a lecture at the University of Washington (2008) where I remember he advocated for boredom. In *Eyes of the Skin* he implies that boredom is the only way we can confront our “existential reality.” The Zen Buddhists agree: a Japanese carpenter told our woodworking class that the way to properly sharpen the chisel on the whetting stone

was to occupy what he called the “monkey mind” by counting to ten, over and over, until one reached a consistent, meditative state. Otherwise the chisel would develop tiny ridges and valleys from the irregular pressure. Meditating while working distracts the intellect, which tends to hop between image, idea, memory and word, never coming to rest. That February, I began to meditate every day, and to reflect on the future, constructing reasons and goals to fill the time.

I shuddered out of my reverie on March 11, 2011, when, on a shopping trip with a friend in downtown Kobe, Japan, every television screen went blank and was reprogrammed to show the same channel. My smartphone was suddenly reporting a long list of facebook messages inquiring after my health and safety. My friend, fluent in Japanese, told me that trains all over the country had stopped, and that his father was stuck on one somewhere in a distant prefecture. Confused about the scale of what had just taken place, we went to a department store, to the electronics section, and gathered around the big screen televisions to watch the news with other shoppers with the same idea.

Every screen was showing tsunami warning along the coastline of Japan. There was a brash color coding for the threat intensity. Slowly the information filtered into a message: an offshore earthquake had delivered a tsunami of a magnitude unprecedented in the past century, destroying the coastline nearest to it, on the northeast coast of Japan.

“The ceaseless bombardment of unrelated imagery leads only to a gradual emptying of images of their emotional content. Images are converted into endless commodities manufactured to postpone boredom; humans in turn are commodified, consuming themselves nonchalantly without having the courage or even the possibility of confronting their very existential reality. We are made to live in a fabricated dream world.”¹

While Pallasmaa’s words describe a stereotype of Western urban complacency, watching the screens in the weeks to come, and then seeing firsthand the trauma and recovery in the rural East, they now seem simultaneously true and false. In the following chapter I will elaborate on this statement by describing the context of the design project in more detail.

A few months after that day in March, I had the opportunity to volunteer several times. At first we cleaned mud and debris, then later we built small structures according to what was needed on site. I helped to build a bathhouse and a seaweed processing warehouse. I visited

the site several times over the year following the event, in May, June, and then via bicycle in late February 2012, for a net time of two or three weeks. In addition, my main advisor at Kobe University, Shiozaki sensei, is an expert on post disaster urban planning, and as an intern at Atelier Bow Wow in the fall and winter of 2011-12 the principals Yoshiharu Tsukamoto and Momoyo Kaijima allowed me to listen in on meetings of their academic network for recovery, Archi Aid. The event catalyzed my research to move into action.

Before the tsunami, I learned that for the majority of society occupied by work or school during the day and home life at night, the bathhouse is a memory. But for the elderly, it still has an important function. It gives them a place to go and chat with friends, or whoever is around. Many elderly have lost connection with their busy children, and they suffer from neglect and isolation. At the *senjo*, they still have a place. Additionally, it's physically therapeutic. Many nursing homes bring their clients to the bathhouse once a week, and often hospitals with facilities for elderly care include a bathhouse on site. There is even a mobile service that brings a collapsible bath to the house of elderly clients, allowing the less mobile to continue to enjoy the bath.²

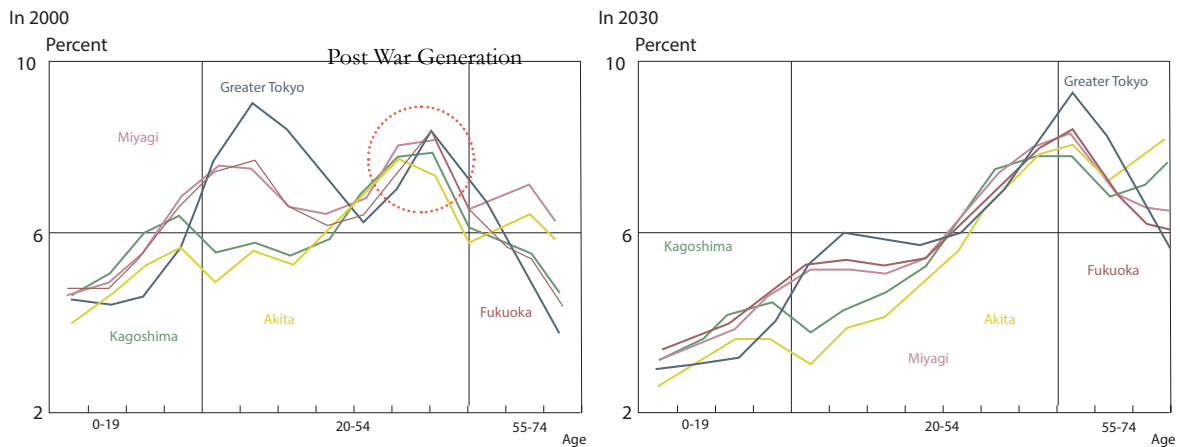


Figure 2. Demographics graphs show Post War baby boomers as a segment of the total contemporary population.

The post war generation spent their lives in the modernization project, and are now aging toward retirement. Saying that the bathhouse is for the elderly might cause us to assume that it is serving a small proportion of the population. Actually, in many prefectures, those past the age of retirement make up a third of the total population. Japan is the oldest nation on Earth.² In these circumstances, the March 11 tsunami brings clear challenges. Under devastation, many rural communities had to abandon their home turf and relocate to larger cities or in consolidations of a few former villages. Propped up by government subsidies and lacking successors, alone, a village cannot rebuild.

In Chapter 3 I will go into more detail about the history and form of the social contract in Japan. Like the basic unit of the Japanese city, the *cho*,⁴ the village is highly interdependent and self-sustaining. Each village has a work group, or *kumi*: made up of around 10 families, they support one another in labor, celebration, and need of all kinds. This ancient mutual-aid society is uniquely resilient to exterior pressures and challenges. Due to the laws of ancient fishing rights, even if the fishing village is destroyed the *kumi* maintains propriety over local waters. In the aftermath of the tsunami many were commuting several hours a day to reach their homesite for the seaweed harvest. Tenacious, the fishing villages may not evaporate: the fishing rights support small-scale fishing and aquaculture, binding small groups of people to the land. The *kumi* system binds individuals into small groups.

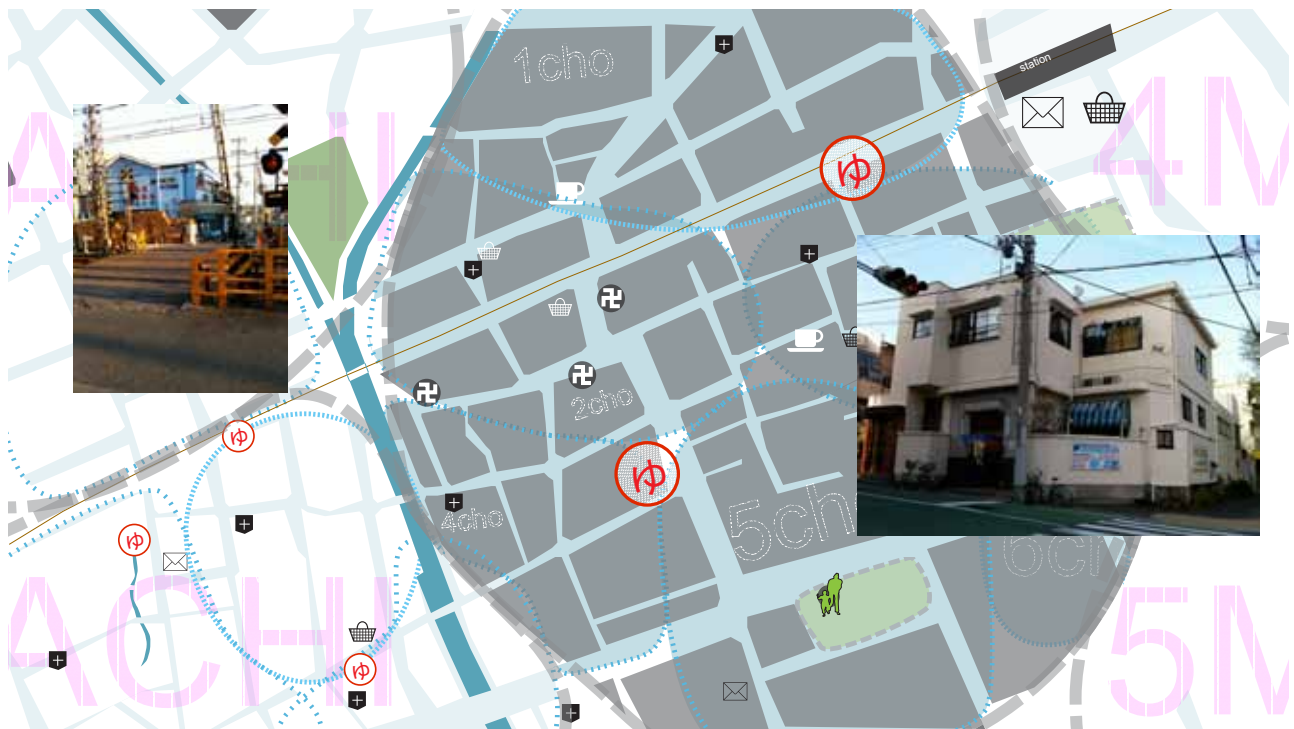
Even though everyone says that *sentos* have passed out of fashion for the mainstream, urban consumer, after this disaster, they had a renaissance. First, the Self-Defense Forces built emergency bath houses for survivors to provide relief from the cold, hygiene from emergency shelter life, and therapy for Post Traumatic Stress Disorder. Communities receiving aid from outside in the form of labor then asked volunteers to build small bathhouses. There are 350 tiny fishing villages dotting the northern coasts of Japan. Each had to try and pull together, and function as a *kumi*. Some small groups of families in recovery built their own bathhouses out of debris. In two cases I saw, fresh water was tapped from a nearby stream and pumped into a cauldron where it was heated, then pumped into the bathhouse. The group using these bathhouses typically relied on the traditional bathing order: oldest man first, youngest woman last.

So while the bathhouse may have lost relevance in broader society, it is still a typology to

which people turn when they need comfort, therapy, and cleanliness.

Why? For hygiene? For community? For a haptic connection to the cosmos? Perhaps simply to ground the terrible day in familiar memory and ritual and comfort: to subdue chaos by staking out a small, safe territory.

This was deeply moving to me, partially because I couldn't imagine something analogous happening in the United States as I have known it. Recognizing this difference caused my research to transition from a preconceived assumption about our human relationship to public space that I was attempting to prove through a typological case study to an observation.



Sento occur on the edges between neighborhood units. In the past, there was one *sento* per *cho* (before indoor plumbing, about 1980). This distribution suggests that each *sento* now serves adjacent *cho*.

Notes

1. Pallasmaa, Juhani. *The Eyes of the Skin*. John Wiley and Sons, 1996
2. Traphagan, John W., "Culture and Long-Term Care: The Bath as Social Service in Japan" *Care Management Journals* Vol 5, No 1 Sp 2004 53-60 Springer Publishing Company 2004
3. Matsutani, Akihiko. *Shrinking Population Economics: Lessons from Japan*. International House of Japan, 2006
4. Korekazu Ueda 1985 cited by Pekkanen, Robert. *Japan's Dual Society: Members Without Advocates*. Stanford University 2006



Figure 3. The fishing villages on the Oshika peninsula bear the unique marks of periodic tsunami: each has a seawall built perpendicular to the dominate current, an access road built to the level of the highest waterline on record (which would have swept away the former road). Careful inspection reveals remnant cedar farms on the hillsides, small agricultural fields, a few hillside shrines, and one or two well constructed concrete structures that doubles as an emergency shelter. From upper left, Tsukinoura/Samuraihama village, Takashirohama village; Takenohama/Maginohama village; and Yokoura village.

2. *Tsunami* means a big wave

Magnitude: 9.0

Time: Friday, March 11, 2011 at 02:46:23 PM at epicenter

Depth: 32 km (19.9 miles) set by location program

Region: NEAR THE EAST COAST OF HONSHU, JAPAN

Distances: 129 km (80 miles) E of Sendai, Honshu, Japan

177 km (109 miles) E of Yamagata, Honshu, Japan

177 km (109 miles) ENE of Fukushima, Honshu, Japan

373 km (231 miles) NE of TOKYO, Japan

This magnitude places the earthquake as the fourth largest in the world since 1900 and the largest in Japan since modern instrumental recordings began 130 years ago.

The March 11 earthquake was preceded by a series of large foreshocks over the previous two days, beginning on March 9th with a M 7.2 event approximately 40 km from the epicenter of the March 11 earthquake, and continuing with another three earthquakes greater than M 6 on the same day.

The Japan Trench subduction zone has hosted nine events of magnitude 7 or greater since 1973. The largest of these, a M 7.8 earthquake approximately 260 km to the north of the March 11 epicenter, caused 3 fatalities and almost 700 injuries in December 1994. In June of 1978, a M 7.7 earthquake 35 km to the southwest of the March 11 epicenter caused 22 fatalities and over 400 injuries. Large offshore earthquakes have occurred in the same subduction zone in 1611, 1896 and 1933 that each produced devastating tsunami waves on the Sanriku coast of Pacific NE Japan. That coastline is particularly vulnerable to tsunami waves because it has many deep coastal embayments that amplify tsunami waves and cause great wave inundations. The M 7.6 subduction earthquake of 1896 created tsunami waves as high 38 m and a reported death toll of 27,000. The M 8.6 earthquake of March 2, 1933 produced tsunami waves as high as 29 m on the Sanriku coast and caused more than 3000 fatalities. Unlike the recent magnitude 9.0 earthquake, the 1933 earthquake did not occur as the result of thrust faulting on the subduction-zone plate interface, but rather within the Pacific plate just seaward of the Japan Trench. The March 11, 2011 earthquake far surpassed other post-1900 plate-boundary thrust-fault

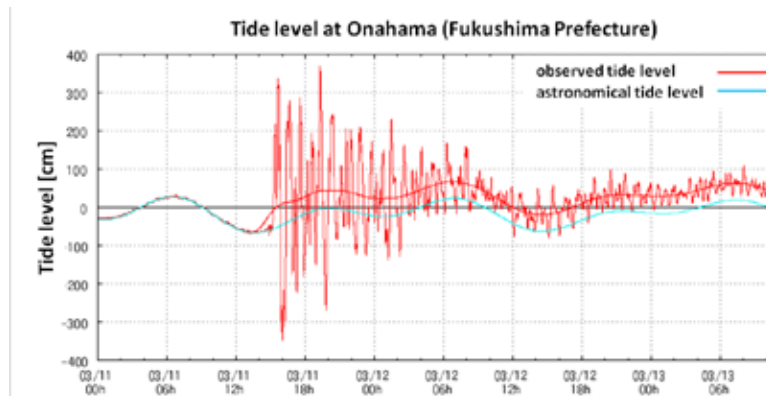


Figure 4. The earthquake-tsunami event mapped in tide level, in the prefecture where the nuclear reactor was compromised.

earthquakes in the southern Japan Trench, none of which attained M8. A predecessor may have occurred on July 13, 869, when the Sendai area was swept by a large tsunami that Japanese scientists have identified from written records and a sand sheet.¹

Total dead or missing on Oshika peninsula: 3977

Total in Japan:

April

National Police Agency 10 AM JST : Fatalities : 14,027 – Missing : 13,754 = Total : 28,781²

August

National Police Agency of Japan, August 4, 2011

Fatalities: 15,667 Missing: 4,862³

The disaster happened, at it was at first a wave crashing on the shore, pulling away houses and people, leaving us stranded on roof or second story, burying us alive. From the south, some felt a shiver on the upper floors of a skyscraper. Someone was lunching in a Mexican restaurant and suddenly felt dizzy, disoriented. She thought maybe the margarita was a little too strong for her but then the feeling continued for one minute, then two. She made eye contact reluctantly with others at her table, recognized the expression in the worried gaze staring back at her. All over Osaka, people were doing the same.

I became aware of it gradually and immediately. Running errands with a friend, he turned to me calmly at some point and said, there's just been an earthquake in the north. My father is trapped on a train, but it should start running soon. An earthquake. An earthquake. Was it big or small? Destructive or just exciting? I suppose it was the periodic updates about my friend's father on the train that made the situation become real so slowly for me. Yes of course,

there's been an earthquake. But is your father o.k.?

After a few minutes, televisions were rechanneled. Websites were redirected, radios were retuned. Eyes tore from faces to screens and fastened there. For the rest of the weekend, activity was punctuated with long communal viewings of national news, and short assuring messages to friends outside. We were spectators inside Japan. But to the rest of the world, for a few minutes we too were in grave danger.

By Monday, the waters had ceased their angry swallowing of farmland in the north and they were left to face the fresh beaches, the strange flotsam of what had been daily life. A man was found far from shore sitting on what had been his roof. A woman recounted in shock the



Figure 5. Earthquake-tsunami mapped in plate subsidence.

flashing loss of her daughter to the flood. Villages sheltered in gyms without fuel or heat.

The once floating and erratic count of those lost quickly stabilized, gained structure, uniformity. The daily English radio podcast recited the count like a mantra. A place name, a number; a place name, a number; place name, number; place name, number. The abstract statistics soothed the brain after the more harrowing narratives. Things were falling into a semblance of relief as far as we were concerned in the south. But from this elemental, mechanical disaster of wave action emerged a deeper problem. The words to describe the problem tapped into a century old fear, since the problem had existed as long in potential. The after math of the problem had the power to impact the entire globe. The bigness of the problem, its “when?” its “how much?” its “how long?”...these were unknowable.

The problem was this: in a large anonymous factory of energy in a rural, undefined region, the works were heating past capacity. Since the factory was producing energy and not, say, gears, the term “heating past capacity” needs some clarification. Even when the works were

within capacity, the factory could not be entered, the heat could not be beheld, quite. The factory was sealed for the protection of the workers, who monitored it carefully from without. One day a balloon of white smoke was recognized on the horizon. Steam. The water used to cool the works was evaporating very quickly, too quickly. The energy company downplayed the risks. Teams from other countries made more serious assessments. What if the water used to cool the works depletes completely?



The tsunami toppled buildings from a combination of lateral force and liquefaction.

Nuclear Meltdown World Annihilation

A FINE DUST of radioactive matter swirls across the sky, settling over Tokyo. Another cloud mists across an ocean to another coast far away, where home is. It was time to leave.

But where to go? Really, in the south, we were far enough away. Besides, the wind blows from south to north, pushing the dust away from us. We were as safe as anyone else. I traveled south, still in the country, but as far away as possible. I averted my eyes from the screen. I looked instead at waterfall and coastline, ancient tree and breaking wave.

Danger slipped away, like smoke. In Kobe, the stress of the unspeakable threat felt solid, present. Further south, in Kyushu, the danger sublimated. Friends and Internet neighbors swiftly checked in and fell silent. Daily life around the globe twisted away, assured that I was

safe. But my daily life had torn.

As I became more safe, as the threat subdued, I became frightened. Afraid to return to daily life, to act as if everything were resolved. Something had not been resolved. I didn't want to go back. It was still time to leave.

If I think about going back in the abstract, it feels okay, I can do it. I can imagine trips I want to take, views to see, things to draw or meals to eat. I think of new friendships like spring shoots – mysterious and fresh: what will they bloom? So I make plans, confirm responsibilities, hoping that I am not misleading employers and teachers. Because when I think of literally boarding a plane in Bangkok, riding it to Osaka, deboarding, giving my return ticket to the airport bus driver, putting my key in the lock of my dorm room, and opening the door on my old life, my life in Japan, it makes my stomach turn, it is not what I want, my body rejects it. Not that Hong Kong is much better. Not that I can think of any place that I would prefer to be.

On the route home, over sea, I approached two fellow foreigners, asking if they'd seen any dolphins. I had been watching these creatures from the deck, jumping and diving. The pair had seen the dolphins. They had seen many things. It was the time for stories.

Daniel and Antonia were on vacation from Sendai. Daniel wasn't worried about the nuclear plant. He had read a blog online that predicted the level of the plant catastrophe to be "Chernobyl to the power of 6."

"This is of course, ridiculous," he started in, "for several reasons."

1. Although there are 6 reactors at the Fukushima plant, only 4 of them are failing, and of those, 2 are already under control. So the power we're looking at is at worse 4, not 6.

2. If one reactor meltdown (Chernobyl) is compared to 4 reactor meltdowns (Fukushima) then the problem is multiplied, not increased exponentially.

3. Even if we were to use powers to compare the two events, and even if we used the power of 6, this gives us 1 to the 6, which still equals 1:

$$1 \times 1 \times 1 \times 1 \times 1 \times 1 = 1 .$$

Daniel is an undergraduate engineering student on a year long exchange from the University of Maryland. Antonia smiles at him quietly. She shifts weight from one foot to the other. She looks tired, maybe from an elaborate and tedious experience. She's been studying something in the borderland between linguistics and computer programming, using her post-

baccalaureate year abroad to prepare for a graduate program in Germany.

To them, the earthquake felt stronger than a shiver. There was no uncanny question of perception like we had in the South, no slow awakening. But, noted Daniel, not a single building fell. The effect of the earthquake itself was actually minimal. Compared to the following tsunami. The enormous wave that crashed on the once shore flooding everything stretched inland two miles away from Daniel and Antonia's dormitory, and then began receding.

For days and chilly nights the power shut off. They hadn't managed to get any fuel, so they cooked over an open fire. Antonia gathered wood while Daniel coaxed the flames. It was difficult to find firewood. Not because everything was wet, but because in what was formerly a city, there wasn't much dead wood lying around. What could have been firewood had been cleared away, disposed of. They saw some people trying to burn a telephone pole. There was nothing to cut it down to size with. The poisonous smoke was black and sickening to think of. But, as Daniel added, all the fires emitted dark, reeky smoke, seeping into clothing, settling on skin. Soon everyone was filthy, Daniel not the least, since as a busy student he hadn't done laundry in weeks.

For food, they went to the convenience store. There wasn't much available, but Daniel is an eagle scout and knows how to make due. They bought what they could find: eggs, green peppers, and oranges. Daniel hollowed out the peppers and oranges and skewered them. Then he cracked an egg inside one, roasting it slowly in the fire until the egg was cooked. Antonia agreed that it was quite good under the circumstances, pepper's flavor permeating the runny egg. The oranges were less successful. As it turns out, the oil in orange rind is highly flammable, compromising the egg cooking project.

After a few days, the students country's consulates finally started responding. Germany was first, U.S. and China were last. Germany promised one bus, then sent three when they realized how many foreign students were stranded. When the buses arrived, everyone piled on: students from Asia, the Middle East, the Americas, the German consulate didn't make bones about nationality. Everyone who wanted to go was taken to Tokyo.

They arrived at the Westin hotel around 4 in the morning. Groggy and stinking, they were separated according to nationality then. Germans and boyfriends of Germans showered, slept under clean sheets on soft beds. Others found shelter at 24 hour Internet cafes.

Daniel called the U.S. consulate over and over, but they just took down his personal information, wished him luck, and hung up. Antonia's parents were convinced that all of Japan had been reduced to a char, that everyone still alive had already evacuated the country. Frustrated and powerless, the pair decided to move on. They had planned to go to Kyushu during spring recess, so they went. Instead of carrying clothes and things for a week long vacation, they brought everything they could carry from their dorm rooms, uncertain if they could ever return.

When I packed for my trip, leaving from the south, I looked over my things as well. I thought, what if I can't come back? What should I bring? What if I just need to keep moving? I brought my hard drive, but left my laptop behind. But I knew that if I didn't return, it had more to do with me than with the situation. A friend evacuating her mother from Tokyo to Seattle assured me: you can always come back. But for Daniel and Antonia, it's a different story.

They had been travelling in the rural south without laptop or smartphone, ignoring television and radio, blocking it out, trying to calm down. But there were decisions to be made, information to send and receive, plans pending and weighing upon them. When the ferry got close to shore, the signal returned to my iPhone, and I handed it to Daniel. When he logged in, he had 25-30 new messages. One of them quieted him, made him settle back in his chair, made his face fall. One of them called him back home. Antonia drew close to him, sat on the arm of his chair. I wandered away then, leaving them. He really couldn't return to Sendai. The game was over, and what would he do about Antonia? I watched them glumly walk outside to talk things over again.

"Thank you," Daniel said, returning the phone.

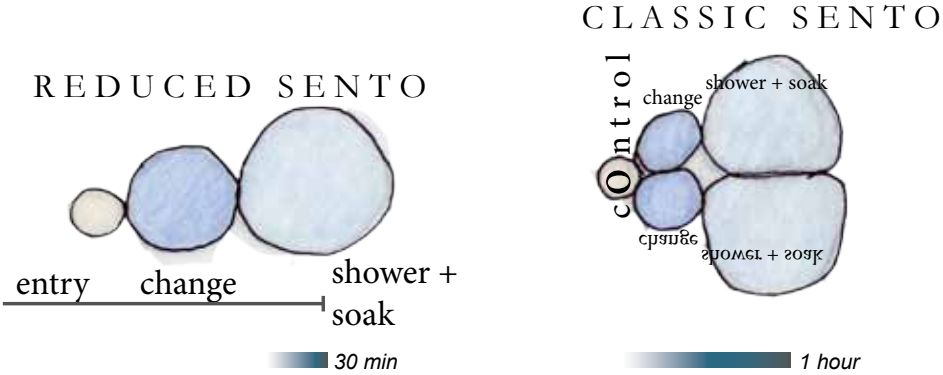
"Thank you," Antonia said, opening a tangerine I had left for them. They faded away into the rain when we docked.

Notes

1. <http://earthquake.usgs.gov/earthquakes/eqinthenews/2011/us0001xgp/>
2. <http://earthquake-report.com/2011/04/12/japan-earthquake-most-complete-summary-of-the-fire-and-police-damage-statistics/>
3. http://www.npa.go.jp/archive/keibi/biki/higaijokyo_e.pdf



Figure 6. The sento is for everybody. Photo by Julie Baier

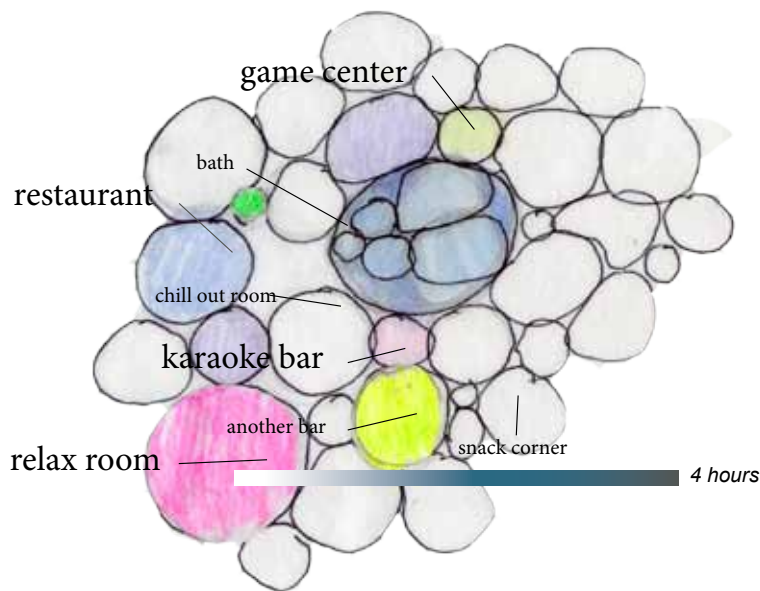


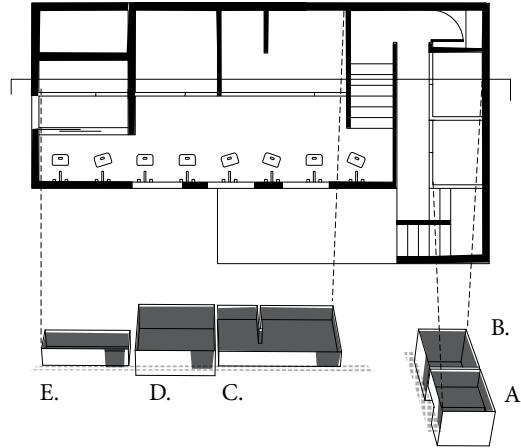
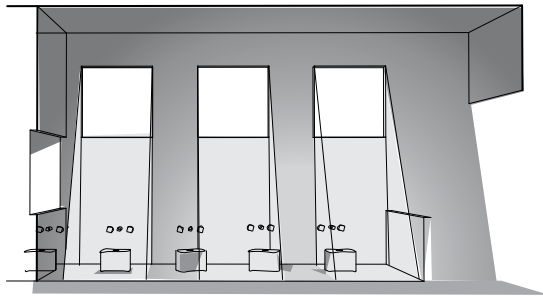
There are three basic types of *sento*. At its most basic, the sento is a sequence of three chambers. At its most elaborate, the sequential spaces subdivide into a mall-like “*supersento*” for an afternoon of entertainment.

3. a *Sento* is a bathhouse

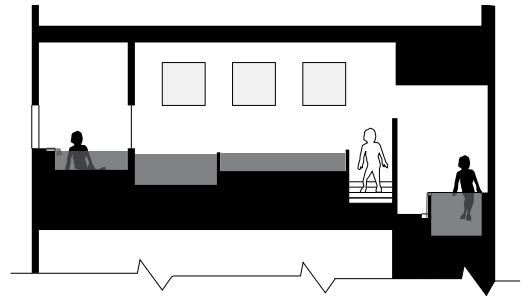
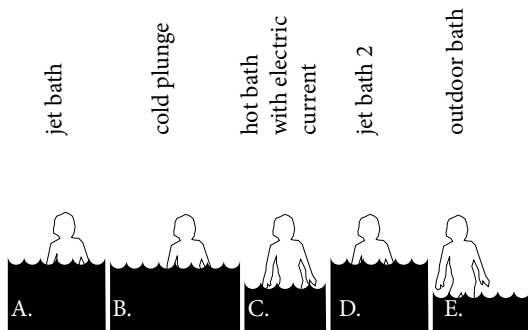
The Japanese public bath, or sento, is still a popular form of traditional, publically shared water infrastructure. Like the well or the washhouse, the public bath is an important site for establishing flexible social networks. Institutions of this sort mix labor and leisure; technology and haptic experience; to create sites for the cultivation of a broad range of behaviors, lifestyles, and opinions: democratic, dialogic spaces. By relating cyclical rituals of purification to a fundament of urban experience (infrastructure) the bath secures a subtle and integrated presence in the memory and imagined community of the bather.

The sento is distinct from the onsen or hot spring bath also relished in Japan by the chemistry of the water supplied to the baths. Onsen waters contain levels of minerals regulated and defined by a national board. The water comes out of the earth having been heated by substrata activity, and should therefore be rich in minerals. When a new bathhouse opens, the owner must hire a chemist to test the waters if she wants to advertise as an onsen. The results of





Tsukasa Yu, Motomachi Station



The most common *sentō*, listed on the previous page as the “classic *sentō*” is located near rail. Customers purchase a ticket at a vending machine and proceed to gender separated baths. Activity at the bath is strictly divided between cleaning oneself and soaking oneself. While in Western bathing, relaxation or athleticism is emphasized in public bathing, in Japan the act of cleaning oneself thoroughly in front of others occupies a semi-public zone.

the test are posted near the entrance to the baths. Onsen puncture the earth's surface spontaneously, while sento can be planned for good business. The sento can appear next to a train station or in a shopping corridor, but the onsen might emerge from the ground in the middle of a street. The fickle nature of hot springs water make it more conducive to a natural setting, and garners a higher entry fee.

The sento is modern, accessible, popular, and hygienic. The onsen is ancient, recherche, and elite. In Junichiro Tanizaki's *In Praise of Shadows* (1933), there is a comparison of traditional and modern aesthetics. The essential piece of Japanese architecture for Tanizaki is the toilet. While this seems perverse, the lovely reverie described more than adequately proves the point--"I love to listen from such a toilet to the sound of softly falling rain...there one can listen with such a sense of intimacy to the raindrops falling from the eaves and the trees, seeping into the earth..." The most banal and everyday activity is transformed into a poetic event. Meanwhile, on tiling a bathroom, Tanizaki reflects, "The effect may not seem so very displeasing while everything is still new, but as the years pass, and the beauty of the grain begins to emerge on the planks and pillars, that glittering expanse of white tile comes to seem as incongruous as...bamboo grafted to wood." The onsen is full of dark lustre, while the sento is bright and reflective.

"A child in the dark, gripped with fear, comforts himself by singing under his breath."

The moment when a physical location becomes a territory is a moment when we must reconfigure cultural norms, memories, and expectations into a new form, while relying upon a basic structure, or a refrain. In this process, we systematically re-appropriate, reconfigure, and redeploy the components of a ritualized tradition or practice, when that method of interfacing with the world has become obsolete. So argue French philosophers Gilles Deleuze and Felix Guattari.



Tsukasa Yu, A typical sento

In northeastern Japan on March 11, 2011, the first meter and a half of life above sea level, and much of the life below sea level was pulled apart, swept away, bent, broken, and soaked in the largest tsunami in the last hundred years; a 1,000 year event. When the waves drew back and the amnesiac ocean recovered its smooth surface and healthy deep colors, the built environment was homogenously re-ordered. Formerly empty beaches were filled with debris;



Mr. Sasaki, leader of the reconstruction effort in his hometown, Kobuchihama. He experienced the tsunami from his fishing boat, riding over the waves.

previously full houses rolled over and became empty boxes framing nothing. Sea walls failed to keep the sea away, stopping traffic and halting work for high tide. Sewage lines were clogged with mud for months. Water mains were broken. Electrical poles dangled their wires overhead, sometimes holding aloft a car or two. It was awful.

Survivors sought shelter in large concrete structures away from the sea. Over the course of several months, some slowly moved out to build their own shelters of scavenged or delivered materials. Slowly, with help from local government, international aid organizations, and domestic volunteer groups, the site was cleared, leaving behind broken foundations marking out the lowland, with minimally damaged, occupiable structures on any land higher than the highest waves.

Which infrastructure systems came back? How was territory left after the disaster reconfigured? What was the refrain? The roads were cleared. Electricity lines were repaired. Water mains were repaired. Sewers and drains were still being cleared five months after the event. And after the roads were cleared, when people were setting up their temporary shelters and preparing to wait for reconstruction, but before electricity was available, people set up small common baths. Spring weather was still very cold, and taking a bath is an important daily ritual in Japan. The bath, along with the tent managing the distribution of food and supplies to survivors, became the anchor of the displaced community.

Meet Mr. and Mrs. Sasaki. Mr. Sasaki is a fisherman, and Mrs. Sasaki is a homemaker. On the day of the tsunami, Mr. Sasaki was out on his boat, with a few hired hands. When they felt the earthquake, they knew immediately what they could expect. A big wave was coming,

building height as the water became shallower. To sailors, waves are usually only a problem when they contact with land. So the fishermen stayed out on the water. When the tsunami came approximately 20 minutes later, they rode over it. In the re-telling, it sounds exhilarating, almost fun.

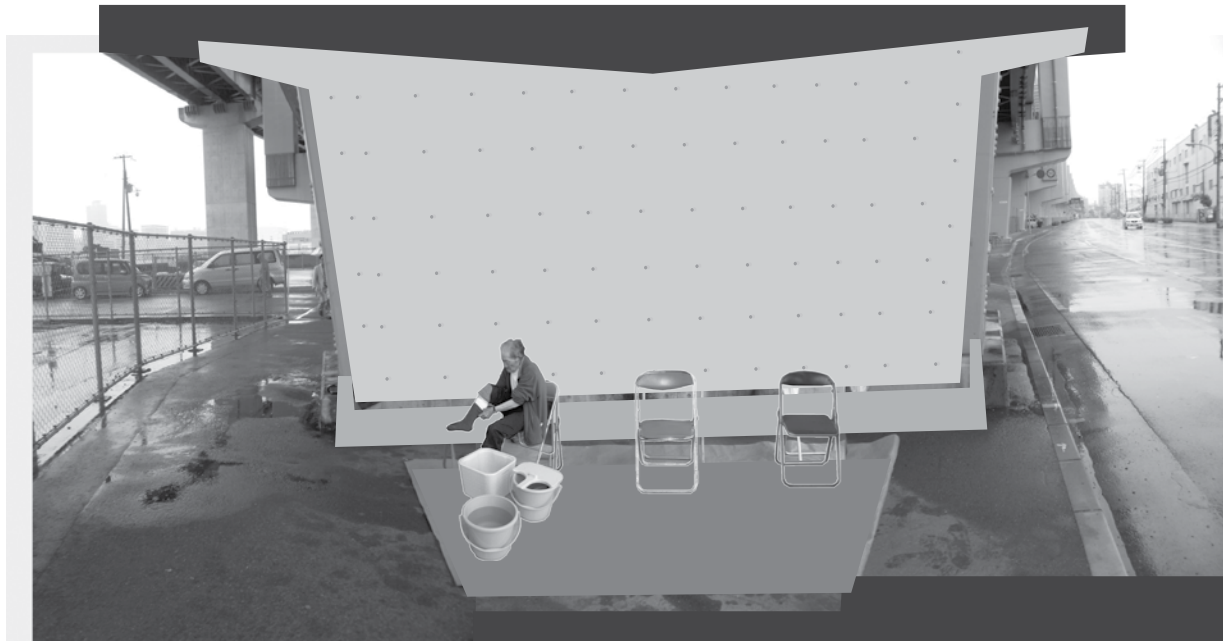
Mrs. Sasaki was at home, with her mother-in-law. The elderly woman was not very mobile anymore, so Mrs. Sasaki took care of her. When the earthquake happened, everyone in town slowly evacuated. (see caption) Mrs. Sasaki realized that she would not be able to evacuate her mother-in-law. So she decided they would sit it out. The wave crashed from the east side of the isthmus to the west, pulling everything in its path along with it, scouring the little town in an ugly dark tide. It flooded the Sasaki's house, which backs up into the mountain on one edge of town. On the first floor, the waters rose so high that Mrs. Sasaki had to swim up to the ceiling to breathe. The elderly woman drowned. Her body was pulled out of the house by the waters and was never recovered.

Villages are considered somewhat independent units by the government. The government will issue aid, but they ask a village wrecked by natural disaster to cooperate and decide what they want to do. Do they want to rebuild? Do they want to relocate? Formerly, fishermen like Mr. Sasaki would make most of the decisions. After all, they control the economy of the village: they produce, hire, provide, and sell. They are the members of the Fishing Cooperative Association, a highly subsidized civic institution. However, in a town that has been erased, their power is less dominate. The entire community must work together to decide what should be done. The issue of where to rebuild creates strong conflict. It is perhaps easy to understand when we consider the two experiences of the Sasaki's: those on the sea were fishermen, while those on land were not. Those on sea want to continue living next to the sea, those on land want to rebuild away from the sea. Eventually, many towns decided to relocate on hillsides within view of the sea. Construction companies are now busy razing the tops of mountains to plant suburban developments. It is an easy to replicate, effective model, given the



Mrs. Sasaki experienced the tsunami on land. She would prefer to rebuild in higher elevations, away from the sea.

She was on her way out of town after the earthquake, since people in the region are well aware of the relationship between an offshore shiver and a colossal wave. But she turned back to get her mother-in-law, who cannot move quickly. Surmizing the situation, she took her mother upstairs, barred the door tight, sat, and waited. Then, water flooded under the floor and through window, rising, rising, until Sasaki-san's wife was pressed against the ceiling; until she was holding her breath, until she was thinking her last thoughts: this is it. But that was not it for her. The waters resided. The tsunami is not a single wave but rather several waves of slightly varying intensity. This time they say there were 5 big waves before night fell and they could no longer count, having found shelter or failed to do so. After the wave was sucked back out to sea, Sasaki-san's wife pushed her way thro



Ashiyu is a mobile version of the *senjo*. This version reproduced the therapeutic quality of the *senjo* soak to try to formulate an empathetic connection between volunteers and survivors. Example above shows trial at an outdoor soup kitchen for homeless in Kobe.

extreme scale of destruction.

The Sasaki take everyone in like stray cats. They also look after stray cats. They are robust, energetic folks in their prime. They are the hub of reconstruction activity for their town, and host many volunteers. They derive some support from providing for others, meeting new people, and staying busy, I think. Not only do they provide tired people with food and conviviality, they also offer their self-built bathhouse. Before volunteers could come with frequency, they had the bath to draw out others in their village. They relied on very old traditions to reconstruct their social network.



Those seeking care receive a hand massage and the chance to talk about their worries.

The Nomadic Bath or Ashiyu

The *Ashiyu* is a tactic that was developed by a small group of citizen-activists in Kobe after the 1995 Great Hanshin Earthquake for alleviating emotional stress after natural disaster. The group originally asked, “*how can we communicate with the survivors? How can we show our emotional support?*” At first they tried working alongside the survivors to help clear debris. But the group felt the bond that developed in this way was too weak. So they tried serving survivors in a soup kitchen. But again, the context did not support the heartfelt communication the group sought to encourage. So they tried the *ashiyu* concept.

Survivors living in shelters or homeless living on the street are encouraged to step out of their worried daily lives into a folding chair on a blue tarp. They slip off their shoes and are carefully attended to by a bright-eyed college aged student. They carefully tend to the bather, offering them a warm hand towel and a glass of water. When the bather puts her feet in the water, the volunteer takes the person’s hand and gives a hand massage, nonchalantly asking questions about how the person is doing. The bather typically begins to open up, and can share what’s been bothering her, or what she saw that she can’t forget, or what physical problems she’s having. The student simply continues massaging one hand and then the other, listening and



Funakoshi seaweed harvesters are made up of former residents who were commuting from the nearest large town to rebuild their town. A work group of this size is reminiscent of rural mutual aid groups active before modernization.

encouraging the survivor to share their physical or emotional pains .

The site is selected partially based on accessibility to fresh water. The volunteers carry water in buckets from its source to a portable gas-fired stove. From there it is carried in buckets to the blue tarp, where the ashiyu ritual is performed. The volunteers bring the rest of the equipment to the site. The entire platform packs into the back of a hatchback car. In this case, urban citizens noticed an area overlooked by the national government and organized themselves to respond. Some organized within their neighborhood, via a neighborhood association. Others worked with a local non-profit group or with a club at the university. The team documented here organized themselves at Kobe University, and used this Sunday soup kitchen for Kobe's homeless population to practice ashiyu techniques. Within a month, they visited the affected area in northeastern Japan to attend to the survivors living in emergency shelters there.

Communities like the one in the above photo, who were beginning to rebuild, asked volunteers to help by building small bathhouses. This is one I helped to build, made exclusively of debris. The carpenter leading our work was skilled in traditional joinery, making a strong

Sento means bathhouse.





We thought we could help by building a bathhouse.







We thought we could help by building a bathhouse.



structure that was eventually disassembled and moved.

This is another bathhouse built by volunteers: these two do the staging for concerts, and I think that's reflected in their approach. They got two bathroom units, placed them on the site with a crane, and built a light tent structure as an anteroom for changing. It was simple and

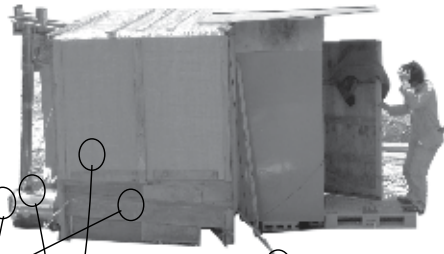
effective.

Responding to the Great Eastern Japan Earthquake, the Self-Defense Forces of Japan constructed temporary bathhouses at shelters housing larger numbers of survivors. The baths hosted limited hours and quickly became overwhelmed. The northeastern region is known for its sentos and onsen, and many of the bathhouses that were unaffected or minimally damaged opened their doors to survivors at lower rates or for free. However, many of the remote coastal communities could not benefit from these services on a daily basis if at all. As in the aftermath of the Kobe Earthquake, the government responded slowly, deposing a Prime Minister in the process. Largely, networks of neighborhood associations, larger non-profits, and the Japanese Self-Defense Force have coordinated small volunteer groups to handle the initial recovery. Those who decided to stay and rebuild scavenged the debris and bought technical components (a pump, a hose) from larger cities. In the case illustrated here, the bathhouse is sited next to

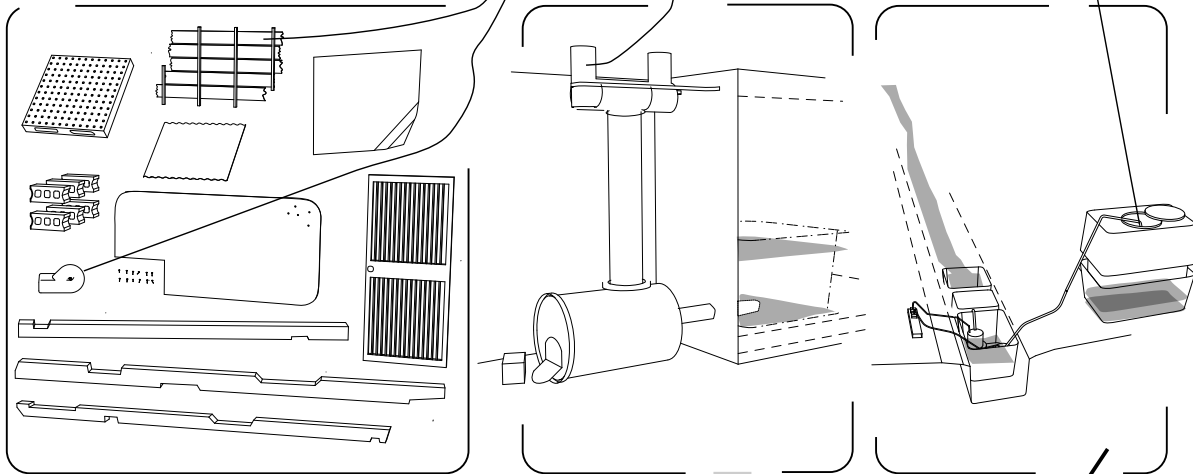
a small creek, from which fresh runoff is drawn and pumped. A wood stove is affixed to the back of the structure. Wood that previously held up houses and partitioned rooms is dried, chopped, and consumed in the fires for the bathwater. Several families share the bath, and on days when the fire is lit, each enters individually, according to age. In a traditional Japanese



The Sasaki's bath



fire + water + shelter



A survivor's bath, constructed from debris, using the most rudimentary spatial organization, and tapping water from a nearby creek, illustrates the continuing importance of the therapeutic bath.

household, the eldest male goes first and the youngest female goes last. Users of this bathhouse fall back on this habit, whistling it like a refrain as they make their world again.

While the bathhouse may have lost relevance in broader society, it is still a typology to which people turn when they need comfort, therapy, and cleanliness. It is an important if marginal link to common identity and it often plays a large part in the local construction of social capital.



A survivor's bath.

It is a way for people to just be present together, to share something basic and fundamental. While the necessity of sharing water resourced in public space is most of the time a thing of the past, the passive social interaction at the bathhouse has been a means to develop weak ties in Japanese neighborhoods, which helps people to build trust. The Japanese bath will stay in Japan and the sento may very well cease to exist in the next thirty years. But it is important to acknowledge the relief and comfort of living in a trusting community, and the central role of physical proximity, even without verbal communication.

When Tanizaki wrote his extended essay on shadows, he was subverting a popularly held opinion that to be cultured and sophisticated was equivalent to living in a Western style. He was arguing against the zeitgeist of the Meiji era: an enthusiastic pursuit of modernization. Instead, he poeticized a lifestyle that was slipping away and becoming impossible to afford. Only when it became ephemeral did it provoke regret. Today, one can experience that lifestyle as a tourist at a price: not impossible for a middle class working person, but only for an overnight. Even the children who grew up visiting their grandparent's centuries old farms are rare.

The task at hand is not so different from Tanizaki's in that it seeks to spin a widely held opinion on its head. However, rather than slip into nostalgic reverie, this study is an attempt to shake it to see what's inside; to turn it upside down and see what falls out. Tanizaki and his

fellows have already had the chance to permeate back into Western culture, while the fury to modernize and compete with the West has begun to lose purpose. The sento, once a symbol of industrialization and a control over both the urban and the natural environment, seems to have become a place of nostalgia and memory. It is true that many of the things the sento represents are no longer useful parts of the national story for most urbanites between 15-65 years old. Yet the determination with which marginalized people (in this case, the elderly, the homeless, and the survivors of natural disaster) seek out the bathhouse show that it continues to be a place for physical and emotional therapy and friendship.

However, unlike the onsen, and unlike Tanizaki's toilet, the sento is not a thing of beauty to look upon. Materials are chosen for their durability, decorations are limited and amateurish. Even the yukata offered at more expensive sento lack taste and quality. The sento instead offers a completely alternate social environment in combination with an unwavering set of rules. Everyone at the sento is positively contributing to a common good simply by following the rules. At any place where this accepted anomaly can be spatially marked out, people can



Figure 7. A still from the animated feature film *Spirited Away*, dir. Hayao Miyazaki. The film is set at an apparently abandoned *sento*, which we discover is actually inhabited by animistic spirits when night falls.

follow the rules of the bathhouse and together form a basic social contract involving trust and participation. From this groundwork, any number of recoveries seem possible.

Notes

1. <http://earthquake.usgs.gov/earthquakes/eqinthenews/2011/us0001xgp/>
2. <http://earthquake-report.com/2011/04/12/japan-earthquake-most-complete-summary-of-the-fire-and-police-damage-statistics/>
3. http://www.npa.go.jp/archive/keibi/biki/higaijokyo_e.pdf

4. a *Kumi* is a group of families who help each other in every part of life



Figure 8. The sequence of aerial views from Google Earth shows from left to right, oyster bed aquaculture in the Kobuchihama harbor before the tsunami, on the day of the tsunami, a month after, and three months after. By May 2011, (3 months after, the oyster beds had been replanted.

“Perhaps due to its ideas about the subtle and not-so-subtle working of nature, Japanese culture has evolved around the notion of impermanence. Regarding change and renewal, and specifically demolition and rebuilding, one must remember that according to religious ritual, Shinto shrines were rebuilt at regular intervals; today this unique custom, called shikinen sengu, continues at Ise Jingu, which is torn down and rebuilt every twenty years, most recently in 1993.”⁹ Botand Bognar

After a tsunami wiped away many of the small fishing hamlets that dot the shores of northeastern Japan, the question presses: *how to recover?* In these tiny units of Japanese civil society, a few options present themselves: relocate, wait for government aid, or respond independently. Relying on previously existing community bonds and networks, many decide to stay and rebuild the local fishing industry. Small-scale fishing has a strong role in Japan’s domestic market, providing 64% of its seafood, which averages to 19.2 kg/yr per person. Although each hamlet is responsible for a fraction of this, the 319 fishing ports in the Tohoku region accounted for 40% of the domestic catch (7.7 kg/yr per person). As deep-sea fishing lost momentum in the 1970s (due to a depleted ocean ecosystem, oil scarcity, the implementation of global fishing regulations, and the establishment of special economic zones by competing global powers, the U.S. and Russia), aquaculture and coastal fishing have replaced supply. Since 1984, small-scale fisheries have been subsidized by the national government, and more than a third of fishermen were over 65 in 2009. Added to new challenges confronting coastal communities, the government must encourage their self-sufficiency, as it is unable to support their retirement.

Academic discussions around new directions in recovery picture coastal communities as local stewards, balancing modern industrial techniques with ecological health to sustain harvests scaled to small nodes of manpower.

At 2:46 pm, March 11, 2011, an earthquake shuddered along the Japan Trench Subduction Zone, 19.9 miles under the ocean, 80 miles east of Sendai, Japan. The 9.0 magnitude quake ranks as the 4th largest in the world in the last century: a 1,000 year event¹. It sent a series of waves reaching a height of 25m when they reached the coastline in the fishing hamlet of Kobuchihama². The Oshika peninsula, north of Sendai (Miyagi Prefecture) received first impact. According to the USGS, “[The Sanriku] coastline is particularly vulnerable



Mr. Kimura, the head of the local Fishing Coop demonstrates how the immature oysters will be bound between ropes to give them greater area to grow for up to 2.5 years.

to tsunami waves because it has many deep coastal embayments that amplify tsunami waves and cause great wave inundations.”³ Devastating tsunamis have racked the Sanriku coastline on average once every 40 years. This periodic event has left its mark in local infrastructure, with the main road through many coastal villages rebuilt at the altitude of the last high-water mark.

As of August 4, 2011, the National Police Agency of Japan reported 15,667 fatalities and 4,862 missing as a result of the March 11 disaster. On the Oshika peninsula, 3,977 people were reported as dead or missing. Interviewed 13 days after the disaster, Minoru Ito, 74, chairman of the Fishing Cooperative Association in Ayukawa, a whaling town on the southwest edge of the Oshika peninsula, boasts, “If we can fix the ships, then we’re back in business.”³ Up the road, in the fishing hamlet of Kobuchihama, 80% of the homes were destroyed by the waves. Keiichi Abe,



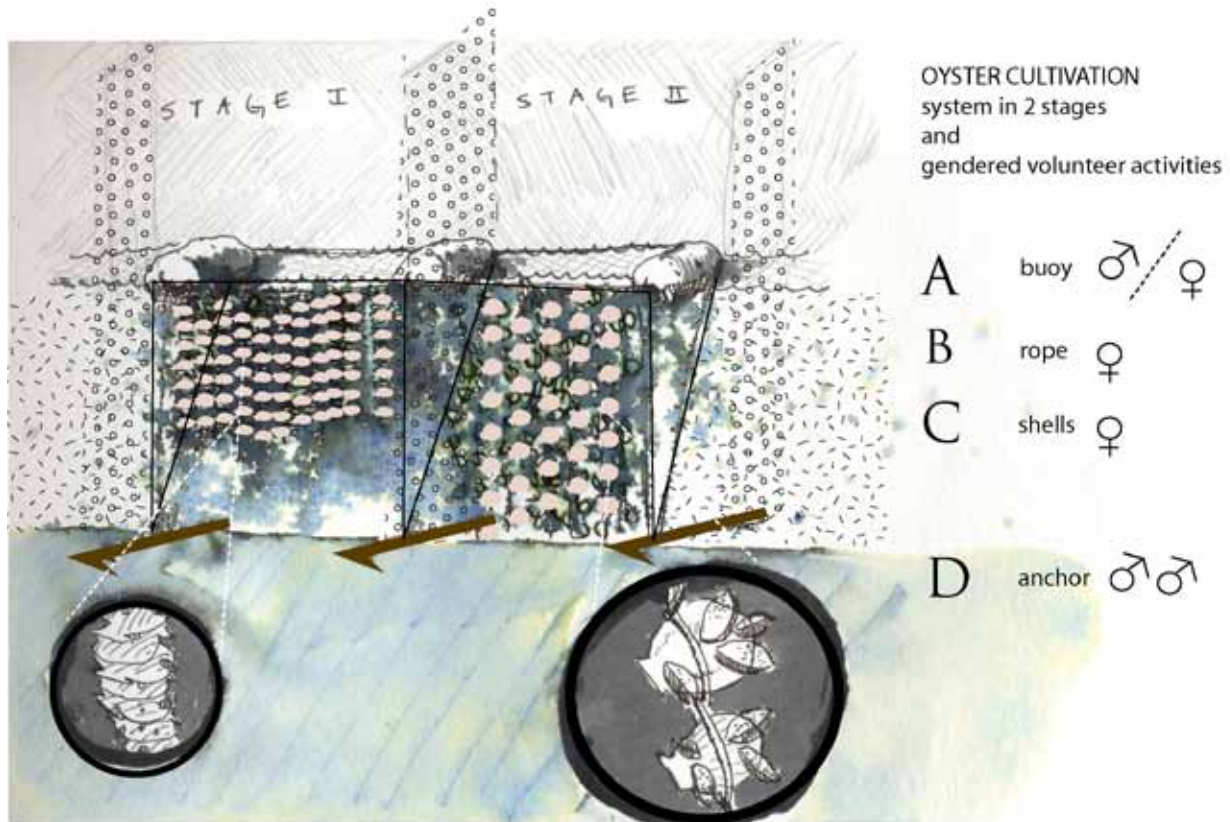
The artifacts of oyster aquaculture were quickly gathered and organized by volunteers in May 2011 (anchors, buoys, false reefs of scallop shells, and immature oysters).

head of the Omotehama branch of the Miyagi prefectural fisheries cooperative told the Yomiuri Shimbun on May 18, “People are worried and frustrated after losing their homes and jobs. We don’t see much hope in getting our lives back together.” Regardless, Kobuchihama will be the site of the Oshika Peninsula Fishing Cooperative Association during recovery and cleaning of other ports.

The actions of a fishing community are unique and may include a combination of responses⁵. Government aid would be slow in coming and in the end, there wouldn’t be enough of it. Some communities disband, perhaps weakened by the coastal fishing market, which has been deteriorating since the 1970s⁶. However, relying on strong social capital bolstered by geographic isolation, shared resources, and common industry, tenacious surviving communities quickly organize to respond independently. “ ‘We have waited and waited but neither the central nor the prefectural government will do anything, so we’ve decided to get on with it ourselves,’ said [Toshikazu] Takahashi, 54, who lives in a tent erected on the bare foundations of his home together with his wife, Teruyo, mother, Mitsuko, and their poodle, Denmaru.”⁷



To grow “the best oysters in the world”, it takes about 2.5 years and happens over two stages. Essentially, scallop shells are dangled in the ocean until oyster seeds graft onto them and begin to grow. The scallop shells are an intervention that support the development of what is already existing in the ocean. This can be constructive as a metaphor to think about what architecture can offer a community. Mr. Kimura explains and demonstrates the method for making oyster rafts, a process that was introduced in the 1970s as deep sea fishing began to take its toll on global fish populations.



Volunteers handling the artifacts of oyster cultivation were given a rough idea of how the part fit together into a system. Work was divided by gender, which determined expected strength capacity of the volunteers. Though initially surprising, unexpected camaraderie emerged.

But how? Where do they get the courage?

The ability of the small fishing communities in Tohoku to respond independently represents a uniquely Japanese blend of modern democracy and medieval mutual aid societies. Japanese society is organized vertically. Westerners often observe this as bureaucratic apathy with little regard for the individual⁸. On the other hand, society functions well when each knows the role he is to play⁹, like a well-designed machine. The local level is often organized into a neighborhood association, where representatives from 100-300 families living in geographic proximity air grievances with local matters, regulate local infrastructure, and occasionally communicate messages or directives from the prefectural or national government. In 2006, there were 298,288 neighborhood associations in Japan.¹⁰ The benefits of this system begin with the development in the individual of a sense of ownership and belonging to the local area. A member's consistent participation in events and projects organized by the neighborhood association "merits helpful and considerate action by neighbors"¹¹. Members are retained

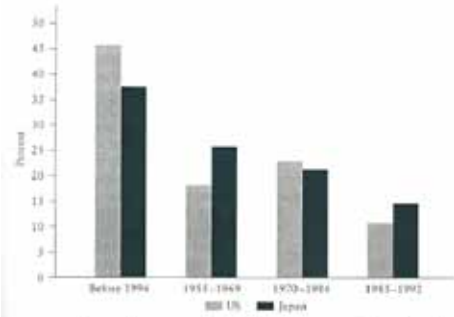


FIGURE 6.1 Large Japanese and U.S. civil society groups by founding date and percentage of all groups.
Source: U.S. data adapted from Inglehart and Smith 1996, p. 121; U.S. data from 1993; Japanese data from JCS survey (author's data analysis).

Figure 9. participation in civil society group is declining both in the U.S. and in Japan.

through social pressure.

The benefits of organization at the local level come into sharp focus in an emergency. Elaine Scarry points out the effectiveness of previously existing voluntary organizations mobilized to assist survivors after the 1995 Kobe earthquake. She notes, Japanese “neighborhood associations do not mentally rehearse

how to clear rubble after earthquakes; but they do habitually clean parks, maintain roads, clear streams, and repair street lamps...”¹² These activities construct

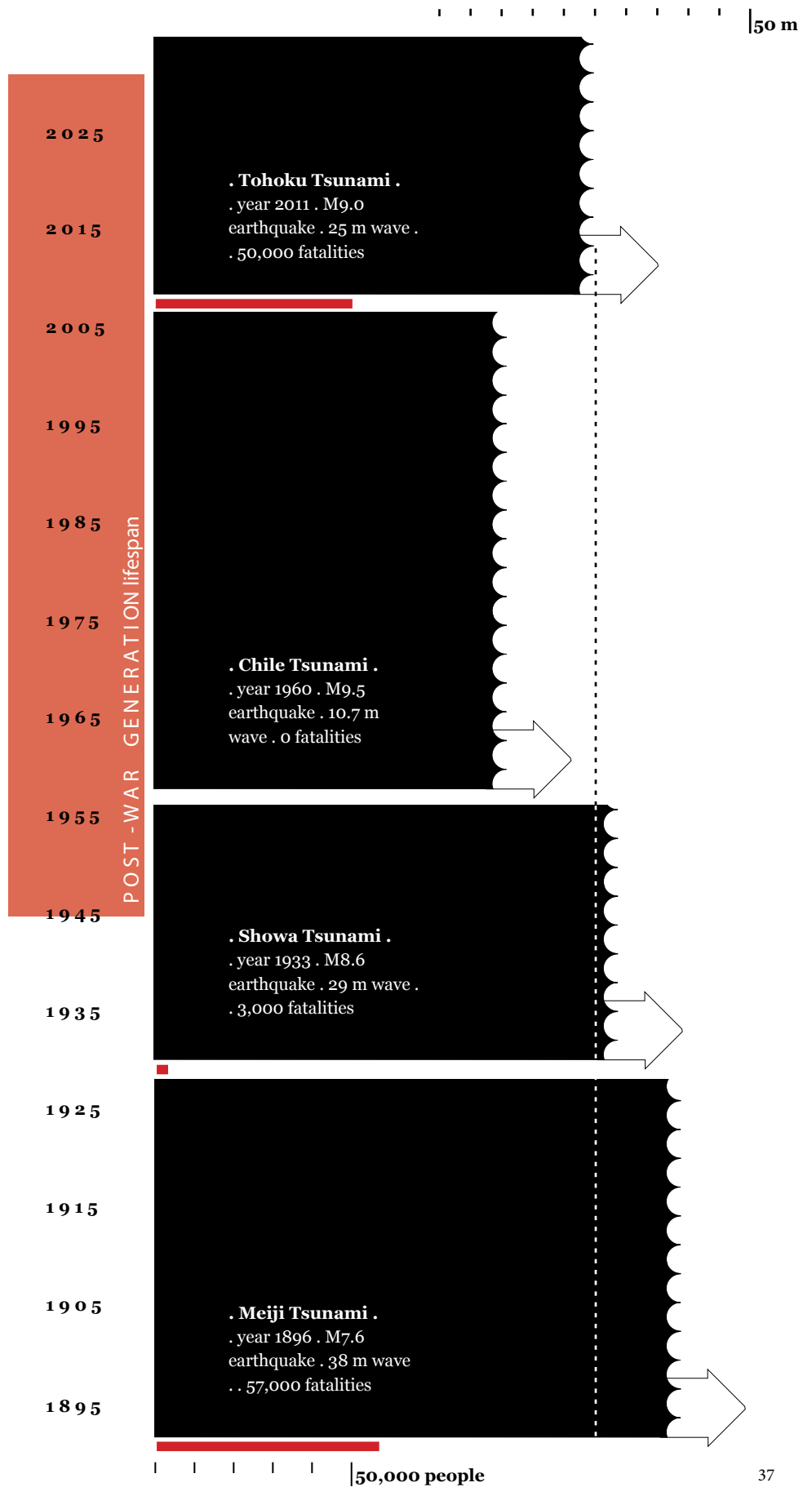
“habits of mutual aid,” or, as Alexis de Tocqueville called it, “habits of the heart.” She adds, “The response of the Japanese neighborhoods to the Kobai [sic] calamity is consistent with Tocqueville’s description of the effect of voluntary associations [that he noticed in the early U.S.]: ‘Feelings and opinions are recruited, the heart is enlarged, and the human mind is developed only by the reciprocal influence of men upon one another.’”¹³ The development of altruistic trust underpins the social capital necessary for a group to become a community. Robert Putnam surmises, “in the civic community, associations proliferate, memberships overlap, and participation spills into multiple arenas of community life.”¹⁴

This pattern of fine grain organization can be recognized in the coastal fishing communities. Like the neighborhood associations, the fishery cooperatives are also organized vertically: a local fishery cooperative is regulated by a prefectural federation, which in turn, is regulated by the National Federation of Fisheries. The local fishery cooperative runs the fish market, manages supply and credit for its members, and regulates access to common facilities such as the processing warehouse. In addition it offers education and guidance for its members as well as managing fishing rights.¹⁵ When faced with emergency, these communities sheltered to the suddenly disinherited, communicated local needs to aid organizations, distributed aid and supplies, and collectively decided what to do next.

While a neighborhood association unites a group of professionally diverse family representatives, the members of the fishery cooperative and their families are geographically and professionally dependent on the fishing industry not only for their survival but also for their

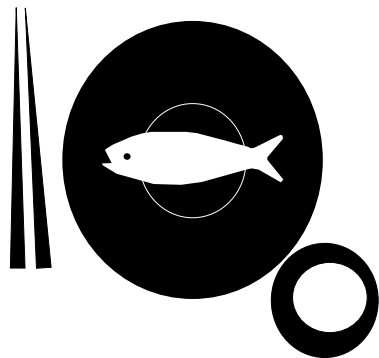
A CENTURY of TOHOKU TSUNAMIS

In terms of magnitude, the Tohoku tsunami surpassed all other tsunami events since 1896. However, many more lives were lost in the 1896 Meiji tsunami, indicating that disaster preparedness has improved in the 20th century. Tsunami are usually named for the region in which they occur when they are within recent memory. But when they become a distant memory, they take the name of the emperor's era (Meiji, Showa). Eventually the Tohoku tsunami may be called the Heisei tsunami. Japan's population spiked dramatically after the Second World War. This generation continues to dominate the national demographic count. At the time of the Tohoku tsunami, they are reaching retirement age and will face recovery with difficulty.

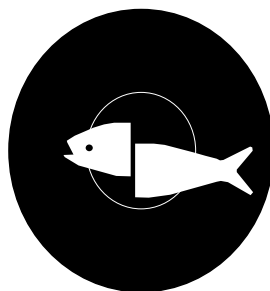


identity. Due to this, while the community benefits from the social infrastructure developed from shared resources, they are limited in their options for reconstruction. This makes it very difficult to ask the question: *in terms of the national or world market, is it necessary and viable to rebuild the local fishing industry? What is the role of small-scale fishing operations in Japan's economy?*

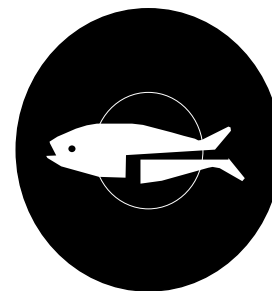
Japan engages in four types of fishing: aquaculture, coastal fishing, recreational fishing and distant water fishing. In the 1950s-1960s, Japanese fishing ships dominated international waters with Russian and American ships. But as ocean resources depleted and industrial effluent was connected to mercury poisoning and birth defects (such as Minamata disease, a birth defect resulting in severe developmental limitations), the price of oil skyrocketed, and the Japanese economy leveled off. In 1977, the United States implemented the Magnuson Fishery Conservation and Management Act (FCMA), claiming the waters up to 200 nautical miles off



The average Japanese person consumes about 30 kg of seafood per year.



Japan produces about 62% of its seafood, or 18.6 kg per person per year. It is self-sufficient in rice.



Protein accounts for 15-20% of the Japanese diet. Of this, about 23% comes from fish.

How important is one little fishing town to the domestic market?

The Tohoku region produces about 25% of seafood consumed in Japan, or 7.4 kg per person per year



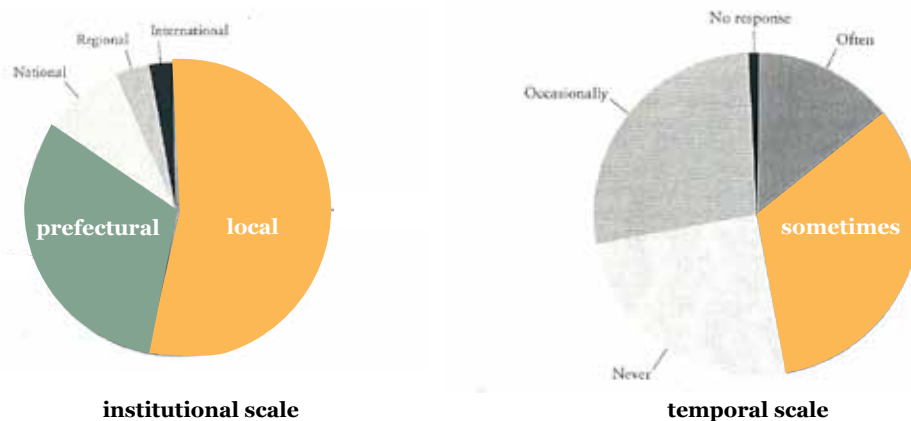


Figure 9. Neighborhood Association participation. Associationism in Japan collects around local and prefectural institutions, with periodic participation.

the coast of the U.S. as an Exclusive Economic Zone (EEZ). Russia enforced a similar zone of protected waters, squeezing Japan out of the waters that in the 1970s provided the world with a quarter of its total fish supply.¹⁶ Quotas and regulations further strangled the once vigorous distant water fishing industry. During this period, successful fisheries shifted their strategy from seeking the highest value catch to leaving the less numerous species and developing the market for the more abundant species.¹⁷

Mutual aid associations underpinned medieval village life, “the *ko* is but one of several traditional forms of mutual aid common in Japanese villages, including exchange labor patterns, reciprocal gift giving, communal house raising and repairing, neighborly assistance in death, illness, and other personal crises and so forth...it is more than a simple economic institution: it is a mechanism strengthening the overall solidarity of the village.”¹⁸

In contrast, according to the Ministry of Internal Affairs and Communications (MIAC): Statistics Bureau, handbook, “Japan’s fishery output has been on the decline since 1989. Its 2009 fishery production totaled 5.43 million tons, down 2.9 percent from the previous year. Of this, marine fishing and aquaculture production amounted to 5.35 million tons.”

*The 600 km of damaged coastline in the Tohoku area supported 319 fishing ports responsible for 40% of the seafood produced domestically.*¹⁹

From this data, it is seems that the regional network of small aquaculture fishing villages

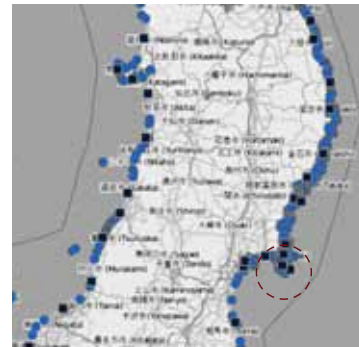
contributes immensely to the national economy.

In the last fifty years, the village of Taiji has shifted from whaling to spearing dolphins. Japan has been whaling since the 12th century.²⁰ Fishermen in Taiji claim whaling as part of their tradition and identity, the Japan Whaling Association states that Taiji has been whaling since the 1600s. Ayukawa, on the Oshika peninsula, also boasted a long and proud whaling industry.²¹ The insensible tenacity with which the fishing village of Taiji maintains its illegal and inhumane harvesting of dolphins (a cetacea exempt of protection by the International Whaling Commission) illustrates a negative aspect of strong social capital, and entrenched habits in geographically remote communities.²² In the post-war era when food was scarce, whale meat became a staple, providing a cheap source of protein in school lunches.²³ People raised on whale meat are reaching retirement, while the younger generation seems to be reaching instead for beef, chicken, pork or fish for their protein. Again, according to MIAC, “In fiscal 2008, the self-sufficiency rate (on an item-specific weight basis) was 100 percent in rice, 14 percent in wheat, 9 percent in beans, 82 percent in vegetables, 41 percent in fruits, 56 percent in meat and 62 percent in seafood.” Providing whale or (increasingly) dolphin marked as whale, is a source of cultural pride and also a point of contrary stubbornness in defense of a dying way of life. This extreme case perhaps elucidates a more widespread deterioration of a once grand industry. Of 212,000 fishermen in Japan (defined as one who works at sea for 30 days or more per year) in 2009, 35.3% were over 65.²⁴

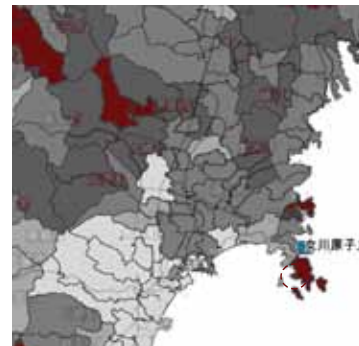
Coastal fishing has been subsidized since 1984²⁵,



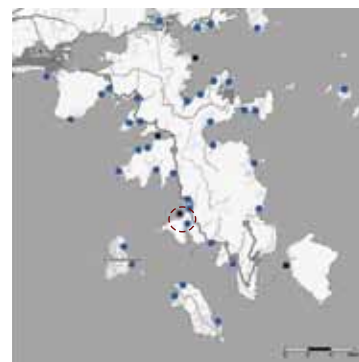
Figure 10. 2:46 pm, March 11, 2011



● Local Fishing Cooperative Port
■ Prefectural (subsidized) F.C. Port
of 212,000 fishermen registered in 2009, 35.3% were over 65 years old.

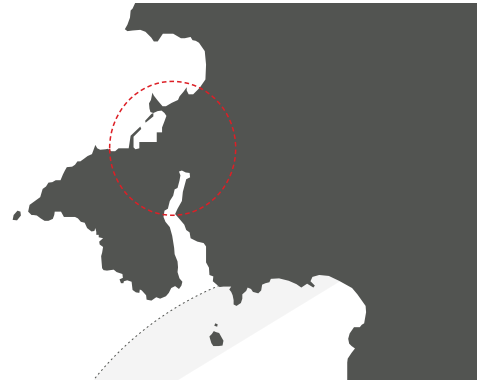


● 35%+ population over 65 years
■ Onagawa Nuclear Reactor



Kobuchihama uniquely features both a sea port and a fish port

complete with a definition of fishing rights tailored to the fishing hamlet. The common fishing right allows specific small scale fishing techniques including among others beach seining, boat seining (both of these are small scale netting techniques) and artificial reef fishing. On the Oshika peninsula, the main fishing practice is of this category.²⁶



Kobuchihama

The per capita consumption of fish averaged between 2003 and 2005 also ranked among the highest in the world at about 30 kg/yr.²⁷ The Business Sectors Bureau and the Canadian Trade Commissioner Service reports that “The average Japanese household spent \$1026 on fish and seafood in 2005...Because of the immensity of the Japanese fish and seafood market, Japan is generally considered the world price-setter for fish and seafood products.” The report was generated to encourage Canadian business interests to develop the fish and fish product market for one of the largest consumers of fish in the world, Japan.

Since the decision to rebuild, and the effort it will demand, will be shouldered primarily by local stakeholders, perhaps the question posed above (is it necessary to rebuild?) is irrelevant. As Mr. Kimura, the leader of the local fishery cooperative explained to me in Oginohama, “if we grow our delicious oysters, people will buy them. After all, we raise the most delicious oysters in the world here.”²⁸

Fundamentally, whether it is expedient to rebuild coastal Japan is less important than

whether the residents want to rebuild their villages.

Although the village may only have a lifespan of forty years, in that time the current residents will pass on and the fishing industry will adjust accordingly.

Proscribing regional policy for reconstruction is outside of the purview of this paper. Yet a few observations, outlined here, will be helpful to position the design strategy that follows:

1. Improve sustainable small-scale aquaculture

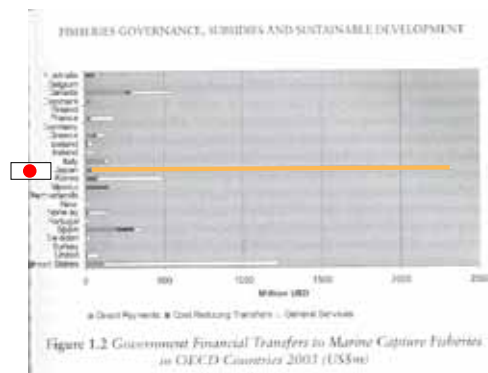


Figure 11. Japan’s fishing industry is by far the most subsidized in the world

The regional aquaculture industry, when taken as a whole, provides nearly half the daily demand of fish, and a sixteenth of the daily consumed protein in the country. As deep sea fishing becomes increasingly dominated by competitive economies (U.S.), self-sufficiency in food supply is a source of national pride and independence. Small scale aquaculture provides jobs for various skill sets, pay levels, and schedules (full time or part time). It also nurtures an interdependence between humans and local geography. The health of the local river system is crucial to the health of the harbor and its cultivation, tying land to sea in a closed circuit. As people reconnect with local processes they can enjoy the satisfaction of feeling in rhythm with the cosmos. They can use labor as a way to work through Post Traumatic Stress Disorder (PTSD) and also have something productive to occupy them through their aging process and retirement.

The fishing community has strong local institutions of social capital. Self organization on a neighborhood level lays the groundwork for strong Japanese communities.



Prefectural Fishing Cooperative Association, awaiting reconstruction

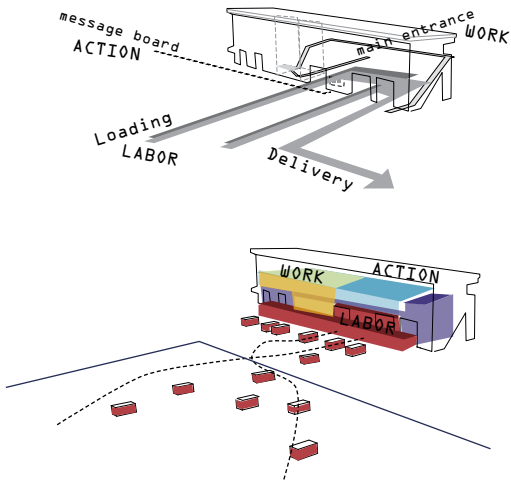


Local Fishing Cooperative Association, rebuilt July 2011

They can take pride in their local economy and its bounty.

2. Consolidate population in regional centers and large towns

Not everyone will choose to, or will be able to, stay and rebuild in the villages. A process of consolidation of several small municipalities into larger conglomerations will be necessary to yield an economy of scale for local production. With fewer nodes of a larger scale, businesses will have a larger consumer base to draw on and a broader range of services can be supported. Transportation infrastructure will be more efficient and viable with fewer stops serving more people. Carefully considering the economics of a shrinking, rather than growing, economy, the small village might be resurrected as an idyllic retirement community, specializing in elderly care centers



Former circulation flows of Prefectural FCA

such as hospitals, public baths, community centers, group homes, and the like.

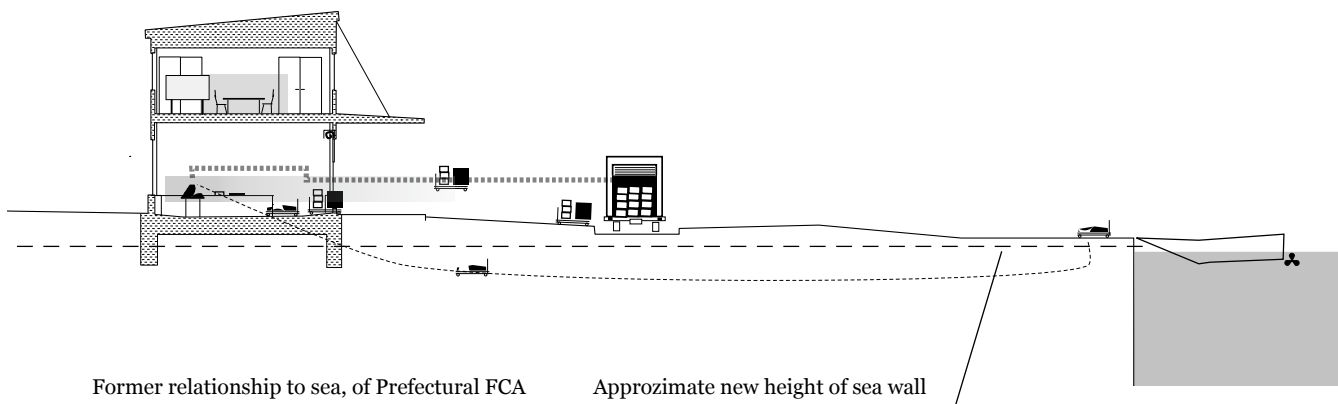
3. Forge balanced community led political structures

Currently, the entrenched members of the prefectural fishing cooperative association have the social capital to dominate the local scene. They not only have been in power for much of their careers, but also they control the local job market, and they receive subsidies from the prefectural power base, reinforcing

their role. However, in the post-disaster recovery

environment, it is necessary for the breadth of voices to be heard when making decisions that affect the entire village. It is necessary to reinvest in networks of mutual aid and community leadership to maintain the resilience of local scaled self-organization. It appears that to a certain degree the bureaucratic compartmentalization of power is overtaking the self-balancing web of local power that existed when rural villages were more isolated and dependent on village peace.

Tsunami are periodic events. Their cyclic destruction constructs or supports a worldview in which the ground is not solid. Unlike in the Western tradition of thought, in which the ground



Former relationship to sea, of Prefectural FCA

Approximate new height of sea wall

and buildings are massive and dependable, in Japan the world is unstable and dynamic. Instead, the relationships between people must be made resilient and self-equalizing.

In the case of the tsunami we can read the practice of re-making the world through

constructing bathhouses as analogous to Deleuze's child whistling a song in the dark: it is a machine to claim territory, to subdue chaos. It puts forward a rhythm, a sense, a rationality, on an otherwise unintelligible, unnameable scenario. In this case, architecture is a physical stage for a psychological demand: the architecture responds to and is formed by the repetitive use or rhythms of the site. It responds to a fundamental precondition for the formation of a resilient local network. Are there other fundamental preconditions? Can we detect other important rhythms on the site?

How can architecture articulate and direct the rhythms that bind a place together?



Kobuchihama, Oshika Peninsula, Japan
June 2011



*“that which quite rightly connects space, time energies that unfold here and there, namely rhythms.”
—Henri Lefebvre*



Notes

1. <http://earthquake.usgs.gov/earthquakes/eqinthenews/2011/usco001xgp/>
2. <http://www.idrojapan.org/blog/files/50439c7c291b179fbd8e84c1e40ef4e7-5.html>
Robert Mangold, interviewing resident at her home
3. op cit USGS (1)
4. <http://www.nytimes.com/2011/03/25/world/asia/25whale.html?pagewanted=all>
5. A village that changes its mind and decides to rebuild must do so on its own, the government revokes support after a village registers its initial decision to rebuild or to relocate.
6. encyclopedia
7. Fishermen take matters into own hands
Debate rages over whether to privatize local fisheries
By ROB GILHOOLY
Special to The Japan Times
<http://search.japantimes.co.jp/cgi-bin/nn20110610f2.html>
8. As pointed out by Daniel Kerr in Dogs and Demons as well as in the popular saying “The nail that sticks up must be hammered down”
9. Ruth Benedict, *The Chrysanthemum and the Sword*
10. Pekkanen 88
11. Pekkanen 92
12. (Scarry 43).
13. (Scarry 43)
14. (Putnam 183).
15. http://www.umr-amure.fr/aktea/mikicooperative_fca_japan.pdf
16. International Arctic Science Committee (Lead Author); Peter Saundry (Topic Editor) “Fisheries and aquaculture in the North Pacific (Bering Sea)”. In: *Encyclopedia of Earth*. Eds. Cutler J. Cleveland (Washington, D.C.: Environmental Information Coalition, National Council for Science and the Environment). [First published in the *Encyclopedia of Earth* February 9, 2010; Last revised Date February 9, 2010; Retrieved August 7, 2011 <[http://www.eoearth.org/article/Fisheries_and_aquaculture_in_the_North_Pacific_\(Bering_Sea\)](http://www.eoearth.org/article/Fisheries_and_aquaculture_in_the_North_Pacific_(Bering_Sea)>)>[http://www.eoearth.org/article/Fisheries_and_aquaculture_in_the_North_Pacific_\(Bering_Sea\)](http://www.eoearth.org/article/Fisheries_and_aquaculture_in_the_North_Pacific_(Bering_Sea))
17. ^NMFS, 2003b. Alaska Groundfish Fisheries: Draft Programmatic Supplemental Environmental Impact Statement. Vol.V. App. A, 484p. National Marine Fisheries Service. referenced at [http://www.eoearth.org/article/Fisheries_and_aquaculture_in_the_North_Pacific_\(Bering_Sea\)](http://www.eoearth.org/article/Fisheries_and_aquaculture_in_the_North_Pacific_(Bering_Sea))
18. Putnam quotes Geertz, “The Rotating Credit Association,” p. 243, p. 251
19. Post Earthquake Rebuilding Support Symposium Video, May 21, 2011 UN University
20. Japan Whaling Association <http://www.whaling.jp/english/history.html>
21. Tsunami harpoons Japanese whaling town
By Shingo Ito (AFP) – Mar 26, 2011 <http://www.google.com/hostednews/afp/article/ALeqM5iIwbioRIQTbRbt4FSJlcGr5vAhOg?do>
cId=CNG.ea1cf2e2cc3b9ebd67fd7e6cf1428c68.151
22. The Cove
23. Facts About Japan <http://www.facts-about-japan.com/whaling-history.html>; <http://haikugirl.wordpress.com/2011/01/21/whales-dolphins/>
24. Ministry of Internal Affairs and Communications: Statistics Bureau, handbook
http://www.stat.go.jp/english/data/handbook/co5cont.htm#cha5_4
25. http://www.umr-amure.fr/aktea/mikicooperative_fca_japan.pdf
26. personal observation
27. this would make for a great diagram!
<http://factsanddetails.com/japan.php?itemid=937&catid=24&subcatid=159> http://www.ats.agr.gc.ca/asi/4345-eng.htm#N_1_
28. in conversation, May 2011

5. Methodology - Rhythmanalysis applied to the site

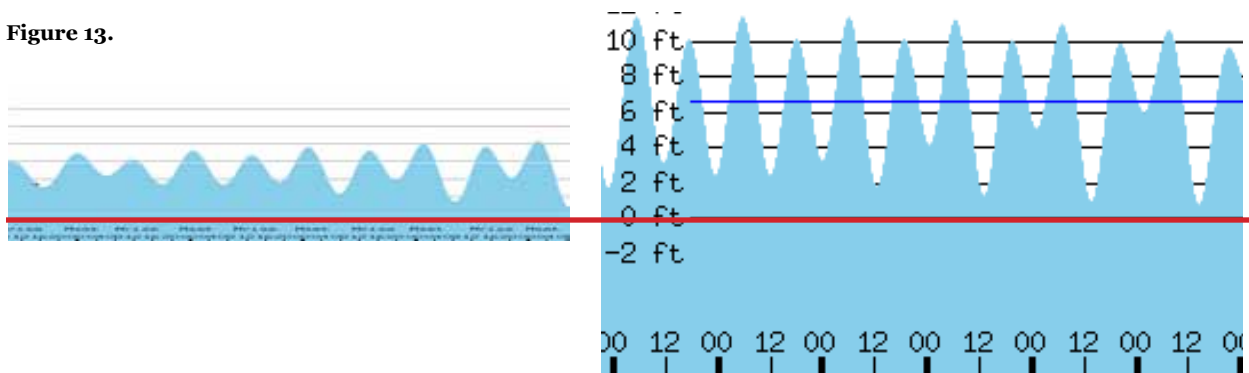
“Change life! Change Society! These ideas lose completely their meaning without producing an appropriate space. --Henri Lefebvre¹

“The historical growth of...Japanese cities has not been a continuous flow... It has been always motivated by some catastrophic events.”

--Riichi Miyake²

Tsunami are a periodic event, with a life-threatening event occurring approximately once every forty years. Destruction depends on the intensity and proximity of the tectonic movement, and people who have lived on the east coast of Japan have learned to live with occasionally unpredictable conditions. Rather than panic each time they feel the earth shift or shudder beneath them, their expectations are shaped to accommodate the frequent movement of the earth. They experience the earth not as a solid, static, endless mass, (as mainlanders tend to do) rather it is finite, isolated, and dynamic. To deal with this, other, less tangible relationships have grown in importance.

Figure 13.



Onagawa, Miyagi, Japan (14 miles northeast of Kobuchihama town), tidal range averages 3 ft

Seattle, Washington, U.S. (site of thesis presentation) tidal range averages 6 ft

The periodicity of time and the seasons is celebrated and acknowledged through rituals. The harvest and planting cycle mirrors the more dominant fishing and aquaculture cycle. The plankton blooms in the summer at roughly the same time as the iris. Plankton becomes abundant as spring runoff from the steep iconic mountainsides empties into the bays and harbors. Global seasonal phenomena have a perceptible local impact: in late summer, when the

winds pick up over the Pacific ocean and increase the frequency of storms, the ancient festival for the sea takes place, after which it is generally considered unsafe to go swimming. In the early spring, winds sweep sand from the vast Gobi desert over Japan, combining with pollen from unmanaged cedar tree farms to cause allergic epidemics. Evening weather reports map the intensity of pollen and sand particles over the country to predict how bad the sneezing and coughing and runny noses might be the following day.

A methodology does not need to be rigid or literal, as long as it has an internal logic it can use parameters manipulating less visible phenomena: time, temperature, humidity, gravity. Yet the site is not the abstract voided space of the museum, which can hold conceptual ideas without asking them to relate or respond to local factors. Instead, in this case, the site is everything, the site is the project. Practitioners like Toyo Ito create wonderfully evocative work through a pure questioning of phenomena and physicality, touching something basic in all of us who are humans. Yet these investigations tend to willfully absolve themselves of answering, or even addressing, the most pressing questions: what will we eat? where will we live? how will we make it through the night?

Ito acknowledges this focus, saying, “I often use the word ‘floating’ not only to describe a lightness I want to achieve in architecture, but also to express a belief that our lives are losing touch with reality. All of life is becoming a pseudo-experience. This trend is being encouraged by the consumer society, and architecture itself is rapidly becoming more image--or consumption--oriented.” The crux of his argument follows, “I do not want merely to reject this state of affairs; instead, I want to enter into



In the fishing villages on the Oshika peninsula, a common practice is to catch invertebrates and mollusks by throwing a metal cage into the sea and marking it with a buoy. First, the shrimp arrive, then larger animals come to feed on the shrimp, and a small interdependent community establishes itself. Then, the cage is lifted out of the water, its contents sold to niche international markets.

Temporal, flexible, and strategic, the cage offers a supportive and minimal infrastructure that defines space and instigates spatial practice for the marine life. Its size gives a sense of enclosure for the small creatures, and is fairly easy to maneuver from a boat. It is practical, yet poetic, and literally interfaces with natural phenomena. A good methodology should mimic these qualities.



Series of maps at left shows land to water relationship before, during, and after the tsunami, and then after reconstruction of the sea wall.

this situation a bit further and to confirm what sort of architecture is possible [within it].”³ In this way, Ito and his students operate with in an analogous way to what German philosopher Peter Sloterdijk has called cynical reason. Hal Foster summarizes, “the cynic knows his beliefs to be false or ideological, but he holds to them nonetheless for the sake of self-protection, as a way to negotiate the contradictory demands placed upon him.” Armored by self-aware artifice, the cynic is “almost impervious to ideology critique.”⁴

The critical ambiguity Ito exposes through his exploratory approach allows him to work against the grain of what is direct and ethical. More plainly, in the case of post-disaster reconstruction, the concept of “psuedo-experience” reads as a thin, elitist, urban discourse. Ito himself did not develop this discourse in his response to disaster reconstruction.⁵ Yet, is the world the day after a devastating event really any different than the day before? Doesn’t that mean that cynically engaging in the spectacle of consumerism is always elitist and distant from more fundamental questions of existence? Perhaps this is where Heidegger and Ito part ways. Foster concludes his chapter, “The Art of Cynical Reason,” with the following:

“After the apotheosis of the signifier and the symbolic, then, we are witness to a turn to the real on the one hand and a turn to the referent on the other. And with these turns come different returns--different genealogies of art and theory.”⁶

On the ground, each finds her own answers to the fundamental questions of survival, and need not ask for the guidance of architects. However, one might observe that more immediate than the seasons and more apparent than natural phenomena, and more stirring than chaos are other people. Strong ties and interdependencies between people should be the infrastructure of an urban form that cannot depend on the stability of the earth.



a. A stone marks the highest water level ever recorded, in 1933. The stone also bears instructions for what to do in an emergency. (see following page for map)

In this, coastal villages have developed an oral tradition around the tsunami event that informs the collective memory. Since a large tsunami occurs roughly once in a generation, an elder can relay important instructions to children and grandchildren based in first hand experience. Details might include the level of destruction of the last event, the time between when the earthquake was felt on land and the arrival of the wave (which is equal to the possible evacuation time), and the location of the evacuation center (each village has at least

one multi-story massive concrete structure that may function as a school, a crematorium, a public bathhouse, a hotel, or another program, but in the event of a tsunami it is an agreed upon refuge for anyone in the area).

After each tsunami, people feel shocked and rebuild their houses away from the sea. But over the course of a decade or two, fishermen begin to migrate back down to the beaches, where they once again build houses so that they can be near their workplace. As daily life returns to its predictable rhythms, the disruptive event fades into the background. When people feel a large earthquake or hear a tsunami warning, they must rely on the memory of the elder's stories for their reaction.

Beyond storytelling, the survivors of the previous tsunami mark the landscape by rebuilding the roads and placing tsunami markers indicating the highest high water mark along the new road. The marks are legible as memorial, as a physical reminder, as tacit information (the tsunami markers are large stones bearing inscriptions with data about the last tsunami and instructions on what to do in the event of a major earthquake), and as infrastructural improvement to the town's siting (the road should be planned to be as close to the water as possible, to avoid hills and erosion, while still being out of harm's way. The high water mark indicates the last contour of safety in memory).

The approach, of rebuilding the roads each time they are washed away, is a flexible

b - b This cemetery is built into the hillside, a little down the hill from a Shinto shrine. According to village logic, things intended to last for longer than a single generation are located at higher elevations.



and adaptable strategy. It opposes another more modern approach, the mega sea wall. In that approach, the city attempts to build a protective wall to break any wave. This introduces several problems while also solving many others. The numbers of victims can be lower in smaller events. But in large-scale events, the height of the wave is unpredictable. The expensive wall may need to be rebuilt after only one event. With the seawall, the relationship between man and nature is figured as a violent struggle. In the case of the rebuilt roads, there is a more subtle acknowledgement of the shifting and dynamic relationship of power between man and nature.

This fluid approach begins to identify and even negotiate a repetitive cycle, a rhythm, perhaps. Instead of an endless circle of destruction and eventually myopic renewal, the chain of human memory and oral tradition leaves a hint like a dream for the following generation or two.⁷

French Marxist philosopher Henri Lefebvre's canonical *Space, Time, and Everyday Life* received an addendum in 1991 with the translation into English of the final chapter, "Rhythmanalysis". In it, he considers spatial practices using a musical analogy, proposing that human activities have a perceptible rhythm. He introduces a framework for analyzing spatial practices over time, through cycles, and in comparison to one another. Adopting this framework is useful in the context of Japan due to the aforementioned importance of social networks as



Section shows cemetery on hillside and level of highest water in March 2011.

b - b

a psychological defense against the occasionally unpredictable sea and unstable ground.

Lefebvre posits that we experience time through rhythms. Normally, we might look to the clock to regulate our understanding of the passage of time. According to Lefebvre, the rigor of the clock, introduced with the age of modernity, artificially homogenizes the experience of time into a series of equal increments. In contrast, a rhythm starts out with a repetition. But unlike the interminable seconds hand on a ticking clock, a rhythm is much more rich and contains more information.

What separates a rhythm from an isolated event, for example, is repetition. Repetition creates the

possibility of measurement, allowing the comparison of intensity, duration, pitch, et cetera.

When we compare two events, the important information is difference. We know from calculus that Lefebvre is correct when he says, “When it concerns the everyday, rites, ceremonies, fetes, rules and laws, there is always something new and unforeseen that introduces itself into the repetitive: difference.”⁸

Explaining the foreign context to an audience totally unfamiliar with not only the site but also the cultural conditions and assumptions of the site was a daunting task. By adopting the framework of a Western philosopher whose ideas regarding space are fairly well known, a portion of the task could be somewhat domesticated.

In discourse about Japan and the “Japanese mind,” there is necessarily a good deal of subjectivization and exoticization of what it means to be Japanese. As a contemporary onlooker, it is hazardous to venture into what makes “them” different from “us.” We risk trampling through the delicate simulacrum of cultural studies unique to the history of Japan and its relationship to the world. Fortunately, the path has been well-cut but predecessors, to whom we now turn.

In his article for the Fall 1997 issue of Harvard Design Magazine, “What Goes Up



Road and Sea. map shows the highest waterline in the March 2011 tsunami, inundating the lower elevations.

Must Come Down: Recent Urban Architecture in Japan,” Botand Bogнар summarizes the key premises upon which the discourse of difference is based regarding Japan and the rest of us. To contextualize my choice of Lefebvre’s Rhythmanalysis as the methodology for this thesis, let us review Bogнар’s observation,

“The historian and theoretician Nyozeќan Hasegawa...argues that the importance of tradition in Japan ‘lies not so much in preserving the cultural properties of the past as in giving shape to contemporary culture; not in the retention of things as they were, but in the way certain...qualities inherent in them live on in the contemporary culture.’”¹¹ Botand Bogнар

This observation justifies the approach of analyzing not what physically existed on the site on the day before the tsunami, but which preexisting qualities and power balances need to be preserved in the reconstruction, and which are no longer relevant.

And so with that we ask,

How can architecture articulate and direct the rhythms that bind a place together?

Analyzing the relationship of the site to rhythms and how they were intensified, aggravated, disrupted, lost, or largely unaffected by the single event of the Tohoku tsunami became the methodology for approaching these questions. The rhythms most relevant to the project emerged from the overlap between people and the hydrological cycle. Following water from its collection into a stream, its passage under the road, through the terraces of a rice paddy, and out to the ocean and water table posed a new assemblage of raised platforms and rooms. As one meanders between mountain and sea, the human path knits together the various spatial tensions of the site into a sequential whole. This architectural strategy fluctuates with the seasons, the cycles of harvest and festival, and the human life cycle. Although the architectural strategy derives from relating individuals to their landscape, and to re-valuing a territory that has come to feel peripheral and dangerous, over time the experience of becoming a regular at the new bathhouse, entertaining visitors at the restaurant, joining friends in the greenhouses, and proudly selling locally crafted smoked oysters to a national or even international market.

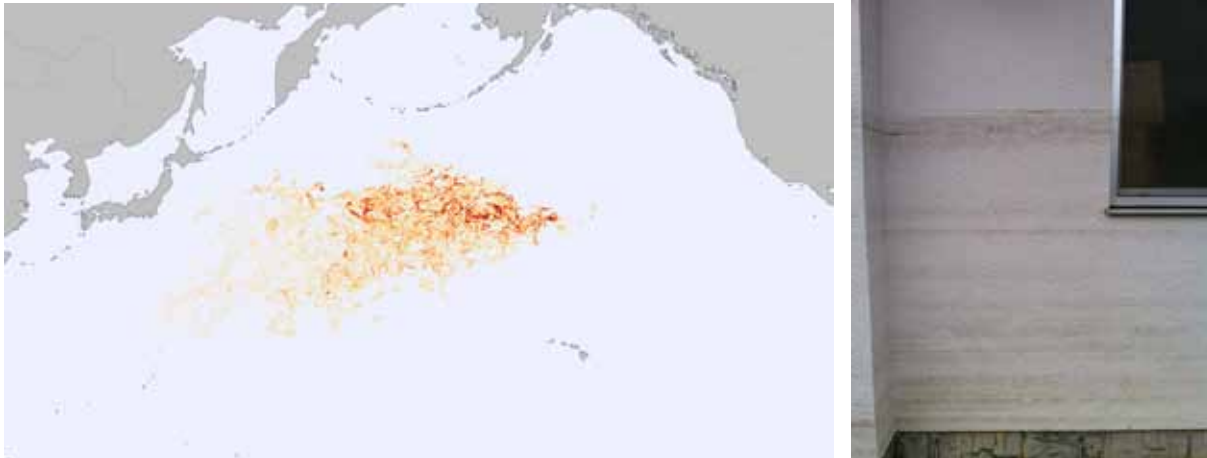


Figure 14. Predicted route of tsunami debris in ocean currents. High water mark on community center in Ishinomaki, before volunteers pressure washed the trace away.

Notes

1. Lefebvre, Henri *The Production of Space*, Blackwell, 1991, p. 59
2. Botand Bognar, op. cit. (3)
3. Toyo Ito, "Shinjuku Simulated City," *The Japan Architect*, 1, no. 2 (Spring 1991): p. 51, as quoted by Botand Bognar in "What Goes Up Must Come Down: Recent Urban Architecture in Japan," *Harvard Design Magazine*, Fall 1997, Harvard College and MIT Press 2001
4. Foster, Hal, *The Return of the Real* MIT Press 1996 (118)
5. what did he do?
6. Tragically, this social network has its drawbacks. The last tsunami on record was in 1966. The epicenter was off the coast of Chile, and measured 9.5 on the Richter scale: the largest earthquake on record. The tsunami reached Japan's shores and claimed 138 lives, (http://earthquake.usgs.gov/earthquakes/world/events/1960_05_22.php) several hours after the earthquake was reported. The waves, after all, had to travel all the way across the Pacific Ocean. So the previous tsunami, by which this generation set its expectations, was relatively minor compared with the March 2011 event. Psychologically, the oral tradition did not prepare the victims for the immensity and speed of the event.
7. Lefebvre, Henri. *Elements of Rhythmanalysis: An Introduction to the Understanding of Rhythms* [Originally published as *El'ements de rythmanalyse: Introduction a la connaissance des rythmes*, Paris: Editions Syllepse, 1992.]
8. Ibid, (3)
9. Ibid, (4)
10. Ibid, (4)



Kobuchihama site map showing old (white rectangle) and new (black rectangle) axes, and site extents (black circle).

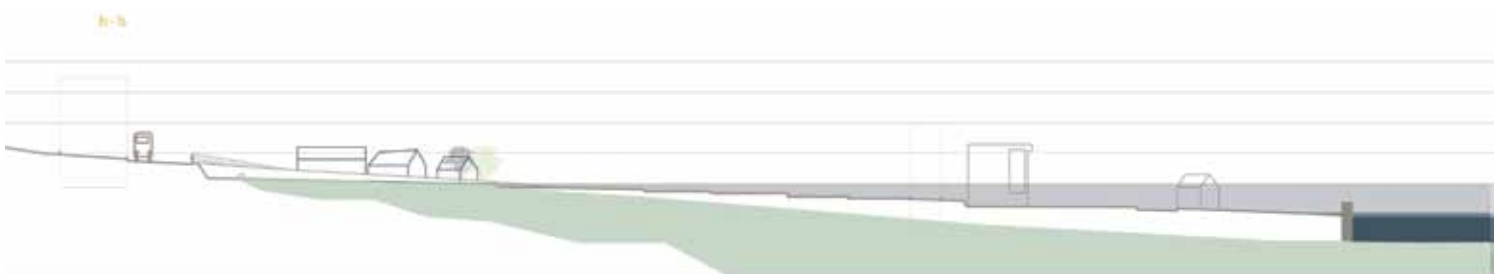


6. Design Presentation - from analysis to practice

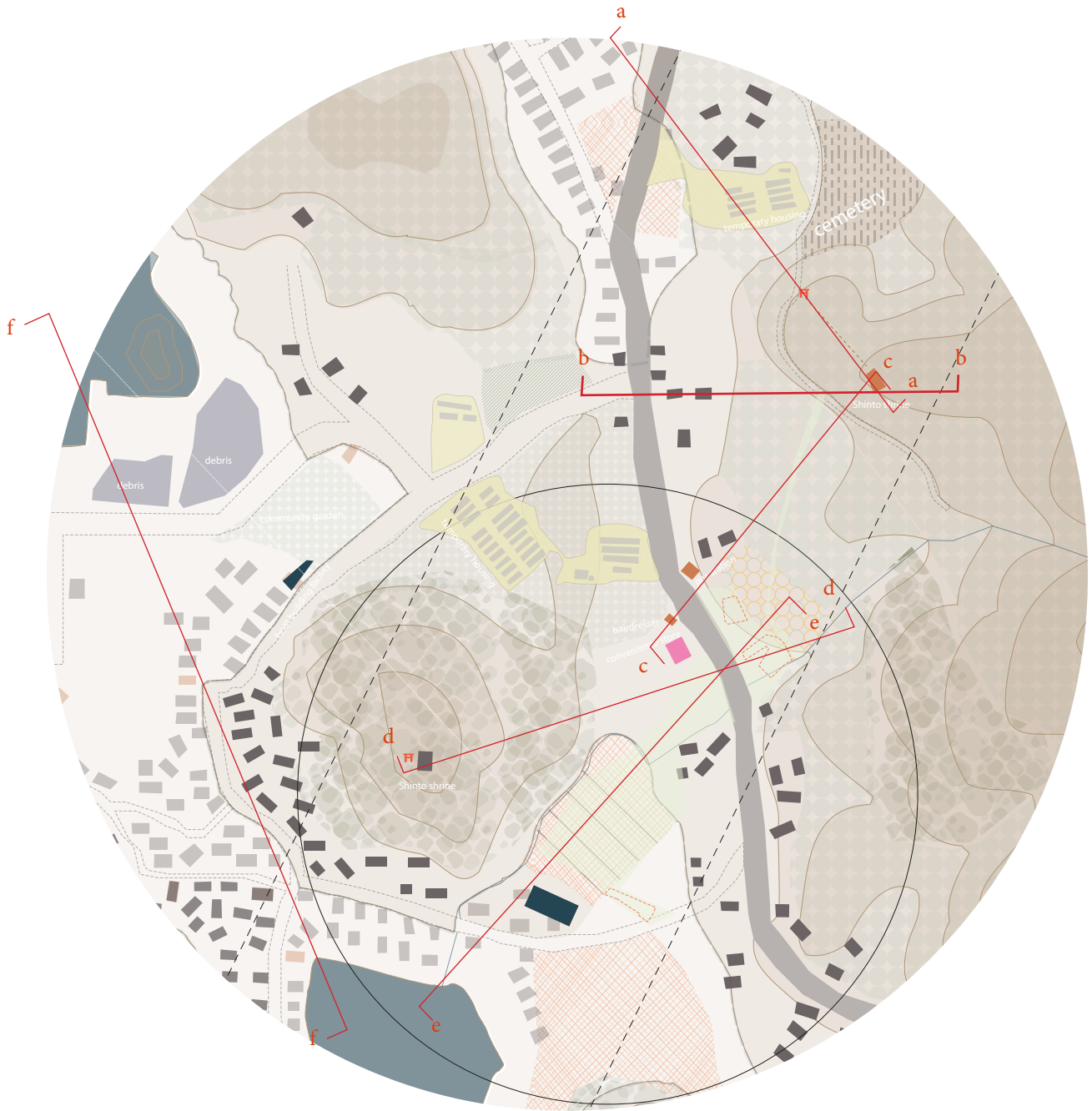
<https://vimeo.com/57698689>

This thesis investigates the rhythms of a particular place, and creates an architecture based on this analysis. The Tohoku tsunami stripped the shores of northeastern Japan, mixing landscape with artifact everywhere from 0 to 25 feet above sea level. Afterwards, rural depopulation has accelerated, and the lack of successors in heritage industries has become a national issue. Along the coast, however, fishermen returned to work almost immediately after the tsunami. Returning to a rhythm – cleaning up, raising oyster, and sharing food and firelight – functioned as a kind of therapy. This thesis argues that institutions of social capital generate the spatio-temporal rhythms of a place. how can architecture articulate and direct the rhythms that bind a place together? What is the role of architecture where there will be no heroic future?

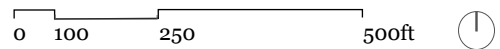
The proposal begins by converting a salinated rice paddy to a field of flowers. The subsequent moves take place upstream and downstream of this field, combining existing and intervening elements along a path from sea to mountain, in juxtaposition to more heavily used routes between sea and road. These elements include a shrine, a bathhouse, a convenience store, a field of flowers, a smokehouse, and a fishing cooperative. The result draws into tension relationships between inside and outside, cycles of short and long duration, and especially relationships between newness and age. From solid footing, the resulting assemblage expands and contracts in time to a variety of rhythms.



e - e Section from road (convenience store) to sea (Fishing Cooperative).

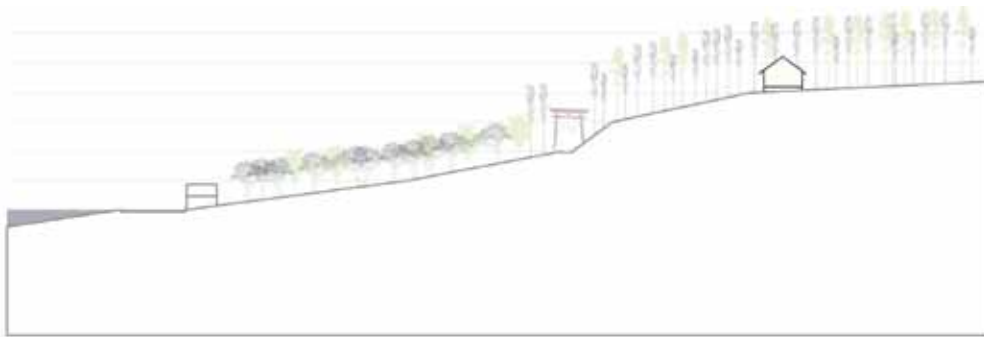


To comprehend the topography and the spatial dynamics of the site, several sections were cut between key zones.





a - a From shrine to road I.



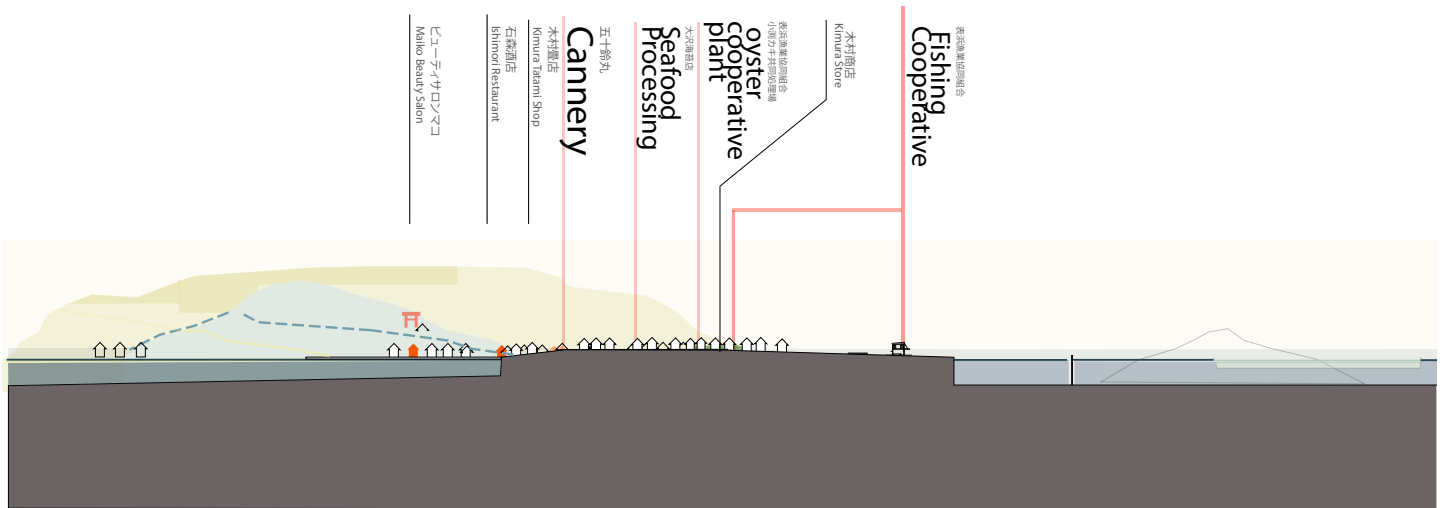
b - b From shrine to road II.



c - c From shrine to convenience store.



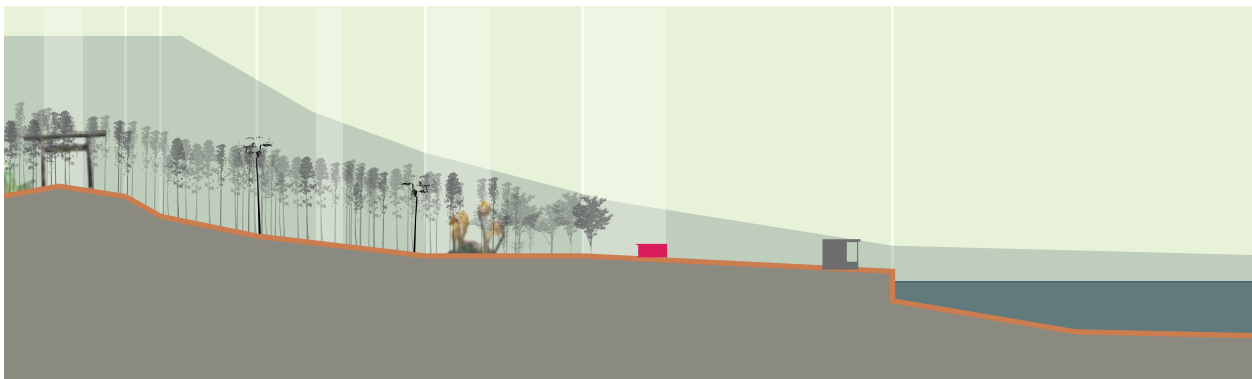
d - d From shrine to shrine.



f - f Reorient: before the tsunami, the old axis of the town stretched between the two harbors over the low isthmus.

After the tsunami, the main axis of the town, which used to run between the two bodies of water, shifted to run between the ocean and the road or mountain. The relationship of low and high ground became much more important as people decided where to resettle. Fishermen, who in many cases were able to ride out the wave in their boats, didn't mind resettling in the disaster zone, since it is much more convenient to their work. Others who support the fishing industry including family members and part time employees who are not members of the FCA, were more keen on resettling on higher ground.

Remaining businesses in town after the tsunami were the local FCA, which was rebuilt within a year of the event, (the prefectural level FCA is occupied but awaiting reconstruction), and the convenience store. The convenience store has a globalized rootlessness, yet as one of the only businesses in town it has become an unlikely locus. People go there for a break, gossip,



e - e After the isthmus was flooded, the mountain to road to sea axis became intensely activated.



June 2010



April 2011

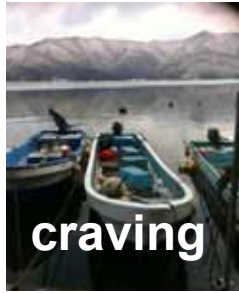


February 2012

"[The rhythm analyst] must recognize representations by their curves, phases, periods and recurrences...he makes himself more sensitive to times than to spaces. He will come to 'listen' to a house, a street, a town, as an audience listens to a symphony."



June 2014



スパゲチ



japanese spaghetti

ハンバガ



japanese Texas burger

カレライス



japanese curry



The remote fishing villages benefited from in-group dynamics, yet suffered from social isolation from other communities. People reported feeling guilty and feeling judged if they enjoyed themselves at a family restaurant in a larger town.

it's a meeting point between visitors and locals, there's a farmer's market held there regularly. The road is high, rebuilt after the last tsunami wiped it out in the 30s.

Further up the mountainside on various ridges are other, less visited institutions, the Shinto shrines. This one is in a cedar forest, along a forest road. It hearkens back to the pre-industrial logic of village spatial planning.

From the ridge, before the tsunami water collected into a stream, passed under the road, and filtered through a rice paddy before infiltrating into the ocean and water table. But the tsunami inundated this rice paddy, making it unfit for growing rice. Currently the terraces remain, but the field is failing to drain completely, which perhaps means that it is salinated more in some places than in others. From these satellite images we can see how even a year after the tsunami, grasses naturally spring from the ground here, so the site is not altogether unproductive.

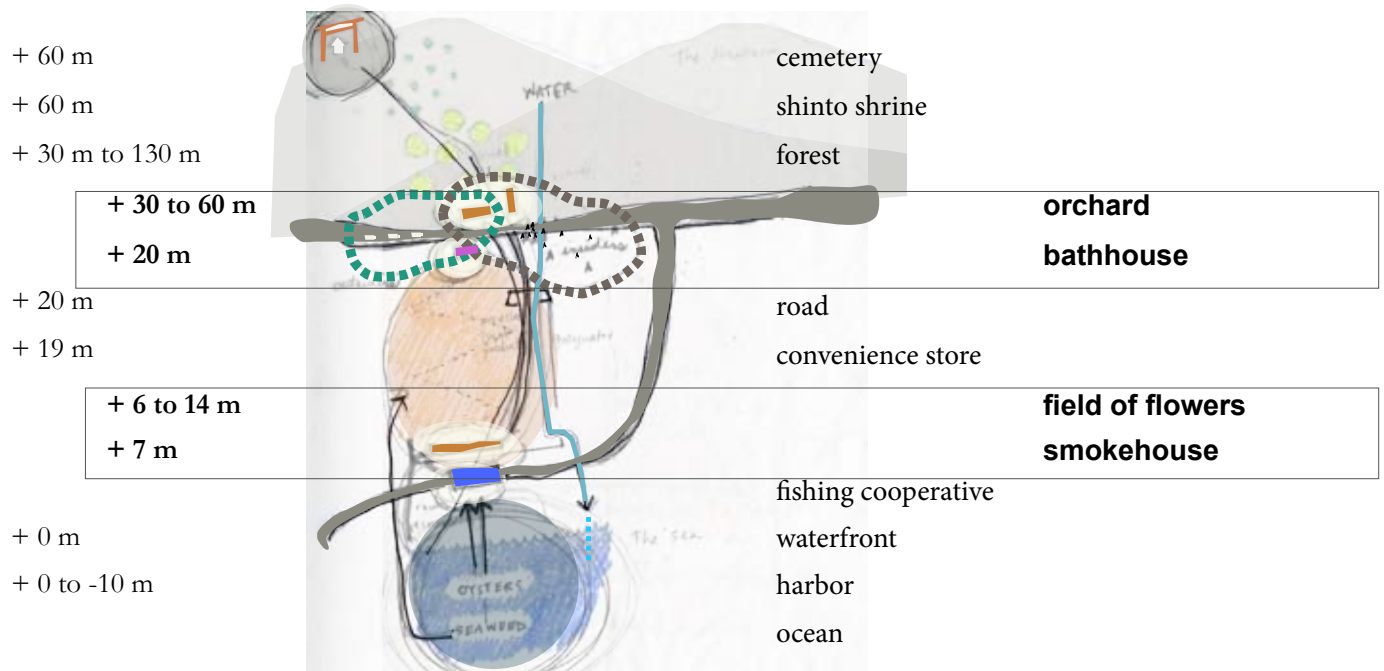
The intervention is organized along the flow of this stream from mountain to sea, reinforcing the new axial orientation of the village. It is an assemblage of raised platforms and rooms.

Water is brought from the stream in a raised channel into this structure, a bathhouse. The baths are raised and look out to the ocean, framing the water as peaceful and distant. The water then falls into an underground settling tank and into a series of wetland terraces that begin to clean this greywater. The water is piped under the road and reappears on the other side. It makes its way over to the terraced rice paddy, which is planted with salt resistant plants. The bathwater is used to flush out the salt from the soil for the first few years. Irises and day lilies are protected

in greenhouses and then bloom in irregular patterns, creating a kind of map of where the soil is more or less salinated. After a few years (according to a reclamation project after the 2004 tsunami in India), the soil will be sufficiently flushed out, and the land can be redistributed as vegetable gardens. The pattern of age and agility will become legible in the relative tending to the individual beds.

The water filters through these terraces and then passes along its old route out to the sea. The path leads us down to the fishing cooperative and a small smokehouse. This fire tower like structure is raised so that in the workroom one stands above the highest water. From the fishing cooperative, raw oysters are drawn up in buckets through the porch, arranged on trays, smoked, packaged, and then sent off by truck or sold in the small shop.

The bathhouse is above the road (a kind of physical line of safety), while the smokehouse is down by the water. Both are constructed in the same architectural language because they are

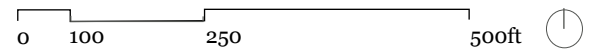


Topography defines the expected durability of programs on the site. The above diagram illustrates the programmatic axis identified in the thesis and the design intervention to strengthen this axis.

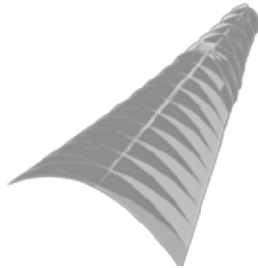


Inundation

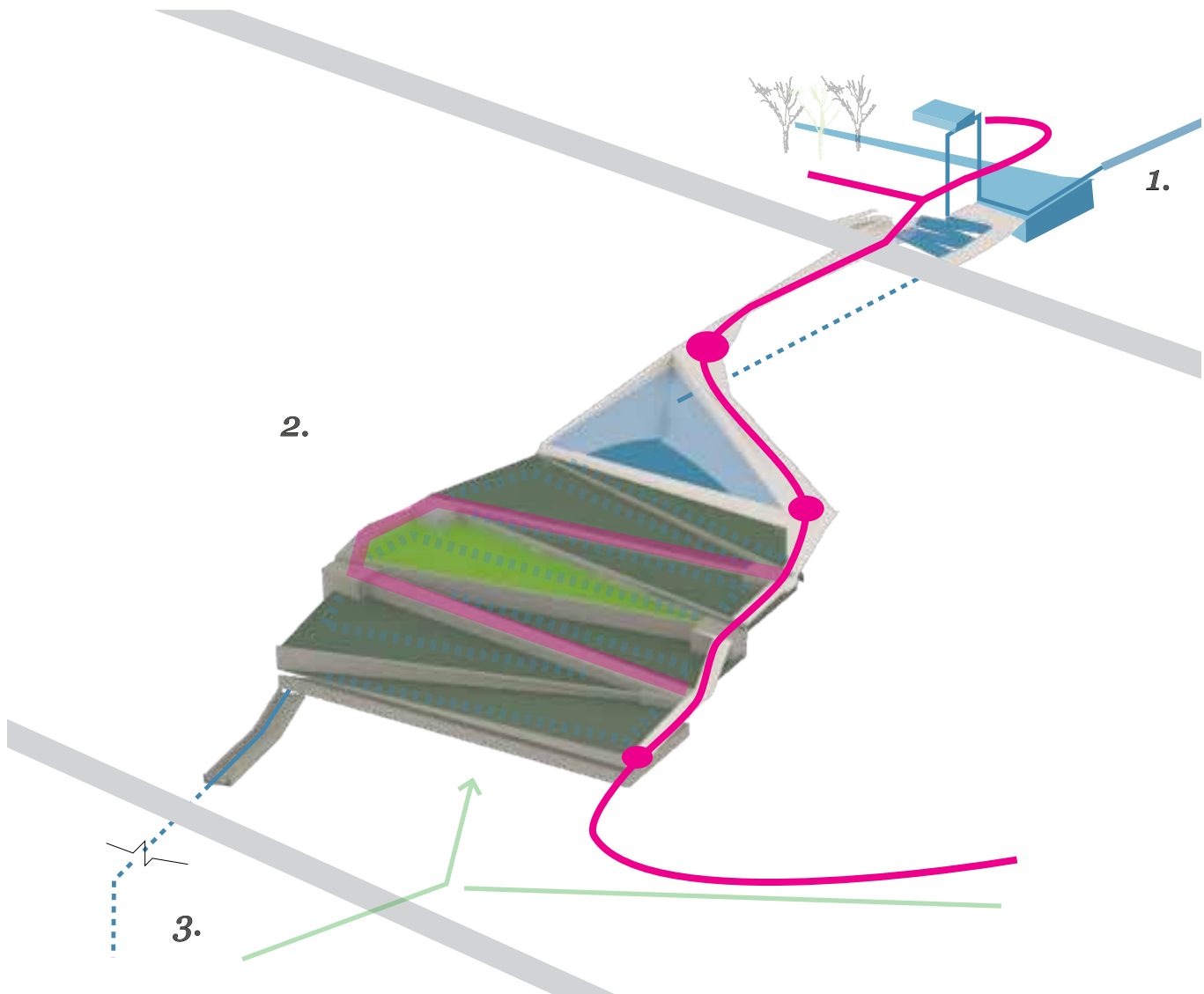
The new axis is marked by a small spring which flows from mountain to ocean. Along the spring, a large open field, previously used to cultivate rice has been salted by ocean water, ruining the soil (Far left). Rice paddies can be used as a constructed wetland, lengthening the time of infiltration of runoff or stormwater, creating habitat for birds and other wildlife (Near left, above). While useful for agriculture and an ecological benefits, the concept of the rice paddy as a canvas or billboard is not foreign in Japan (Near left, below). **Figure 15.** The rice paddy is the centerpiece of this project for its contested and multiple values to the local community.



The rice paddy filled in a natural contour in the landscape. The pink (Upper left) illustrates the probable distribution of salt based on topography and the known high water mark. The flower field (Upper right) would be planted with a variety of flowers, chosen for their relative resistance to salt. Their blooming pattern would likely map the extent and intensity of soil salination in the field as time passes. Purple irises, for example, grow naturally in salt marshes.



Early spring greenhouses protect flowers from low temperatures and grazers. Rice farming will not be possible for many retired fishermen and their families. Therefore, once the soil is desalinated, small vegetable patches are distributed to residents. Those patches that are left uncared for will continue to flower from the bulbs already planted.



How long would it take to desalinate the field by regularly pulsing fresh water through it?

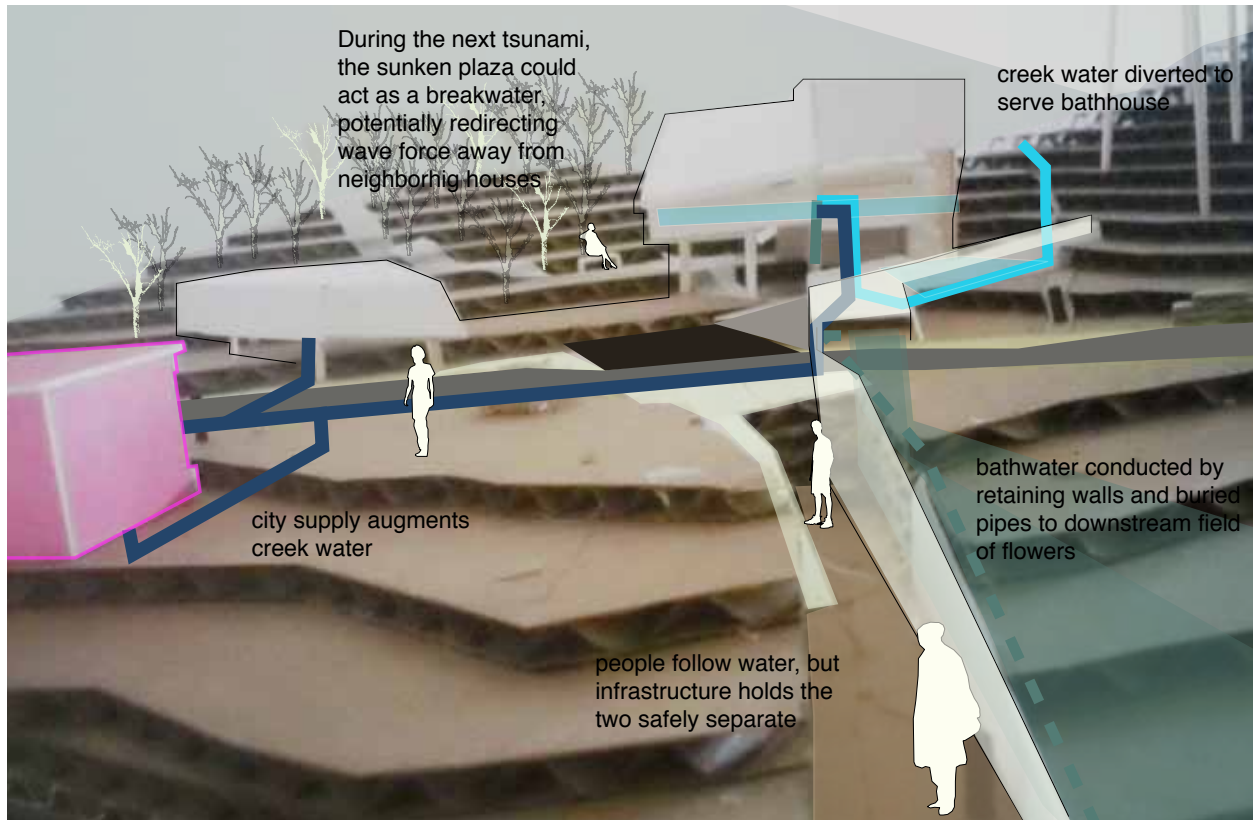
1. Clean water is used once by upstream program, then enters stage I sanitation (settling)
 2. Greywater pulses through field planted with salt-resistant bulbs. Rice paddy is already configured for appropriate drainage.
 3. Field is fertilized by refuse from oyster and seaweed aquaculture
- Circulation path intertwines with path of water, showing key places of pause. Wheelchair accessible path meanders through field.

The three main principles of **soil desalination** are:

1. *drainage / flushing*
2. *appropriate planting*
3. *fertilizing*

After the 2007 Aceh Tsunami, it was measured that soil desalinated in 2.5 years. Local social capital infrastructure must be established for regular soil tests and fertilizing practices.

The field, sized for the amount of water detained, flushes salt from the soil via subsurface irrigation until the next oyster harvest. The end of the 2.5 year maturation period marks the time to convert the field to vegetable patches. (estimated 350,000 L / day at 1m³ / 135 L / day) (Above)



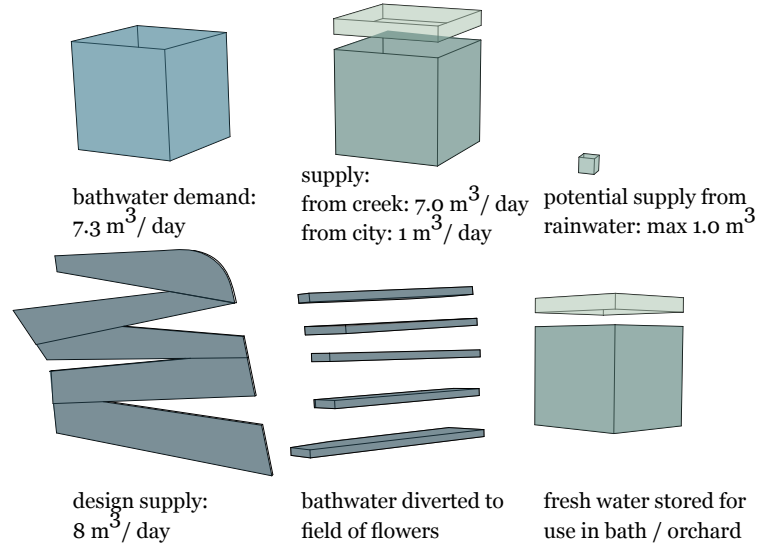
Design Development: The Sluice

A bathhouse with a daily usership of 25 people demands 350,000 L of water. The creek onsite has a flow rate of approximately 2 m/sec, or 340,000 L per day. Therefore the creek water is supplemented by city supply. The greywater produced by this bathhouse could be processed by a 2800 m² section of land. The field downstream is 2800 m².

The earthwork shown in the image above created a literal axis in which people circulated in parallel to the path of water. The strong, durable infrastructure could also provide an outlet for future tsunami flows. This might result in the destruction of the entire project, making the lifespan of the project limited to the duration between tsunami events.

After examining this idea, it was rejected for being cynical and heavy handed. Already a prospective project, this move made the project feel theatrical, satirizing the serious events that had taken place. While a move like this may have been appropriate for a postmodern rhetorical strategy, it was not the aim of this thesis project.

Water volume supply and demand



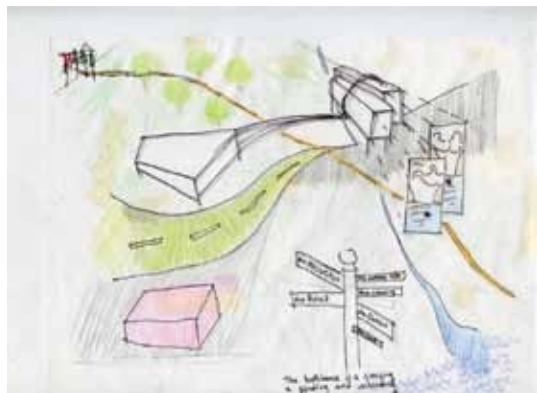
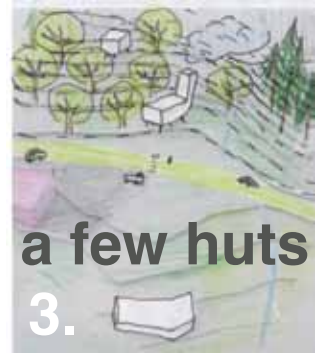
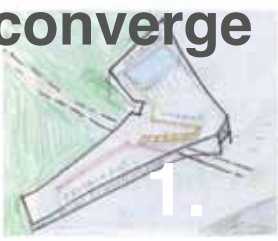
Instead, the concept was refined by deriving strength and durability through repetition and ritual of planting, harvesting, and bathing. Instead of using a single intervention in the built environment to symbolize strength and durability, it seemed more appropriate to rely on less visible but more tenacious systems of social capital.

However, the metrics for greywater processing capacity derived at this stage are relevant to the final product.

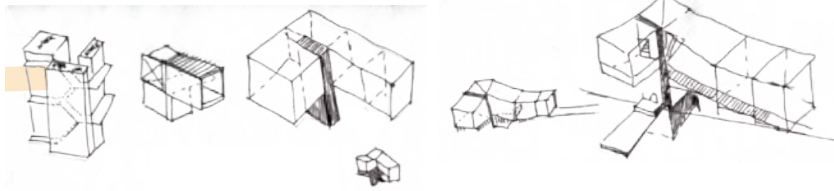
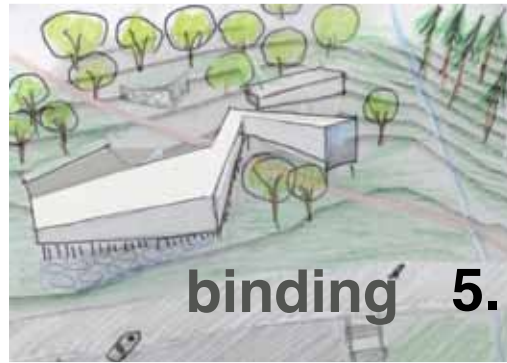


Model view from above: the bathhouse is figured as two slightly asymmetrical volumes perched above the village, but grounded in the robust sluice.

converge



bundling

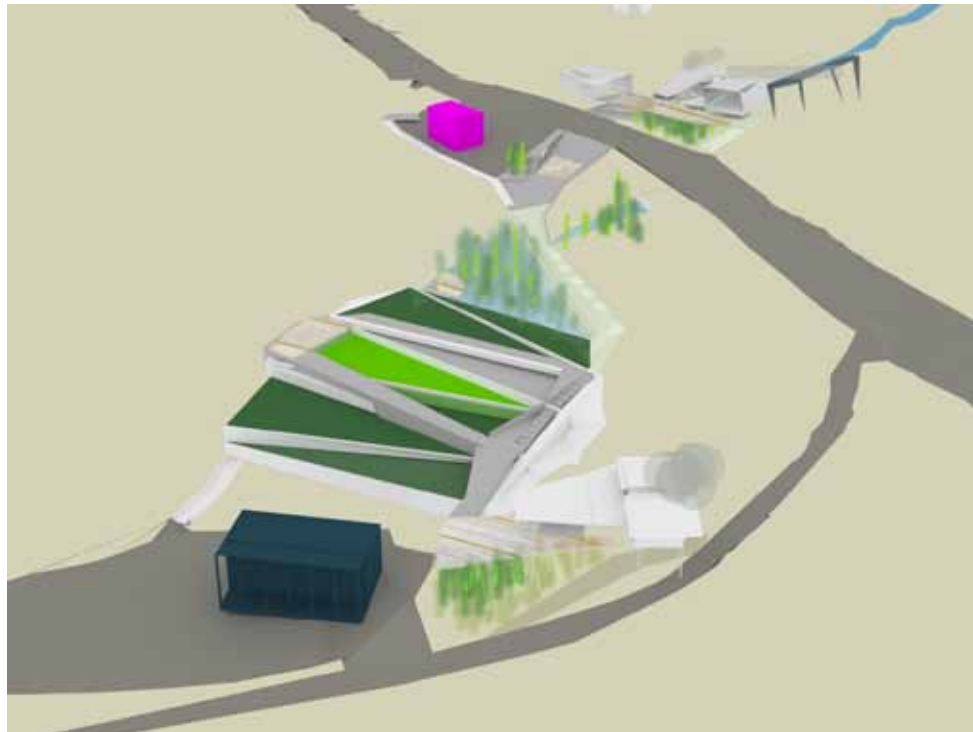


Several configurations were tested on the site, eventually one was selected for its poetic and practical combination. The metaphor (“binding”) that was adopted reflects both to Shinto linguistic style (*shime*) and to local aquaculture practices.



Loosely binding land and sea. Site map.





Site axonometric

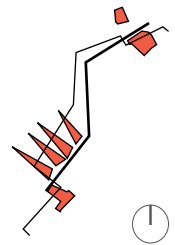
part of the same operation. They are unique in the way they orient to their specific location: how they meet the ground and how they create space around them, and how they orient views between mountain and sea. Tectonically, they are simple steel framed structures infilled with wood panels and clad either with corrugated aluminum or with locally sourced thin wooden slats. This facilitates an economy of construction and a light presence on the land.

As one meanders between mountain and sea, the human path knits together the various spatial tensions of the site into a sequential whole. This architectural strategy fluctuates with the

Site section, East to west looking roughly south. The bathhouse and smokehouse form light parenthesis for the field of flowers

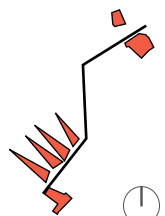
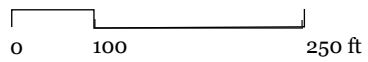


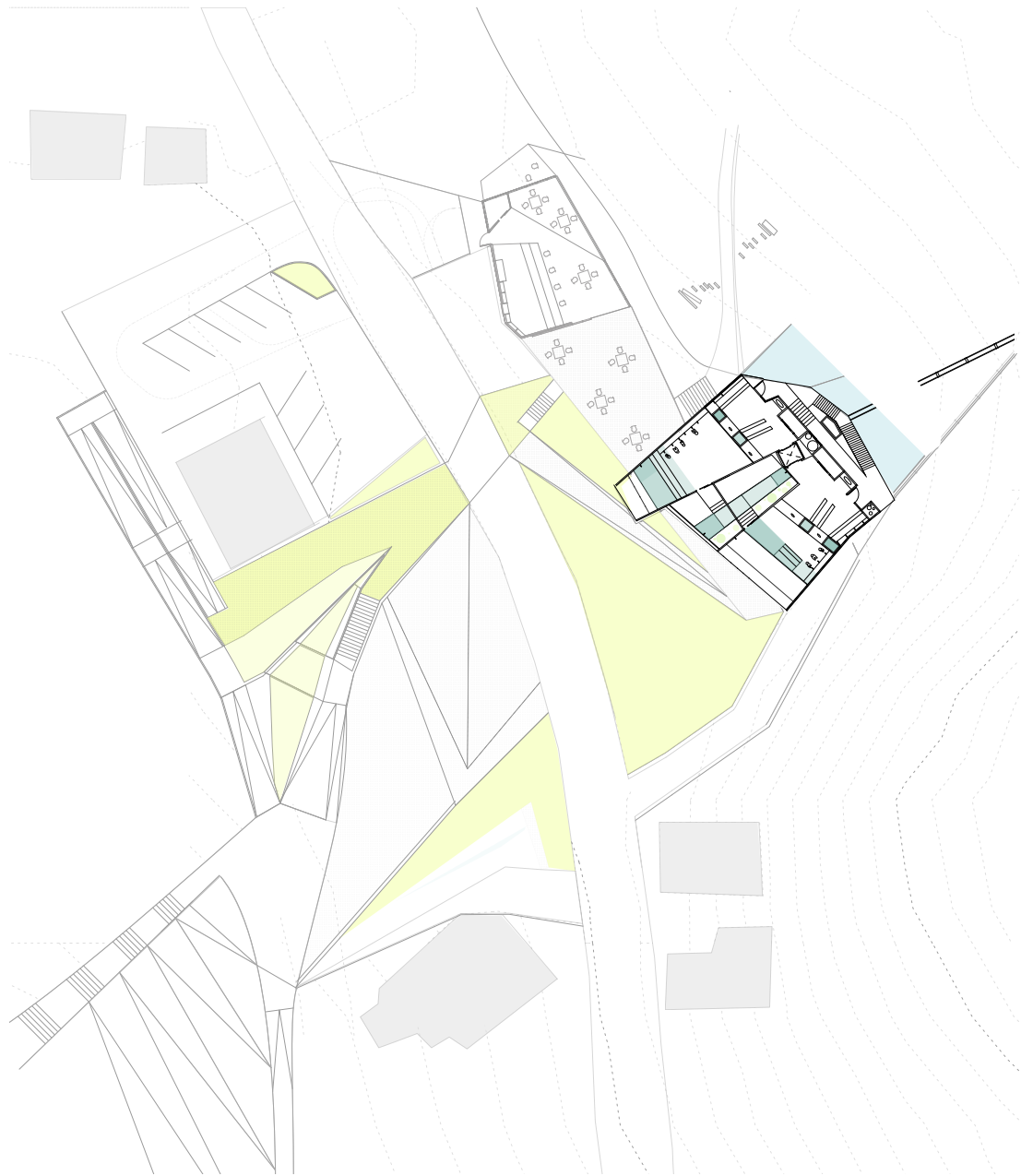
seasons, the cycles of harvest and festival, and the human life cycle. Although the architectural strategy derives from relating individuals to their landscape and from revaluing a territory that has come to feel peripheral and dangerous, the intended result of this operation is an ecology of public spaces emerging only through daily life, in which various kinds of communication become possible.



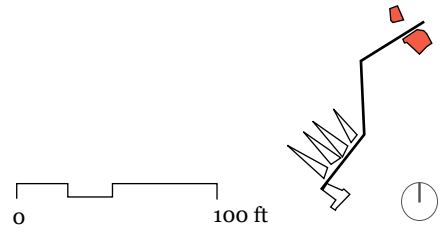
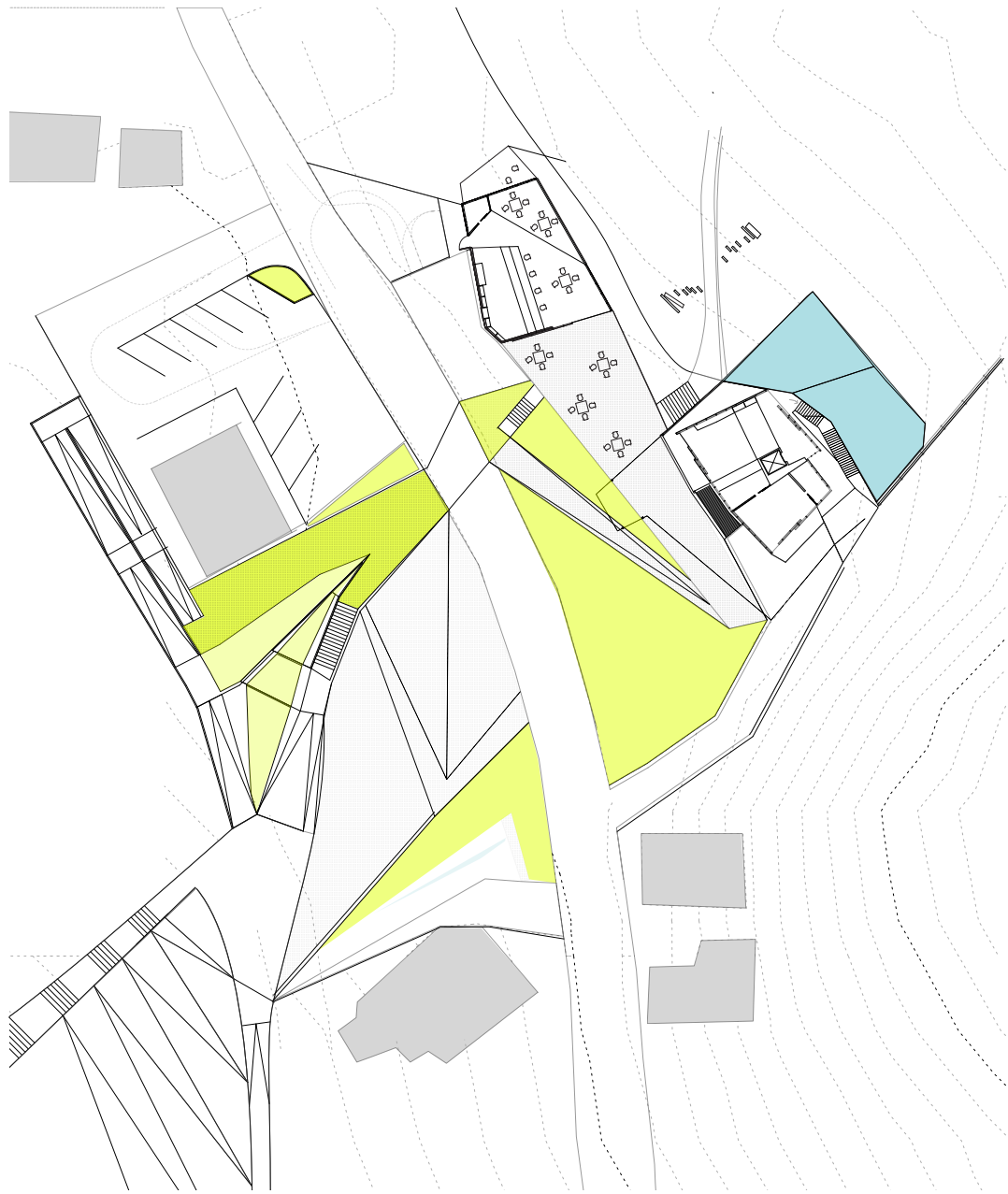


Site plan in greater detail, both levels.



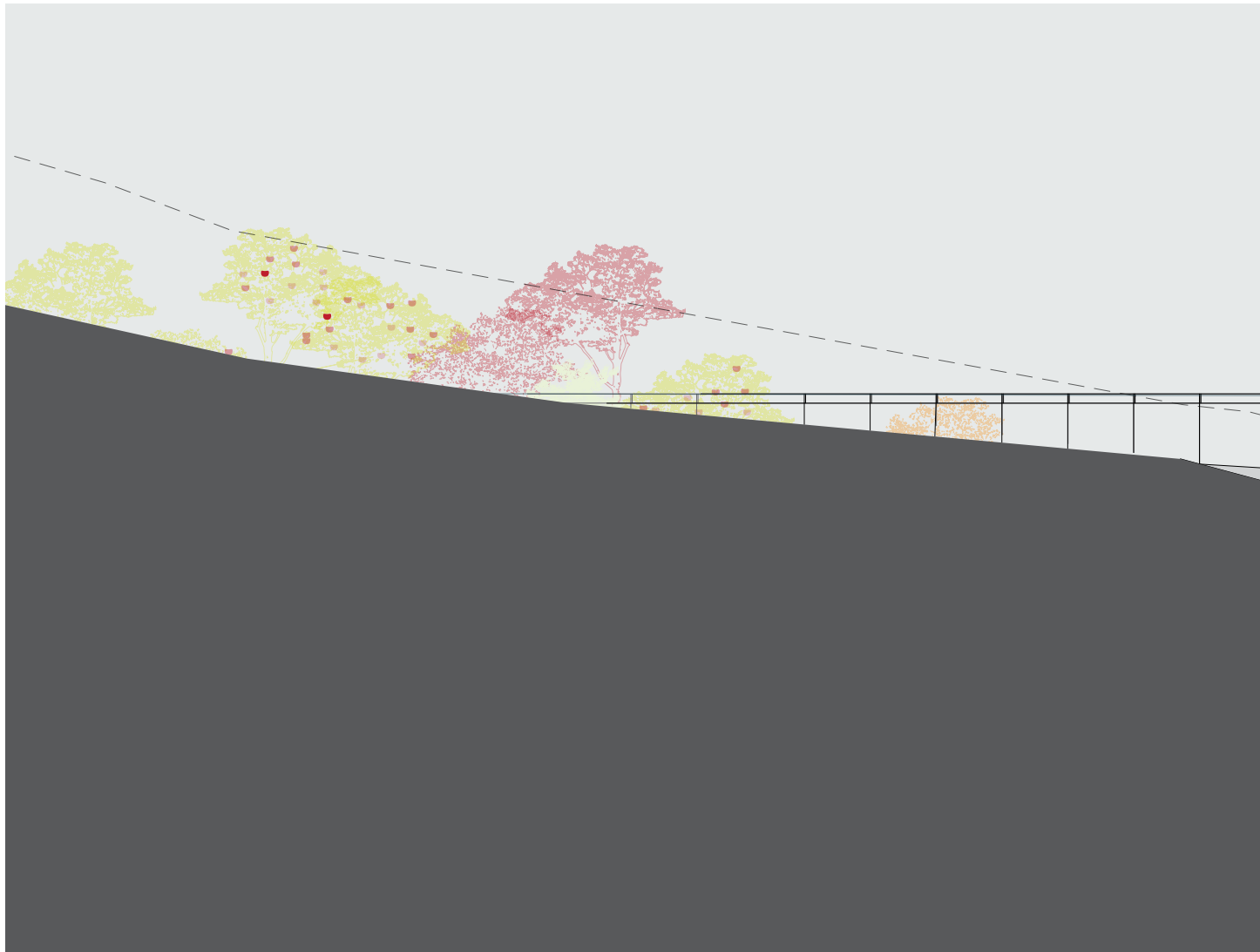


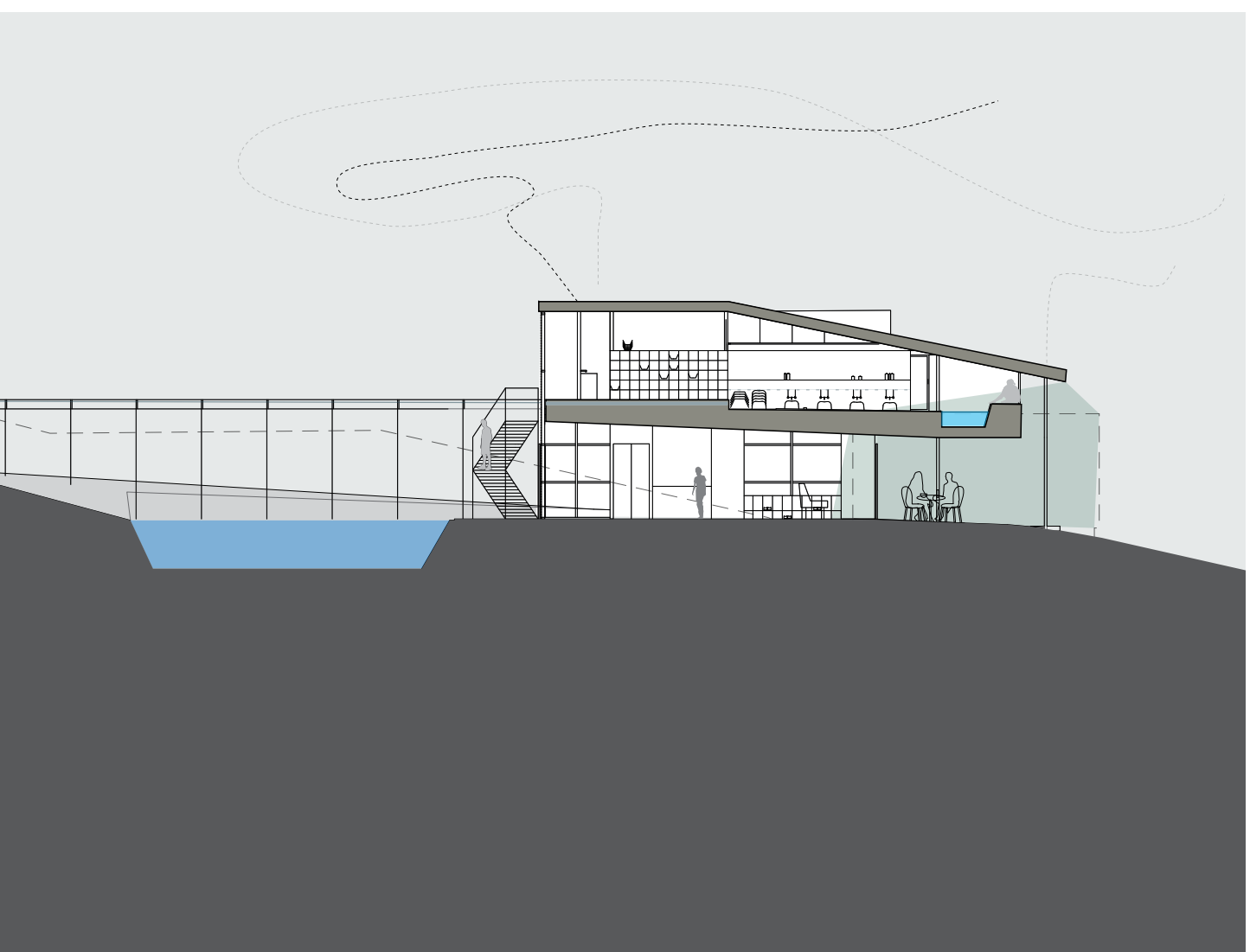
Bathhouse in plan



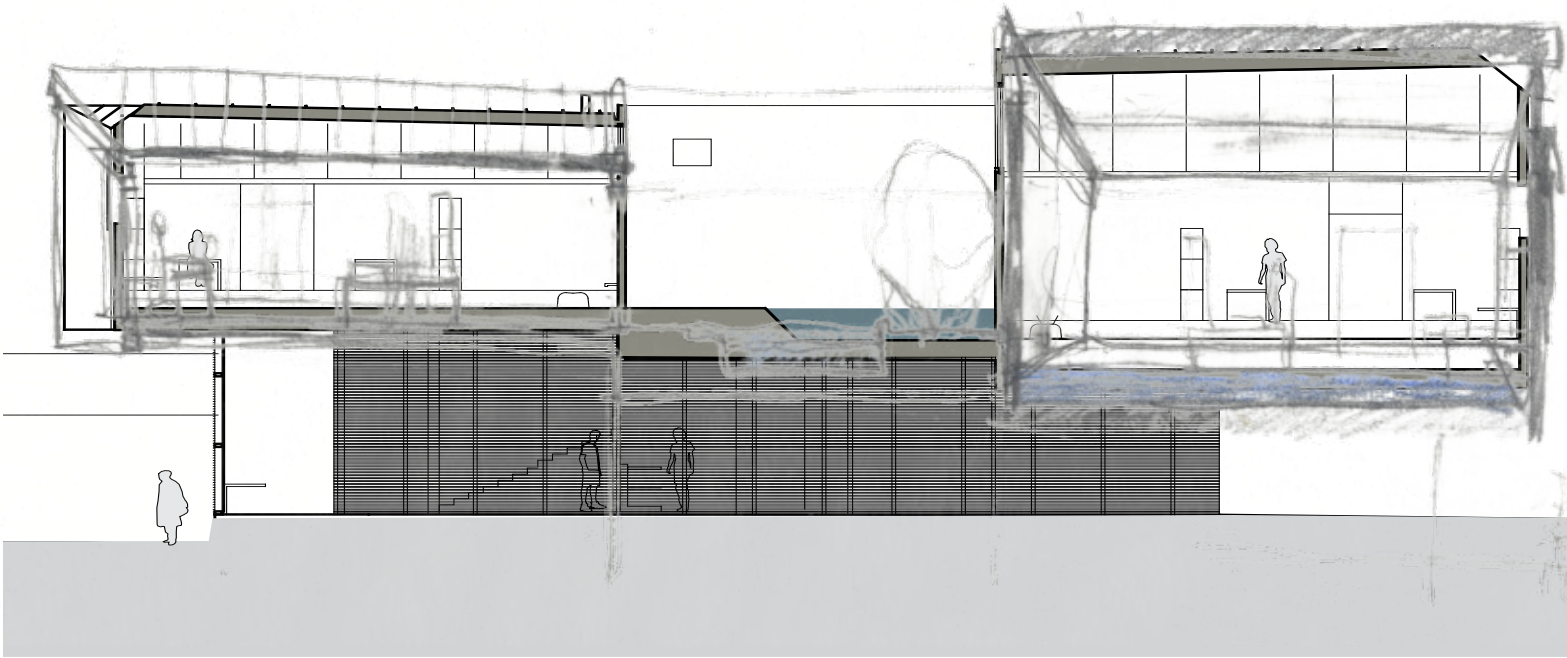
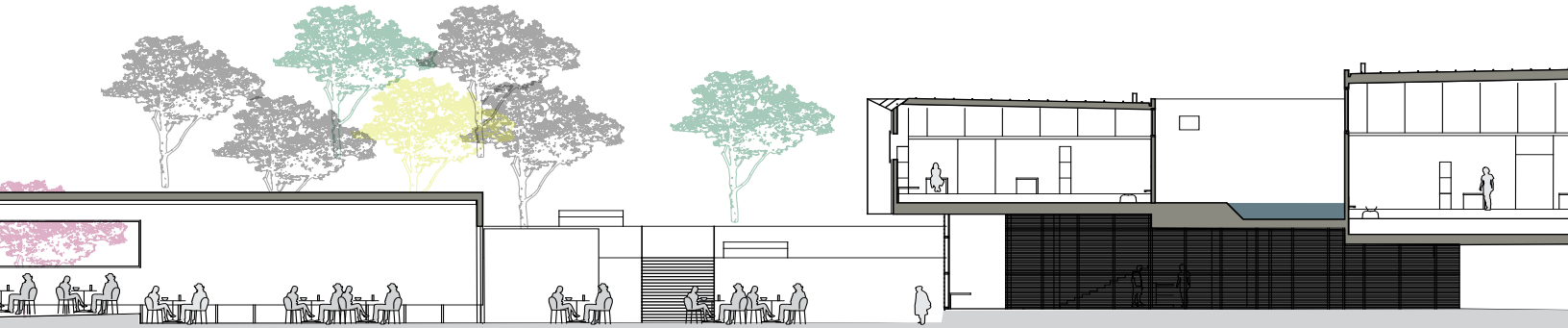


Bathhouse views and section

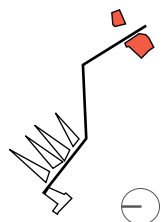
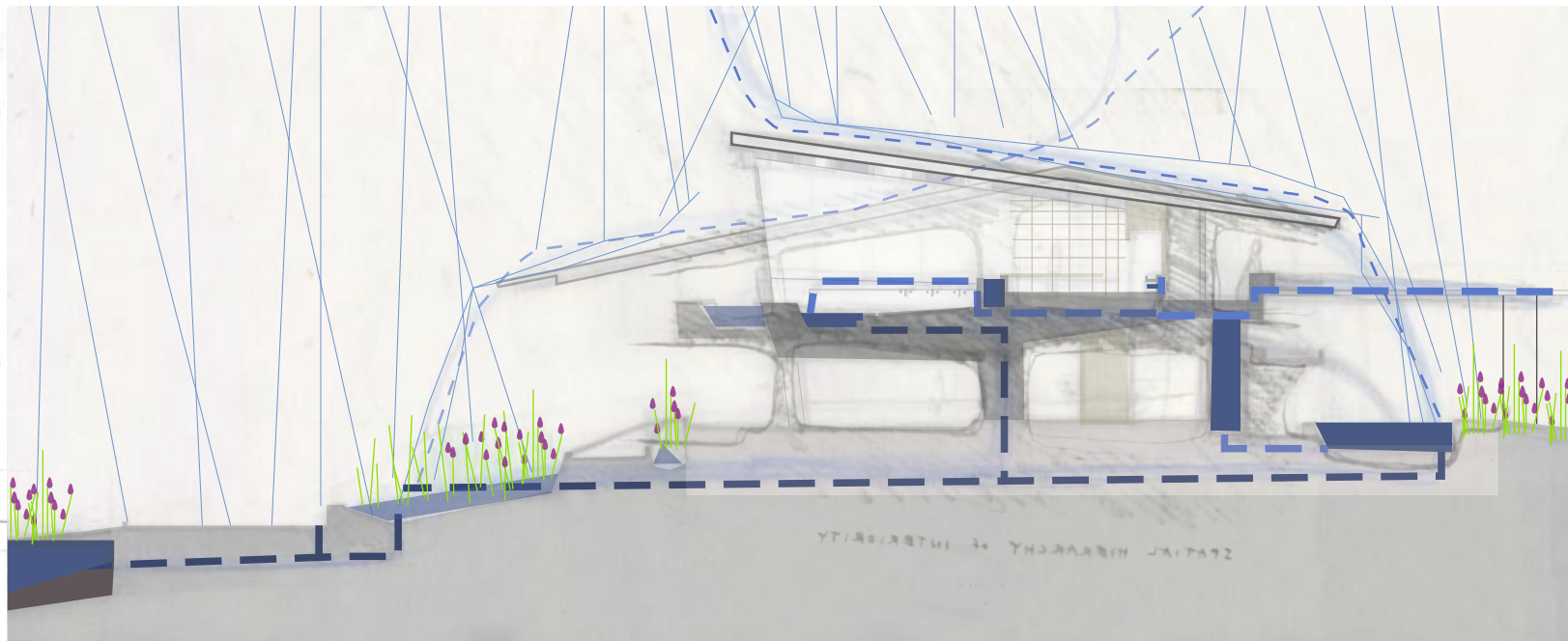


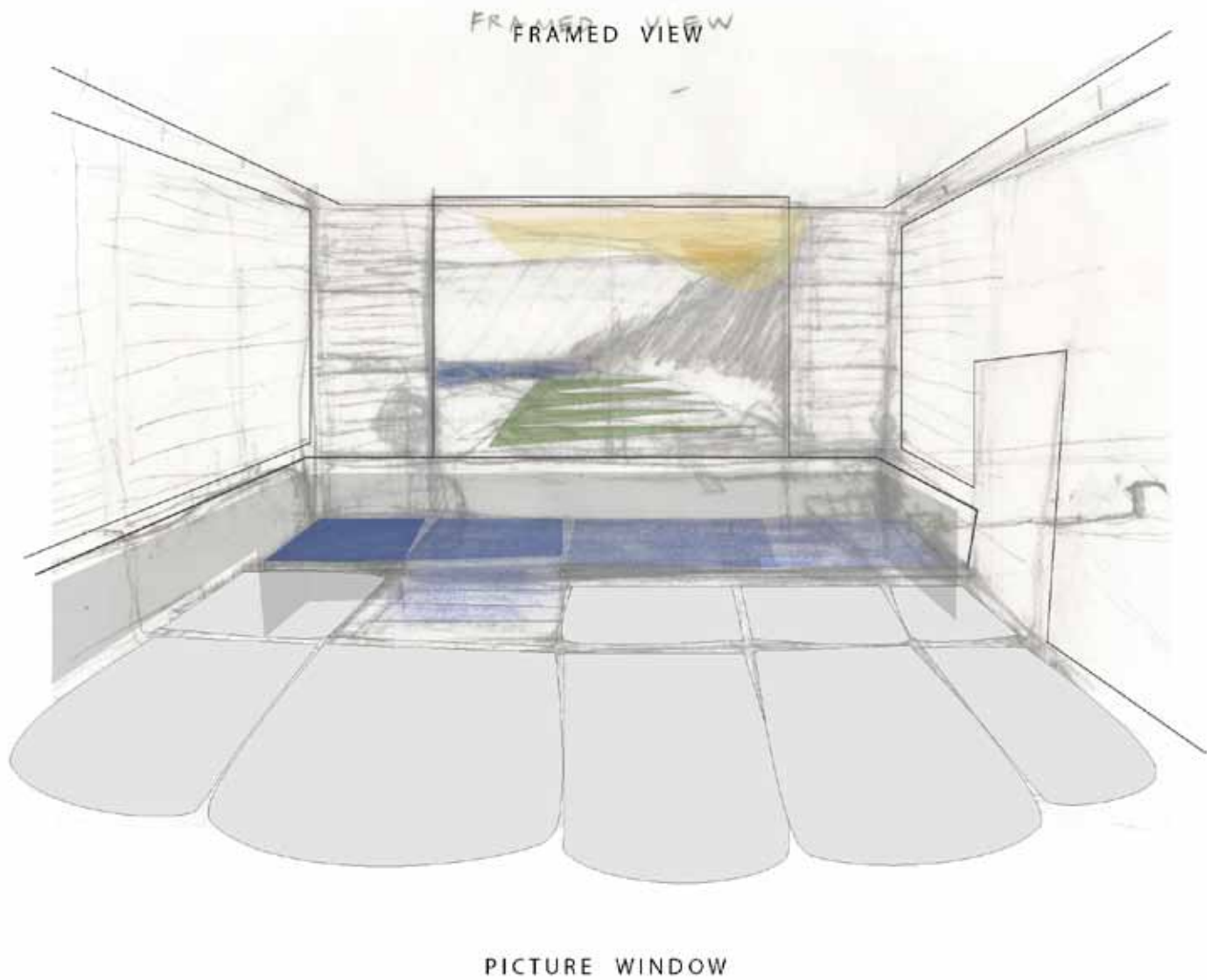


Bathhouse in section, developing public exterior space

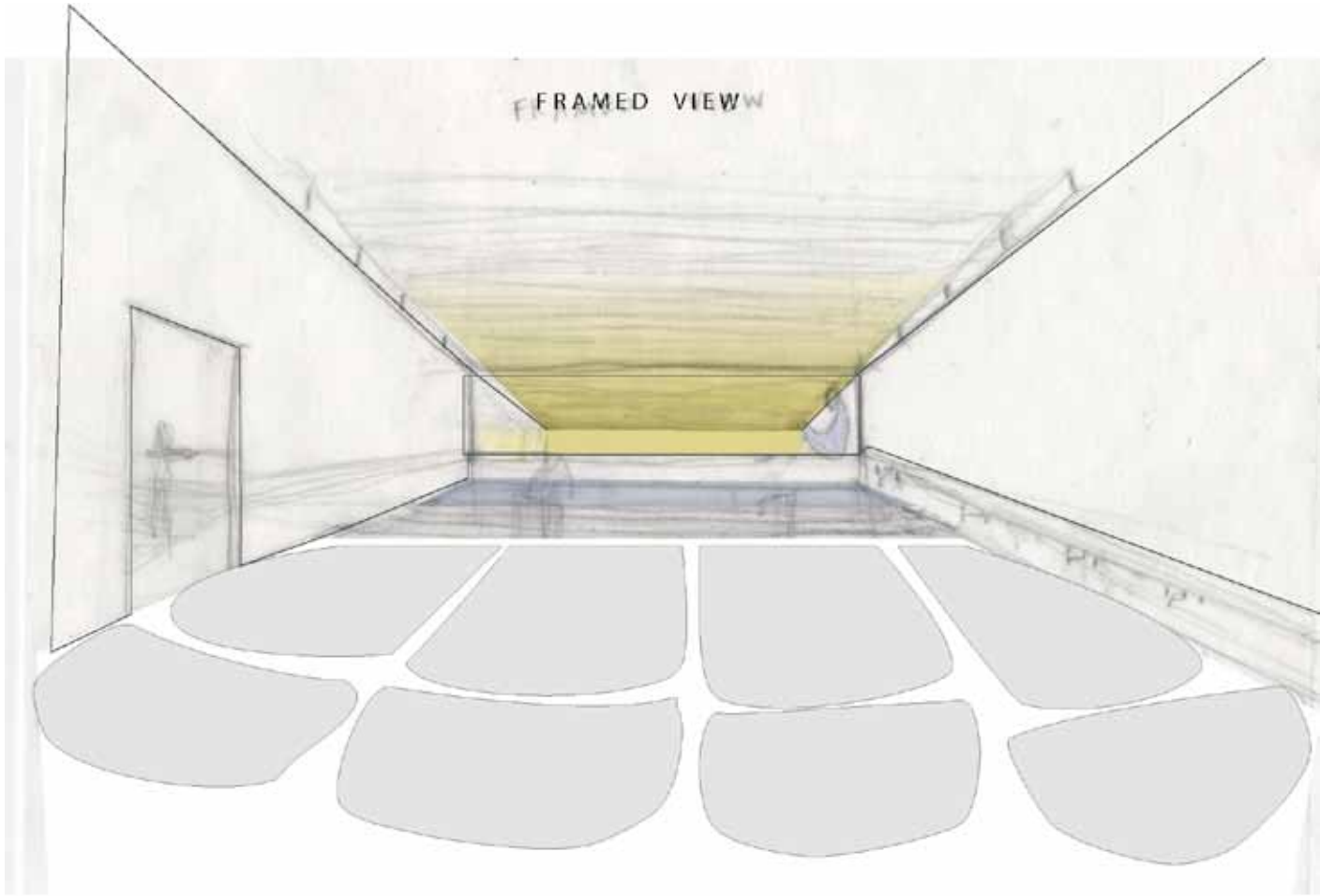


Bathhouse in section, developing architectonic-hydrological relationship

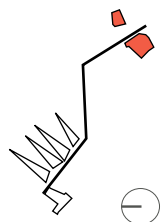


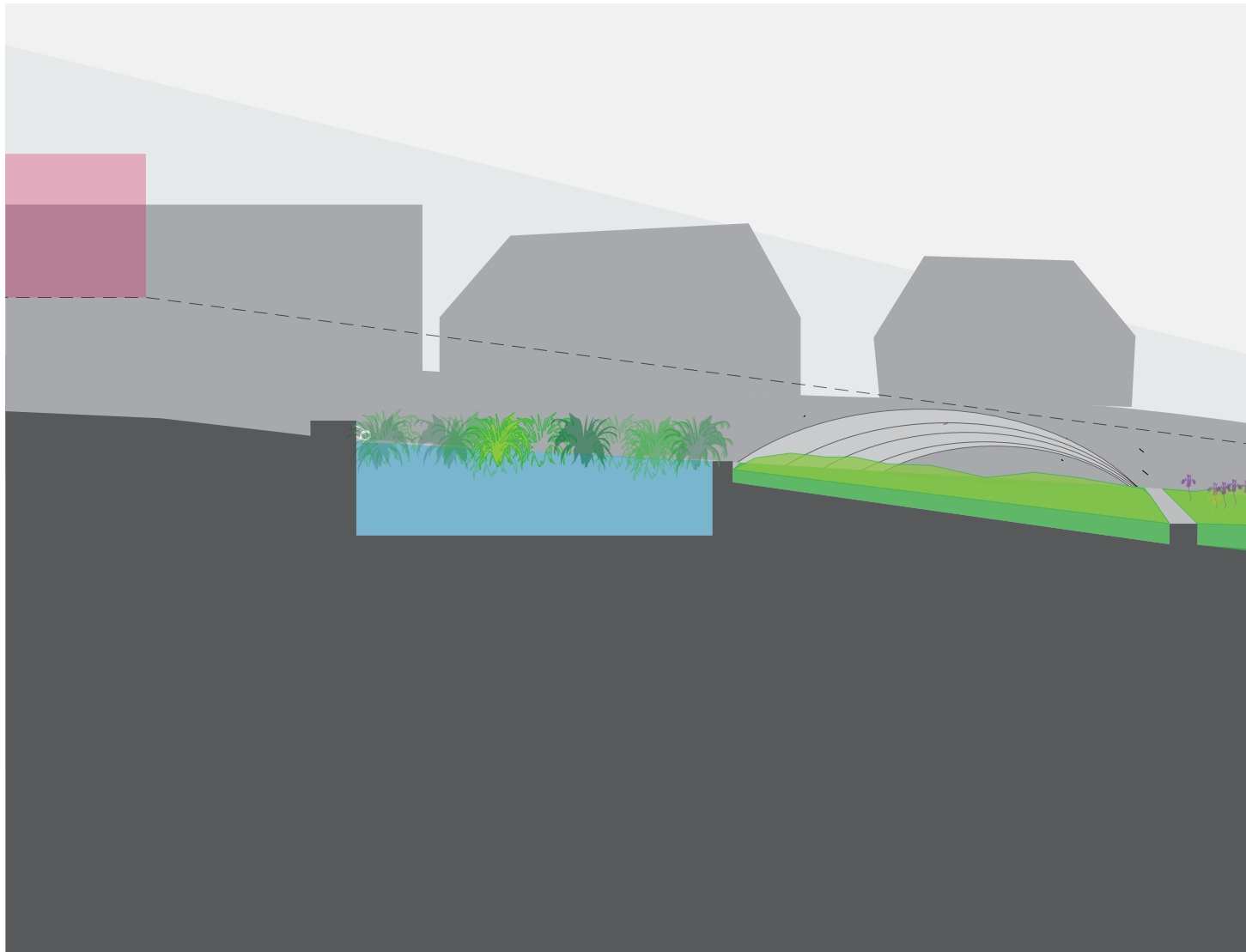


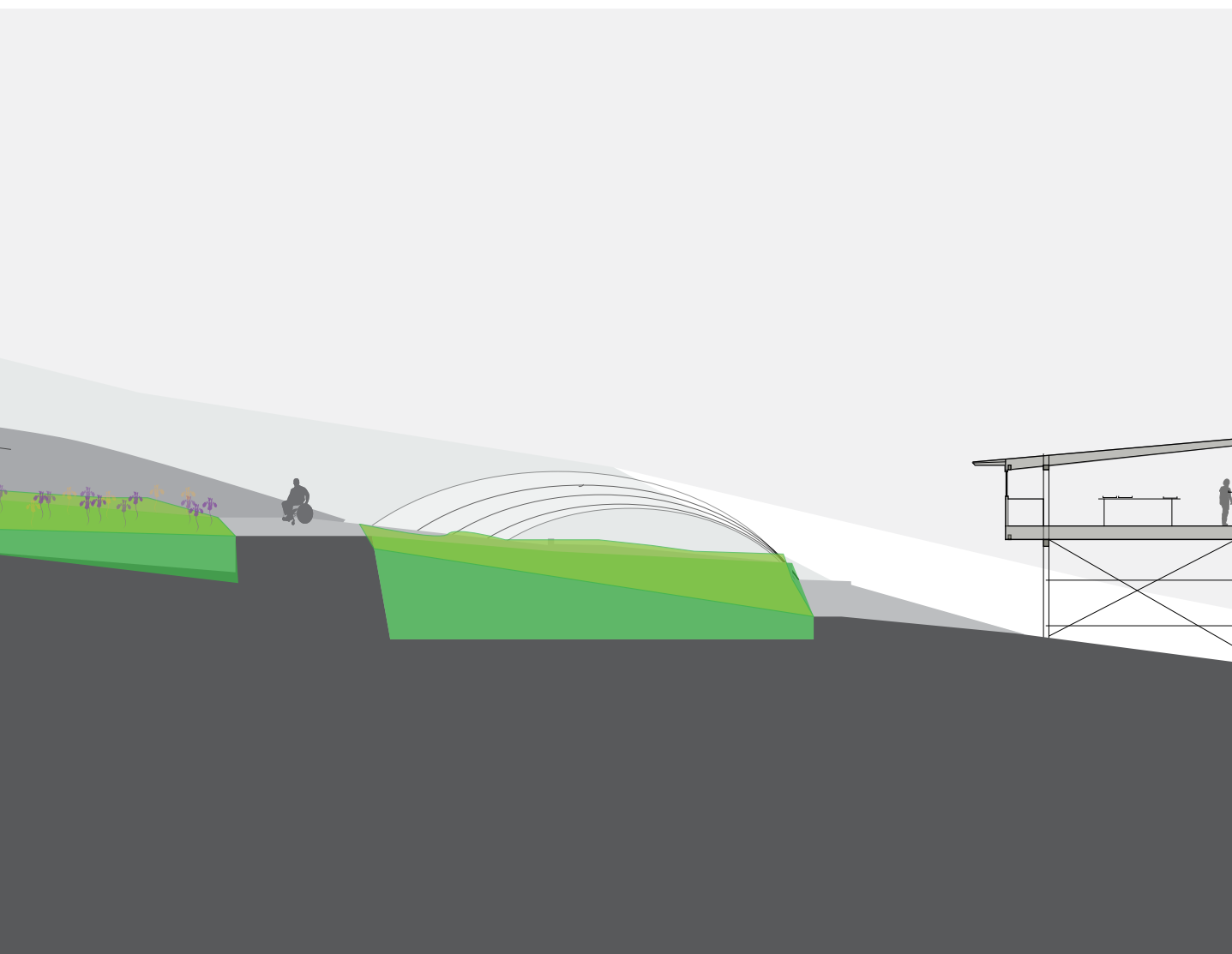
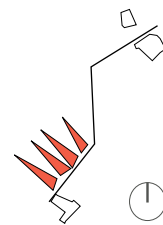
Bathroom views, in each compartment a different atmosphere is cultivated. In the case that a bathroom is asymmetrical, the baths are alternately available to each gender on rotation.

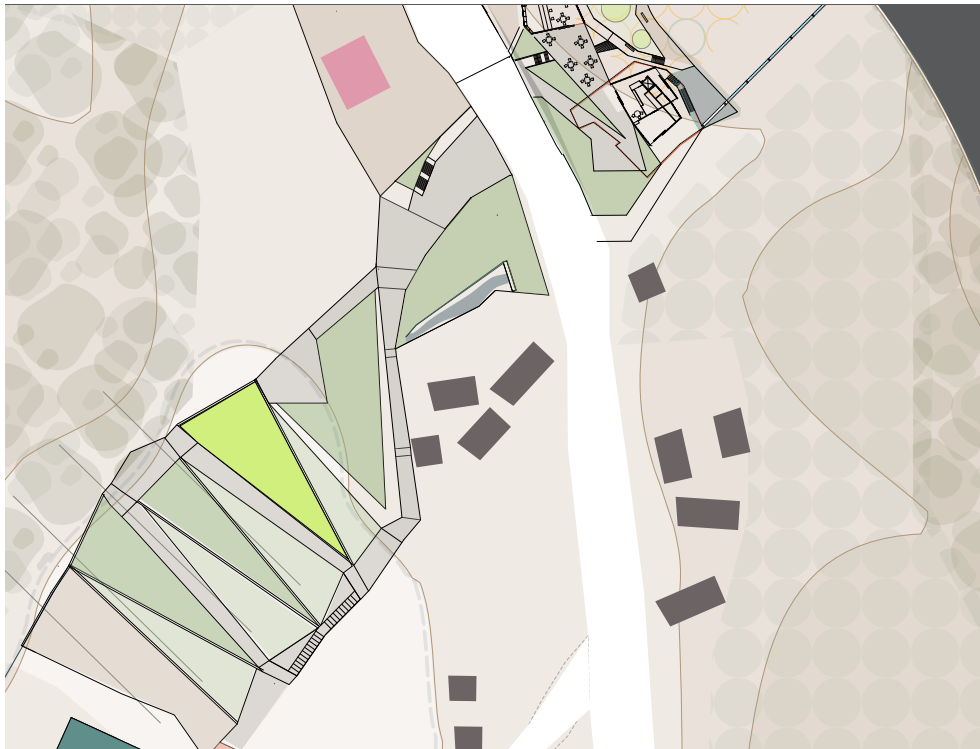


PIN HOLE CAMERA



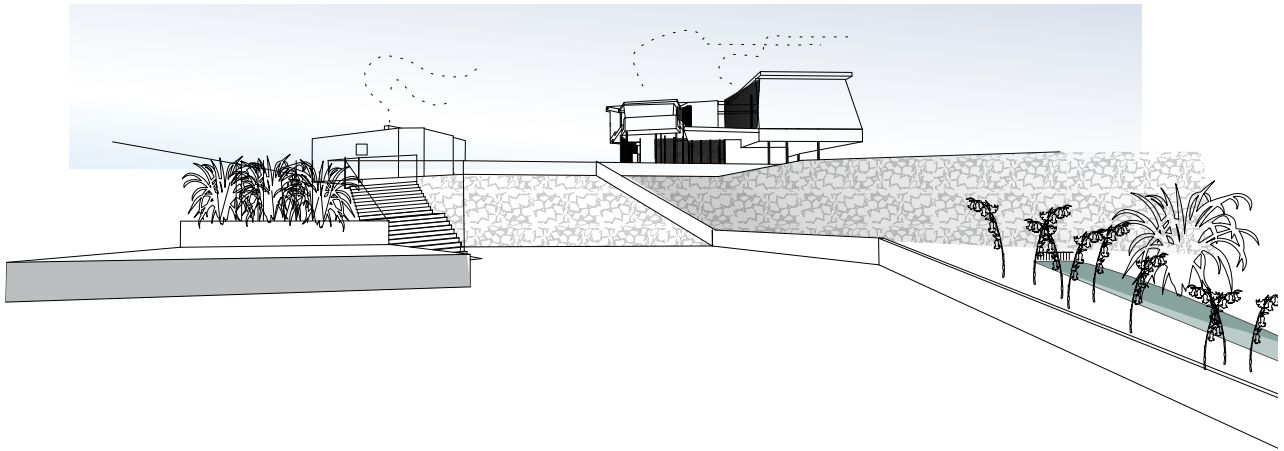
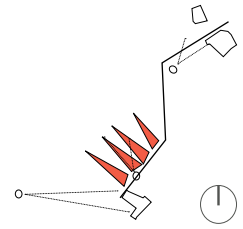






The field of flowers offers both a landscape to view and pass through, as well as a place to enjoy working in the garden. Paths meandering through the fields are accessible, while the edge path is not.

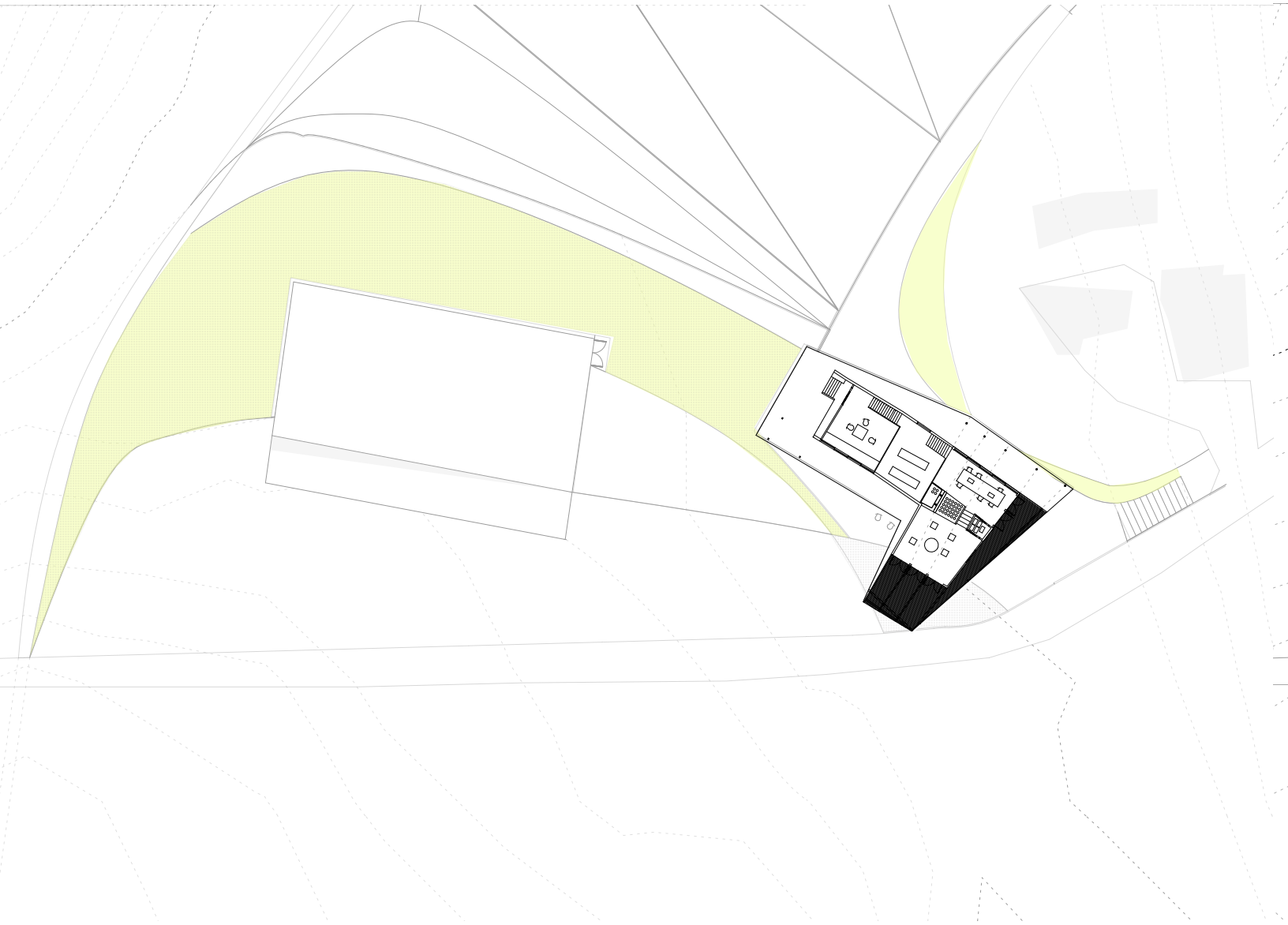




View from pathway to bathhouse

View from road to smokehouse

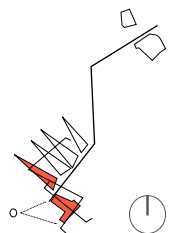


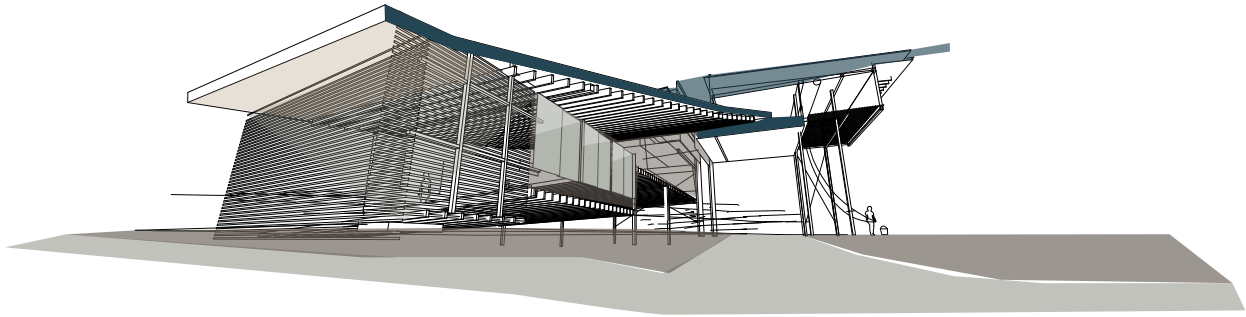


Smokehouse in plan

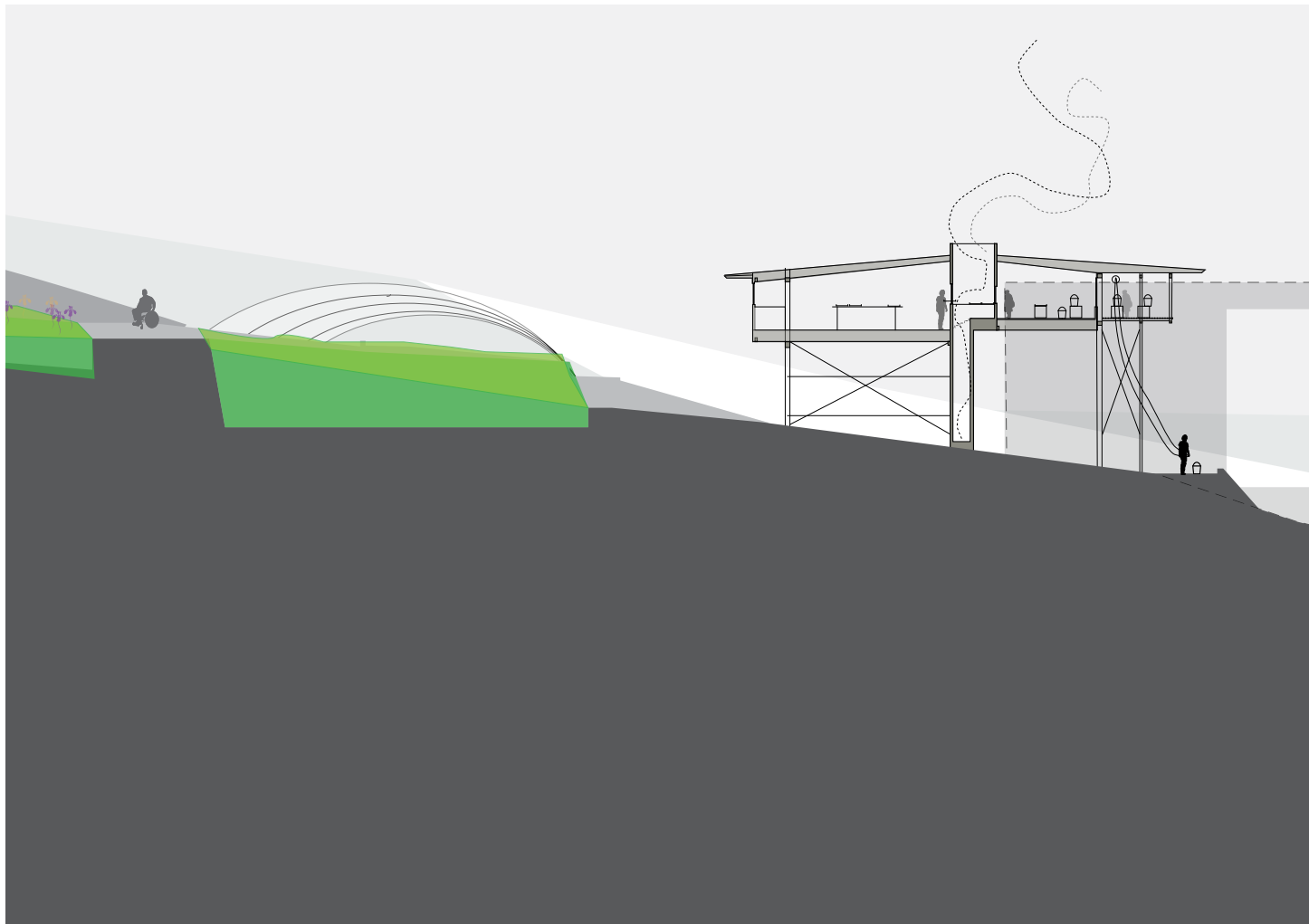


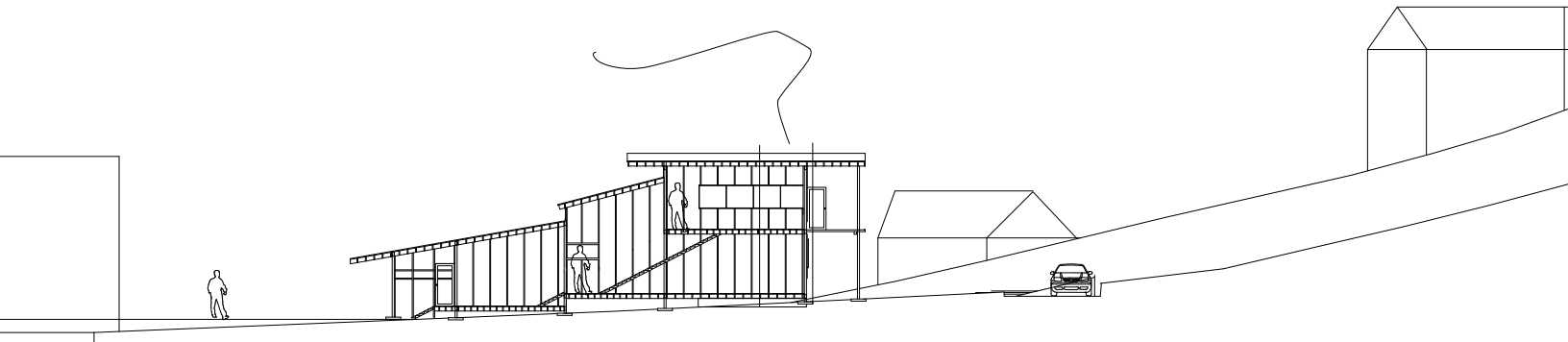
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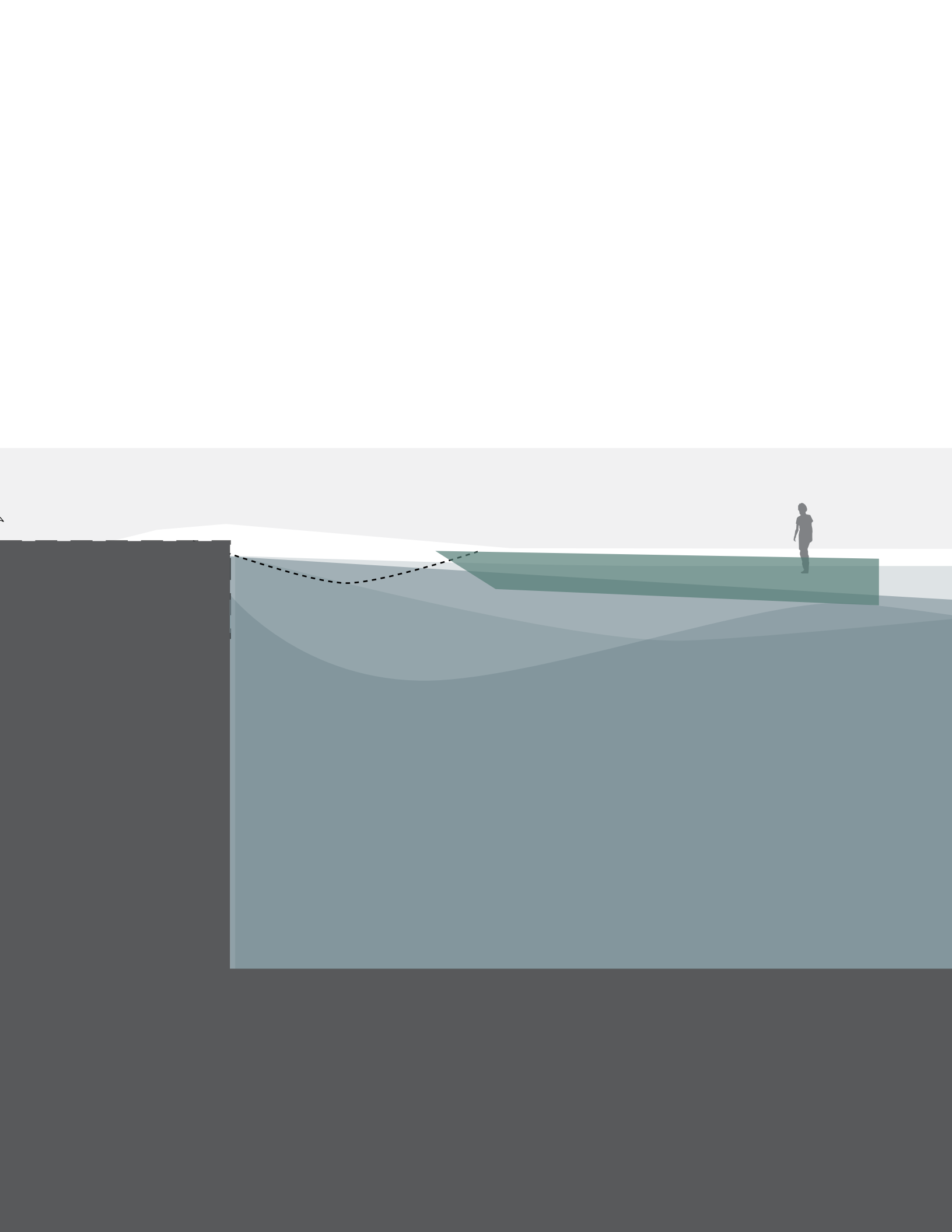


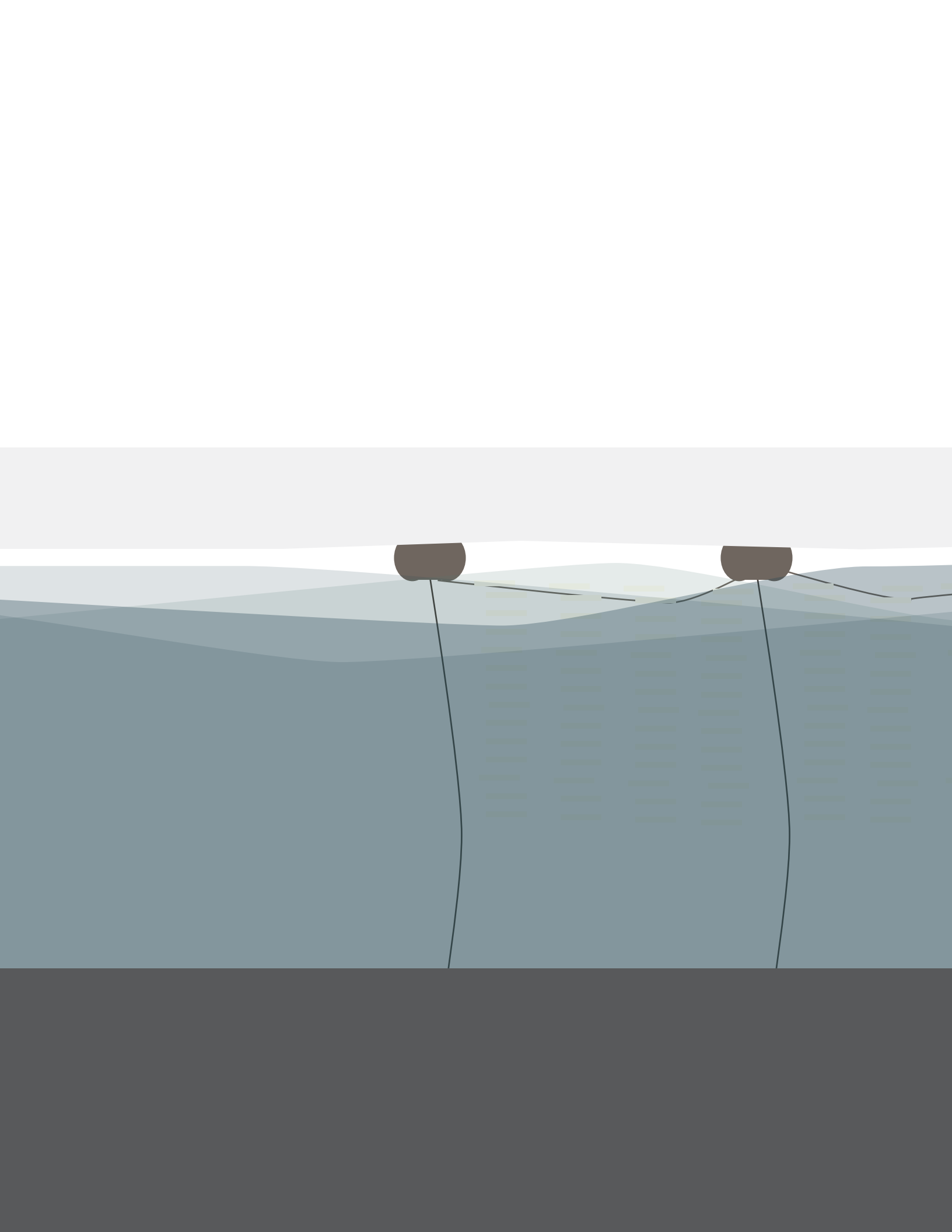


Smokehouse view and sections









7. Reflection on Presentation and Critique

The Presentation:

Before

The first several minutes were spent contextualizing the project: the cyclic nature of tsunami, the state of the fishing industry and the aging Japanese population.

During

The shock and aftermath of the tsunami was described via a video montage, using mostly footage taken in Japan or at the site, with the exception of one scene from a news story showing water forcefully pushing through a rice field and several small houses and structures.

After

In the third part the problem of the thesis was introduced: how to rebuild without heroism? The regional and site maps were especially useful.

The Panel:

Present were

Henrik Tieben, Hong Kong University

Jeffrey Ochsner, University of Washington

Thaisa Way, University of Washington

Amit Ittyerah, LMN

Mike Henderson, Bowlin Cewinski and Jackson

Summary of commentary and recommendations, composed as excerpts from correspondence:

Tieben - From the comments, it seemed that the intervention read as too subtle? The goal of the project was to propose something that was elegant and economical, and to avoid pretension. As a thesis project, this is tricky, since the stage somewhat demands a project like this to be

shockingly minimal. As I continue to develop the materiality of the project over the coming months, I will keep your comments in mind, especially regarding adding a few more structures to the composition, to avoid constructing a dialectic and to increase the presence of the intervention while staying in the background of the context.

Ochsner - You proposed developing the architecture with more conviction. The goal of the project was to propose something that was elegant and economical, and to avoid pretension. It seemed that something about the project resonated with you, even if some of the details require more attention.

Way - I will keep your comments in mind, especially regarding presenting the project in a more radical way, and questioning the border between growing things and conditioned space more rigorously. The goal of the project was to propose something that was elegant and economical, and to avoid pretension. It seemed that something about the project resonated with you, even if the presentation was more whisper than shout.

Ittyerah - You suggested stretching out the diagram into the ocean to illustrate the full range of the armature. As we discussed at the review, I don't necessarily think the project lacks some kind of program in the ocean, but it could have been illustrated more fully on the site map and in the renderings to incorporate that part of village life into the sphere of the intervention.

Henderson - Your comments included considering the project diagrammatically as akin to the Brian Mackay Lyons project you mentioned. I had not thought of the comparison before and I think plumbing that concept could help solidify the project a lot.

Overall, I was not impressed with the response of the panel. They seemed rather incapable of responding to the project. I feel this reflects negatively on my presentation. Perhaps the drawings were not strong enough, or the mistakes in the printing and cutting of the final boards obscured the message. Perhaps the presentation lacked a clear message, and instead was an agglomeration of many insights. Unfortunately, these tend to be my favorite sort of meandering,

dream-like explorations, and they suit me. The project was intended as a weak architectural solution, in the sense that it presents a flexible and seasonal condition, rather than a durable, singular solution. Perhaps the site, being completely unfamiliar to everyone present except myself, deserved a more thorough explanation. Forging a path forward into the project, I perhaps did not lay enough logical groundwork for my audience to follow me: instead I spoke of things that I found interesting, but which the audience could not digest and respond to in the presentation. Another possibility is that the audience simply did not find what I was saying to be particularly compelling, and I had spent the thesis contemplating something that holds the interest of one, myself. Or that to the ears of the committee, I was presenting something quite banal and obvious, or that they could hear me describe it, but not see it on the page. Or that it was too anti-architectural, and they couldn't quite get into it. Why not? They didn't say.

8. Conclusions - Methodology in architectural practice, 2 cases

Social contracts are culturally unique and form a point of departure for the construction of relevant public space. The relevance of a public space typology is time based and may grow or decrease in intensity based on local conditions and events. This explains the paradoxical truth I perceived in Pallasmaa's words, quoted at the beginning of this document.

It follows that in order to design relevant public space, the designer must deeply empathize with the local social contract. She must be able to taste it.

It is from this perspective that I composed the design for my Master's Thesis. I then withheld submitting the thesis for another 3/4 year, in order to study in Denmark with Jan Gehl and Helle Lis Soholt at their office in Copenhagen, Denmark.

This slow, quiet, hermit-like understanding may be possible for master designers like Peter Zumthor, Glenn Murcutt, or Hiroshi Sambuichi, but it is anti-capitalist (because the rhythm of perception is usually out of cadence with the rhythm of market). This makes it an impetuous pursuit for a novice. I wouldn't suggest that it is not noble or righteous, but it is nearly impossible! If, as Michel Foucault says, the role of the architect is to participate in society, then empathetic comprehension can fall out of reach.

To breach the chasm that seems to suddenly have opened between the demand for empathy and the demand for action in the pursuit of relevant design, the practitioner resorts to methodology. In the same way humans construct machines or infrastructure to help them negotiate or rationalize the chaotic World, as designers we can construct a process or machine (in the Deleuzian sense) to negotiate a site, and also to develop a cohesive spatial strategy as a firm.

Atelier Bow Wow and Gehl Architects have each developed positions based on a high degree of behaviorological research. While the approach seems similar or analogous, the application is drastically different, perhaps opposing.

The principles of Atelier Bow Wow, Yoshiharu Tsukamoto and Momoyo Kaijima, use their seminar groups at the universities where they teach as urban research laboratories. This research informs, but is kept administratively and conceptually separate from the design

practice they run out of their home. The two run chronologically parallel, and pollinate one another with the diurnal arrival and departure of the principal/professors. Their methodology is a classic but highly rigorous iterative process which begins in multiple and concludes in a single option which then becomes refined further and further.

Meanwhile, on the other side of the globe, Jan Gehl's name describes and inspires the architectural practice led by Helle Lis Soholt, but Gehl never intended his research to be applied directly to design. In the late 1960s, Gehl furthered the research of William H Whyte and the discourse of Jane Jacobs by developing a methodology to measure movement and activities in public space, in order create metrics for quality space. He taught 3 decades of students and published several books before the year 2000, when Soholt, Gehl, and former student and co-author Lars Gemzoe, started the firm.

Soholt markets the methodology as a service for municipalities, local governments, city councils, and chambers of commerce who seek direction and leadership in how best to improve the quality of their cities. Design services offered by the firm are limited (but growing).

In other words, while Atelier Bow Wow is an architecture firm informed by research, Gehl Architects offers research as a primary service and occasionally realizes the research through design. Atelier Bow Wow uses rhetoric promoting lightness, flexibility, urban metabolism, and designing around spatial practice, yet their product has a 20-50 year lifespan. In contrast, Gehl Architects' most lasting urbanistic intervention to date (New York's Times Square) may have a lifespan of a few years, or may become the spatial diagram for a much more robust and durable product. Using the methodology they are able to measure change in the urban space before and after the intervention, to see if it is working. This not only allows users to become accustomed with radical changes in their city, but also allows the design to be intelligently tailored to the spatial patterns of use measured on the site.

Gehl Architects is admittedly light on architecture, but their theory and practice are better synchronized than a traditional architecture firm can afford to be. (If, like Farshid Moussavi, we consider the market to be a kind of material analogous to steel or concrete, then we might apply (x's) discussion of difficulty to this analysis. ABW's return is derived from delivering a flawless building ready for long-term (at least a generation) occupancy (their clients sometimes call them if they are considering a rearrangement of the furniture in case the

change might conflict with their architect's vision!). GA keeps the lights on essentially through the marketing and branding of ideas to a broad audience (ie not simply other architects and intellectual elite). This more synthetic approach to architecture carves at a softer, more pliant section of the market. Physically, while ABW is sculpting out of steel and glass, GA sculpts in paper, words, and images. Unfortunately at the end of the day these things may bring people together but they don't keep the rain out. Do the research reports approach what Pallasmaa terms images "converted into endless commodities manufactured to postpone boredom"? Copenhagen is surely a complacent urban Western city. The intention of GA is to efficiently inspire quite the opposite: people enjoying their city and the sensuous spectacle of one another.

Like the firms I have mentioned here, my own intentions are also the opposite of what Pallasmaa describes. Does my verbal and visual argument, presented in the following pages escape the fate of McLuhan's (here via Pallasmaa) spectacle of the commodity? One thing is for certain: forever un-built, it will never keep the rain out.

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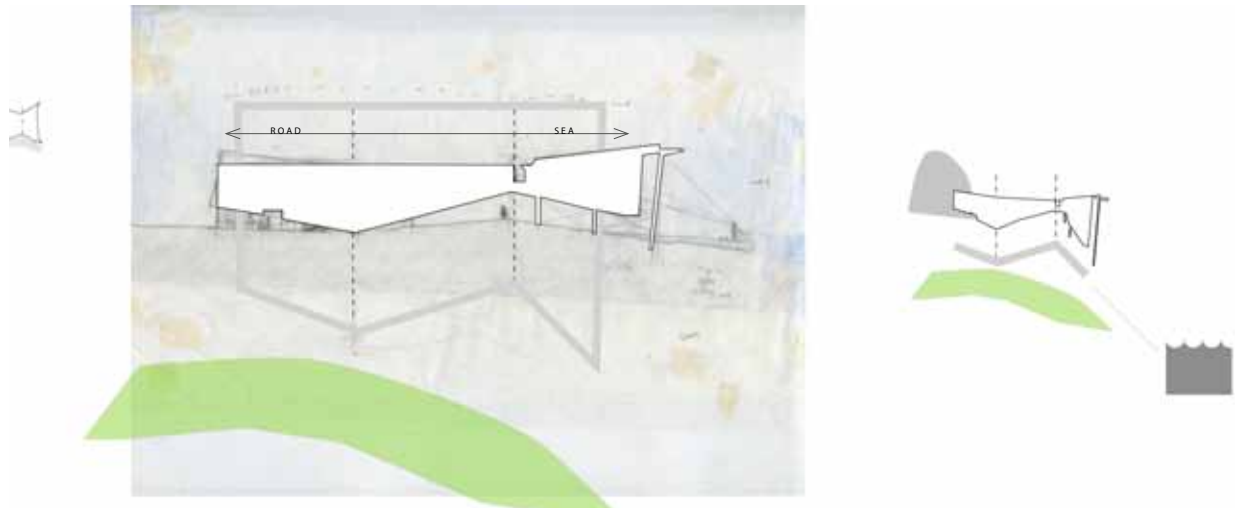
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Appendix

Documentation of works for the development of the thesis



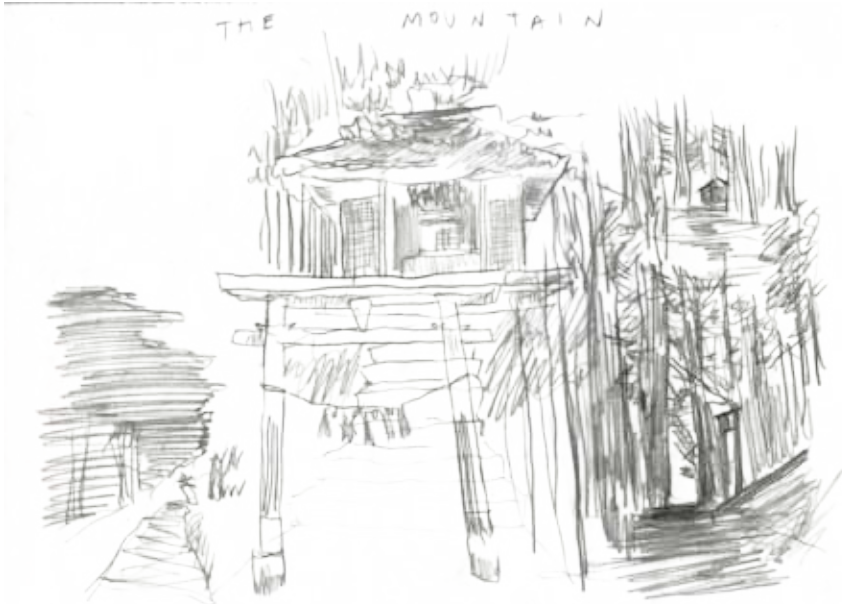
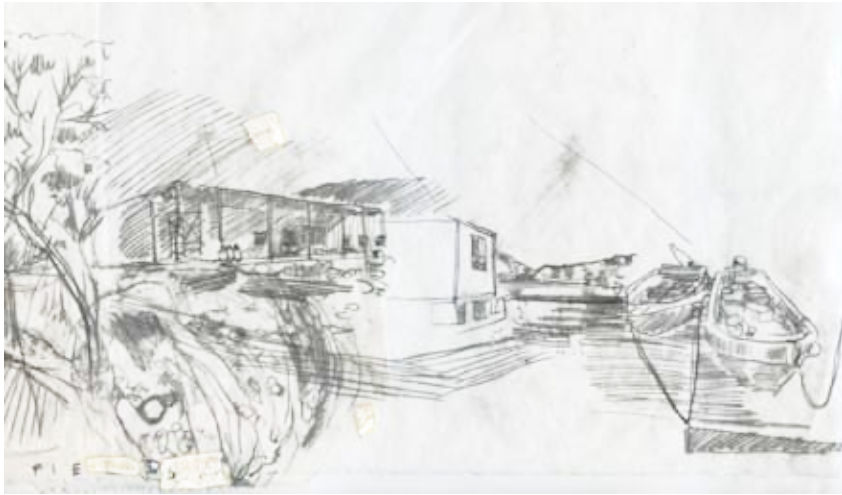
Understanding the site as an unfolding between mountain, road, and sea



An architectural diagram attempting to stretch between extremes



Roadside: sketch of bathhouse site from photos



From top: Field, Productive waterfront, and Temple: sketch of bathhouse site from photos

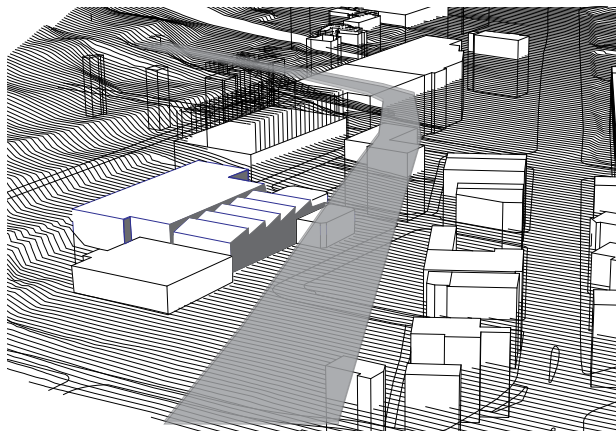
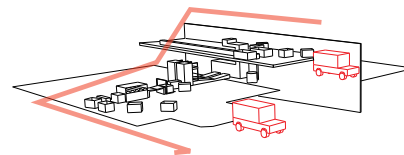
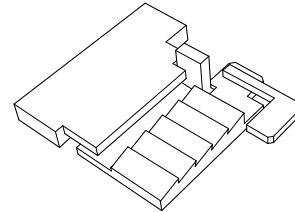
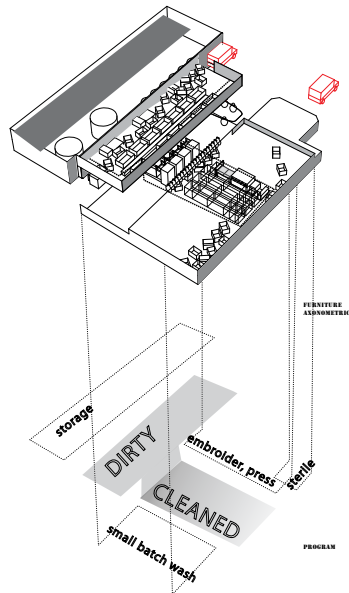




Collages to empathize with survivors

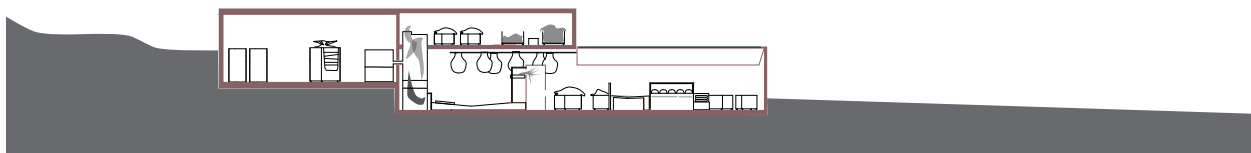


UW CONSOLIDATED LAUNDRY, MT BAKER



SITE AXONOMETRIC

E-W SECTION
LOOKING N



Facing page: a study of motifs at a Tokyo cemetery. This page: a diagram of spatial practice at the consolidated laundry facility serving the University of Washington, Seattle.



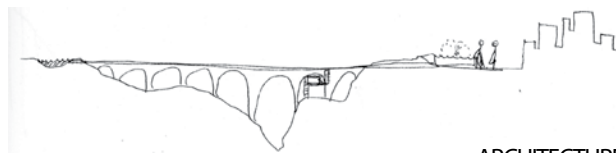
OASIS

I N F R A S T R U C T U R E A R C H I T E C T U R E



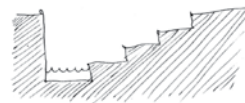
TANKER + JERRY

R A S T R U C T U R E



ACQUEDUCT

I N F R A S T R U C T U R E A R C H I T E C T U R E



STEPWELL

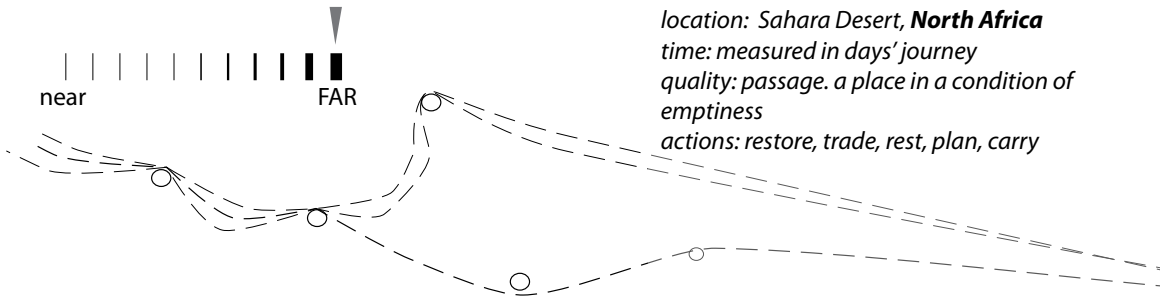
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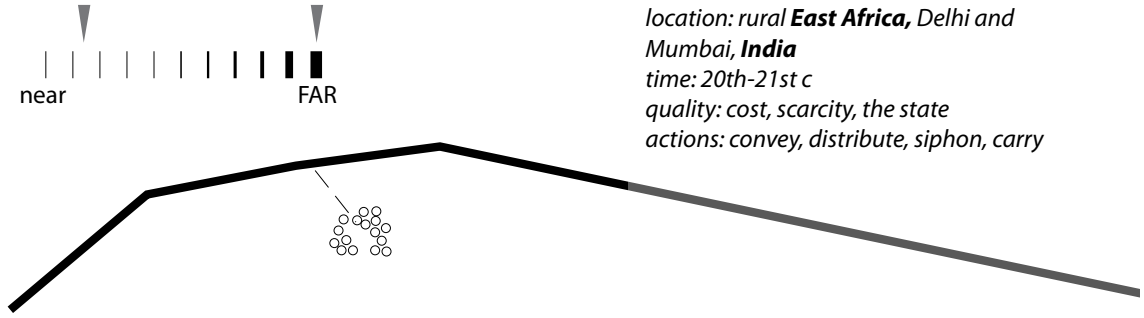
CHINAMPA

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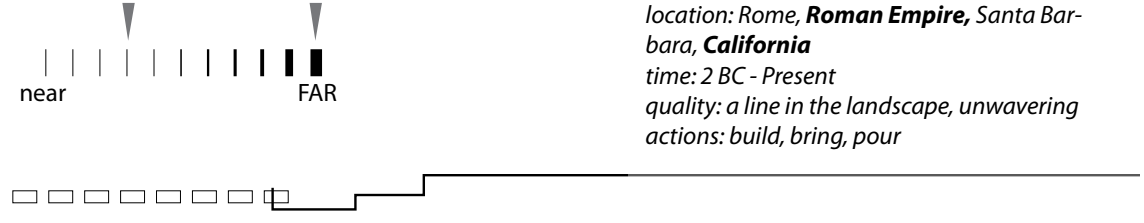
Analyzing the relationship between water infrastructure and architecture in various examples



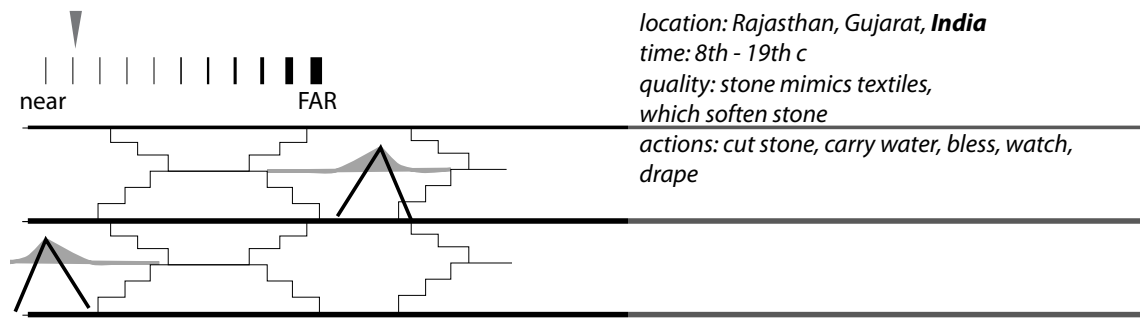
location: Sahara Desert, **North Africa**
 time: measured in days' journey
 quality: passage. a place in a condition of emptiness
 actions: restore, trade, rest, plan, carry



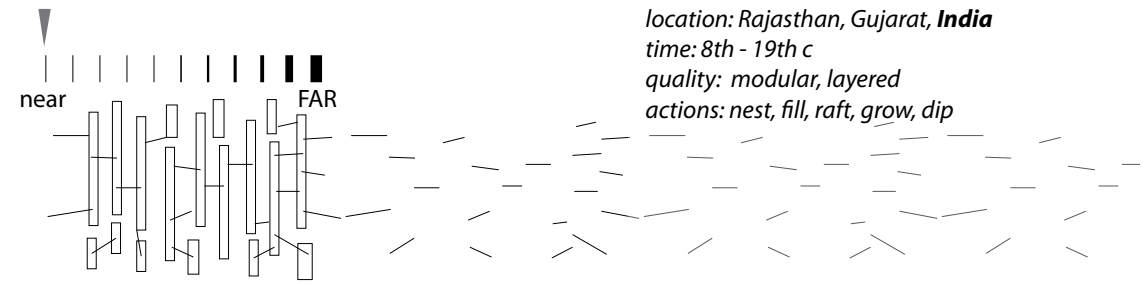
location: rural **East Africa**, Delhi and Mumbai, **India**
 time: 20th-21st c
 quality: cost, scarcity, the state
 actions: convey, distribute, siphon, carry



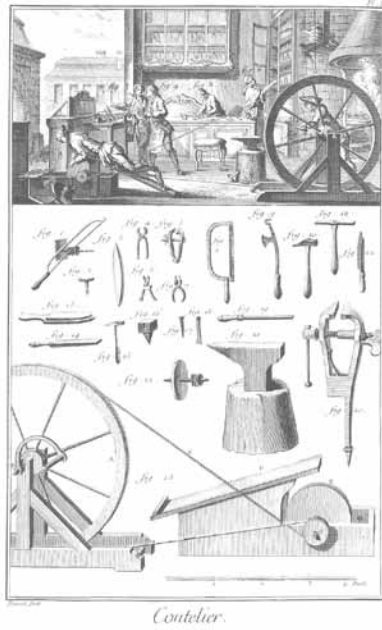
location: Rome, **Roman Empire**, Santa Barbara, **California**
 time: 2 BC - Present
 quality: a line in the landscape, unwavering
 actions: build, bring, pour



location: Rajasthan, Gujarat, **India**
 time: 8th - 19th c
 quality: stone mimics textiles, which soften stone
 actions: cut stone, carry water, bless, watch, drape



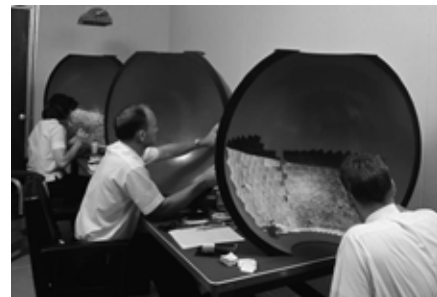
location: Rajasthan, Gujarat, **India**
 time: 8th - 19th c
 quality: modular, layered
 actions: nest, fill, raft, grow, dip



Preliminary research explored modern conceptions relating man and machine or man and nature as part of a larger exploration of the potential conceptual grounding of the relationship between water infrastructure and architecture. To this effect, Diderot's *Encyclopédie* **Figure 16** provided insightful metaphors (via Richard Sennett's interpretation in *The Craftsman*), as did Kon Wajiro (via a retrospective at the Shiodome Museum in Tokyo that ran through March 25, 2012) **Figure 17**, known as the "Father of Modernology" or the study of the everyday artifacts that make up the modern world and our transition into it. Additionally, the methodical approach to drawing by Vijay Celmins, who copied photographs with a diligent and almost submissive machine-like rigor (via) **Figure 18** was quite inspiring to the conceptual development.



Vijay Celmins, *Moon Surface (Surveyor 1)*, 1971–72. Graphite on acrylic ground on paper, 14 x 18 1/2 in. The Museum of Modern Art, New York. Gift of Edward R. Beinda © 2009 Vijay Celmins. Photo, McKee Gallery, New York



Vija Celmin completed a series of drawings which re-scaled photographs of the lunar surface taken remotely via the first craft that landed on the moon, Surveyor I. The author loosely links Celmin's work to the cyborg theory coined by Donna Haraway. She argues that Celmin's tactic of copying a photo into a graphite drawing allows the viewer to experience the work in a haptic way. "In transcribing with pencil on paper what and how the cyborg saw on the moon, Celmin did more than mimic; she also examined the ways in which cyborg vision might accommodate an affective bond through the sense of touch. Her lunar drawings explore the ways in which an alliance between cyborg and artist blurs distinctions between the automated and the handcrafted, near and remote, seeing and making, and even masculinity and femininity, to reconfigure visual experience in an era of space exploration."



“Mitsuréba, kakuru.”

“Having waxed, wanes“
--a Buddhist aphorism