

Designing for Rising Water

A Competition Studio

JORI A. ERDMAN

Louisiana State University

In this studio, students were challenged to address issues of rising water and community in a remote and unfamiliar place. Through research conducted in the field, in the studio and with the input of interdisciplinary experts, two teams created design proposals that challenged conventional thinking about resilience and what is possible in a coastal environment. The work was completed as part of an invited design competition called Designing Resilience in Asia, sponsored by the National University of Singapore. By applying their skills as designers, these US based students were able to respond to an unfamiliar culture and site in Manila, Philippines.

The site that was designated faces dual threats of dramatic sea level rise and accelerating subsidence. In addition, the community was relatively impoverished and perceived as powerless. Our students were fortunate to be able to spend 2 days at the site where they interacted with locals and observed the environment first hand. Back on campus, the students met regularly with an engineering professor and an ecologist to review their proposals and modify their designs based on science-driven input.

One of the teams designed a proposal called "Community Connection." This proposal activated strategies of soft infrastructure and a series of hyper-local community centers to empower the community. While visiting

the site the students were really moved by the local residents and felt very strongly that their architectural design needed to address economic interests as well as spatial and environmental concerns. To that end, they also incorporated an economic driver within each of the new community centers as well as housing and education. Their proposal received an honorable mention in the final competition.

The proposal titled "From the Ground Up" took a more radical stance with their proposal to raise the land and reconnect the hardened river edge back to the larger water system. The proposal called for a combination of elevating land, as well as individual structures, with drainage waterways that would serve as economic and recreational assets for the community. Further, they also addressed the environmental hazards of a colossal waste disposal problem in the Philippines by employing cutting edge technology in land fill construction to build the elevated land masses. In their assessment, the land loss issue was more significant than any other threat and also held the greatest design potential.

The work presented here shows that design research in the studio context can push the boundaries of our thinking about how to address significant issues of environment and community.

Designing for Rising Water -- A Competition Studio

COMMUNITY CONNECTION

Abstract
Community Connection involves site reorganization, raising ground levels, and connecting the public community with large public spaces and recreational spaces. The proposal is based on the idea of a green public space that can be used for various purposes and as a gathering place for the community. The proposal also includes a series of public spaces that can be used for various purposes and as a gathering place for the community.

Environment
The site has three main areas of two main four hectares each of land. Each of these areas contains a main street and three smaller streets that are currently paved. The main street is paved with concrete and the smaller streets are paved with asphalt. The site is currently used for various purposes and as a gathering place for the community.

Systems
The site has three main areas of two main four hectares each of land. Each of these areas contains a main street and three smaller streets that are currently paved. The main street is paved with concrete and the smaller streets are paved with asphalt. The site is currently used for various purposes and as a gathering place for the community.

IMPROVED SERVICES	SUBSIDENCE RATE
40%	10cm/year
NET DRAINAGE	EXTREME EVENT
100mm/day	400mm/day

FROM THE GROUND UP

CONNECT **ELEVATE** **CONVERT**

The newly arrived migrants in Valenzuela is two meters. During the wet season, which lasts for eight months, the site receives an average of 400 mm each day. 50 percent of rainfall on the site is from the typhoons, which occur between eight to eleven times each year. With water on all sides, Valenzuela requires a system that protects the city and efficiently drains the excess of water during normal levels and heavy storms. Enabling the land to sustain water-purifying plants and wind breaking trees is an additional necessity. The entire phasing plan will prevent flooding by plugging a canal system. Raising roads, connecting the elevated floor to the nearby Manila Bay. They also provide appropriate sun-drying stages, where the water will pass through purifying plants as it cascades into the canals, straight to the water and the canals during dry runs. Each canal varies slightly based on location, but is one of the following three gradual steps to the bottom for actively draining dry seasons. A meter stage containing water purifying plants, and a gradual watershed slope towards the canal.

General foundation according to the rate of sea cm per year in Valenzuela, meaning that by the year 2046, the site will be under three meters of water. The main concern of this site's problems include the depletion of the regular water from it is being replenished and sea level rise of 0.1 m per year means that Valenzuela will be completely flooded if actions are not taken. This project proposes building the ground up using recycled materials. With a maximum height of two meters, the entire phasing plan will require less solid rock of soil and will last a period of 50 years. There will be three phases: The new land, which will be designed topographically to drain straight to the water and the canals during dry runs. This plan will give the city 20+ years to implement new strategies as technologies advance in the future, and have a much higher chance of staying above water long term. The project proposes three zones of land based on proximity to water and population density.

The biggest threat to Manila is the mountains of trash, on which 100,000 people live in slums. These people have accepted life in a slum, and that is not acceptable. Our idea in Valenzuela consists of 40,000 people, with room to grow after a dramatic land build up. From the Ground Up proposes to move 10,000 people living in the slums to the site. 1,000 new housing units will be built. To accommodate so many more people, the design team wants to re-use the existing public spaces. The proposal uses the trash to build up the land with one grade and recycled, buried shipping containers packed with trash. It will implement public trash cans on streets and trash chutes to homes from biodegradable, biodegradable, and recyclable. This proposal will also create jobs for locals by requiring a team to remove the trash and burn waste from homes and the MPF's off-site sorting facilities where the waste will be reprocessed. The compact and biodegradable trash will go to the local Bio Gas system, the recyclables to a recycling facility, and non-biodegradable to factories.

SYSTEMS

ZONING

HIGH DENSITY

MANILA, PHILIPPINES

HOUSING **COMMUNITY ARCHITECTURE**

In this studio, students were challenged to address issues of rising water and community in a remote and unfamiliar place. Through research conducted in the field, in the studio and with the input of interdisciplinary experts, two teams created design proposals that challenged conventional thinking about resilience and what is possible in a coastal environment. The work was completed as part of an invited design competition called Designing Resilience in Asia, sponsored by the National University of Singapore. By applying their skills as designers, these US based students were able to respond to an unfamiliar culture and site in Manila, Philippines.

One of the teams designed a proposal called "Community Connection." This proposal activated strategies of soft infrastructure and a series of hyper-local community centers to empower the community. While visiting the site the students were really moved by the local residents and felt very strongly that their architectural design needed to address economic interests as well as spatial and environmental concerns. To that end, they also incorporated an economic driver within each of the new community centers as well as housing and education. Their proposal received an honorable mention in the final competition.

The site that was designated faces dual threats of dramatic sea level rise and accelerating subsidence. In addition, the community was relatively impoverished and perceived as powerless. Our students were fortunate to be able to spend 2 days at the site where they interacted with locals and observed the environment first hand. Back on campus, the students met regularly with an engineering professor and an ecologist to review their proposals and modify their designs based on science-driven input.

The proposal titled "From the Ground Up" took a more radical stance with their proposal to raise the land and reconnect the hardened river edge back to the larger water system. The proposal called for a combination of elevating land, as well as individual structures, with drainage waterways that would serve as economic and recreational assets for the community. Further, they also addressed the environmental hazards of a colossal waste disposal problem in the Philippines by employing cutting edge technology in land fill construction to build the elevated land masses. In their assessment, the land loss issue was more significant than any other threat and also had the greatest design potential.

