



# Investigating Resiliency of the Netherlands

Milani Mody

# Investigating Resiliency of the Netherlands

HOUSING, PRESERVED RESILIENT LANDSCAPE AND HARD AND SOFT APPROACHES TO HAZARD MITIGATION

*"It is not the strongest of the species that survive, nor the most intelligent, but the most responsive to change."* (Darwin, 1839)

On October 29, 2012, Superstorm Sandy in North-Eastern United States killed 148 people. In between June 14-17, 2013, a multi-day cloudburst centered on a northern state in India, killing 5,700 people. On November 8, 2013, a tropical cyclone, Haiyan, devastated the Philippines killing 6,308 people. In the past 18 months, since I joined Landscape Architecture, these three extreme weather events have made a strong impact on me. I experienced Sandy, a relative got killed in India during the cloud-burst, and one friend was stuck in the Philippines.

There have been shortcomings, whether it be related to meteorology in predicting weather or the engineered levee system; destruction of marshes and mangroves. Many such events or sometimes strong winds, heavy rains leading to flooding, falling of trees on roofs, power outages can cause cities to experience havoc as loss of businesses can occur and more importantly, loss of life. The world is coming to terms with the humanitarian, environmental, and financial consequences of natural disasters and as a society we are learning to adjust and respond to these extreme weather changes.

The power or ability to return to the original form is known as Resiliency. In a resilient landscape, the diversity of life and the elements thrive together in a dance of co-evolution and regeneration, resulting in an interconnected system that it is resistant to shock and adaptive to change. (Resilient landscapes, 2014)

Water resilient landscapes are developed by merging natural forces with processes such as reconstructed wetlands, aerated lagoons, flood adaptive landscapes, eco-swales, and rainwater gardens. Landscape Architecture, Urban Planning, and Urban Design vocabulary have started to include slogans such as "Room for Water" and "Space to the River." All these are terms that are used for hazard mitigation against impacts of water.

**My research interest is to study Resiliency. Resilient landscapes, resilient housing and resilient natural systems.**

The following story is told to children to teach them that if they act quickly and in time, even they can, with their limited resources, avert disasters.

*A small boy was going to school and he noticed a leak in a dyke. He stopped and poked his finger in the hole to stop the flow of water. Some time later, a passerby saw him and went to get help to repair the dyke.* (Brinker, 1865)

My site of interest is the Netherlands because no element is as essential to the Dutch cultural identity as water and righteously so, they are geniuses when dealing with water. The Dutch have the ability to control, repel or guide water. They enjoy the beauty of water; they use it for profit and they can use it for cultivating their food. The Netherlands is a resource to the entire world for their knowledge and technology about making the best use out of water. Impacts of climate change, rising sea-levels and heavy rains are pushing water into the Netherlands from

its entire coastline. This has forced them to rethink their landscapes. Instead of curtailing water they are making room for the water. I want to see the metamorphosis under which the Netherlands is currently undergoing and I want to learn from their past mistakes.

There is no such thing as disasters, nature is doing its job. It's we who are coming in its way. For this reason I want to study natural preserved landscapes and its functions of resiliency. When extreme weather events occur they destroy houses as well as landscapes. There are different ways of building and constructing houses and landscapes to function resiliently. I have broken down my research topic into four parts Housing, Hard Landscapes, Soft Landscape and Preserved Resilient Landscape. All this factors work with each other to make cities resilient.

**Housing:** I would like to study two different kinds of housing from two different eras.

I would study housing in Amsterdam.

**District of IJ burg:** I would look at floating homes developed by Architectenbureau Marlies Rohmer.

**Canal Ring:** It was developed in the 17<sup>th</sup> Century. It is a beautiful water network throughout the city. It is an UNESCO (United Nations Educational, Scientific and Cultural Organization) world heritage site.

**Study Plan:** I will sketch at both sites to compare housing from the two different eras. By this comparison, I will come to know which era's housing was more resilient. By visiting this two project I will be able to make cross comparison of housing density, feeling of staying on water and feeling of staying next to water.

### Hard Approaches:

In Rotterdam, I would like to visit The Delta Works. In 1953, a disastrous flood killed nearly 2,000 people. To avoid another such catastrophic event, the Netherlands implemented the Delta Plan. I would like to visit following things at Delta Works:

**Eastern Scheldt Storm Surge Barrier (Oosterschelde):** It is a 13 storm surge barrier in the province of Zeeland. I would like to figure out why the Dutch chose to make a storm surge barrier in that area, functioning of it and construction procedures of it.

**Maeslant Barriers (Maeslantkering):** Storm surge barrier part of the Delta Works that protects Holland from the sea and is the largest moving structure on earth. It opens for the passing of the ships and it closes during flooding events. I would like to learn the mechanism behind this storm surge barrier.

**Jans Delta Theme Park & Flood Disaster museum:** The theme park is an innovative way of passing down history onto the younger generation in a fun-loving way. Most interesting part of this theme park is you can view storm surge barrier from inside. Flood Disaster Museum is actually built on the original caissons of 1952.

By studying, learning and appreciating the beauty of this structures, I will also be able to find out drawback of this structures. It will help me understand the reason of Dutch shift from hardscape to softscape.

**Study Plan:** Here I will be clicking pictures and after coming back I will be sketching over the photographs. I might not be able to sketch due to guided tour or at places where to sit and sketch is difficult. So, at those places I can click pictures and later on sketch over it.

### Soft Approaches:

In Rotterdam, **Noordwaard Project:** Depoldering of land and making it a retention basin. It is known as the “room for the river project” and is still under construction. So I will be able to see the processes as they happen.

In Dordecht, **Plan Tide:** They flooded the polder and arranged dwelling units around the tides and water. This site is next to the existing Mangroves. It would be fascinating to see how a hard scape is converted into a soft scape. Also, it would be a wonderful opportunity to study different kinds of housing.

In Rotterdam, **Sand Motor:** In sand motor, an artificial peninsula is constructed from dredged materials. Overtime the sand in the artificial peninsula will be distributed by wind, waves and currents along the shoreline, which results into beach nourishment. I would like to explore the form of the sand motor and how to make something similar applicable on my master’s project site.

**Study Plan:** Here I will be clicking pictures and after coming back I will be sketching over the Photographs.

### Preserved Resilient Landscape:

In Waddensee, The Wadden Sea is the largest unbroken system of intertidal sand and mud flats in the world, with natural processes undisturbed throughout most of the area. Here, I would actually be able to explore the Ideal section of Barrier Island. Another interesting thing to look at would be how they provide space for entertainment and also perform so well ecologically. I will be taking a guided tour over here too.

**Study Plan:** I will be sketching over here.

On my way back, from Rotterdam, I will take a tour of Deltares, which is an independent water infrastructure research institute. I would be able to learn innovative urban water management techniques, adaptive management of water infrastructure, sustainable urban design, and modeling and cost-benefit of analyses of optimal protection levels. I am in discussion with Mary Fencl, she is involved with Deltares worldwide projects. She is willing to give me tour of Deltares.

### Itinerary:

Day 1: Arrival at Schiphol Airport, Amsterdam. Explore Amsterdam on my own for the rest of the day. Check-in at StayOk hostel.

Day 2: District of IJBurg (Housing), Amsterdam

Day 3: Canal Ring (Housing), Amsterdam. In the afternoon.

Day 4: Take a train (45 min) to Rotterdam. Delta Works Storm Surge Barrier (Hard approach), Rotterdam

Day 5: Jans Delta Theme Park & Flood Disaster museum

Day 6: Interviewing and talking to people over Deltaworks.

Day 7: Noordward Project and Sand Motor (Soft approach), Rotterdam

Day 8: Take a train to Delft (15min). Take a guided tour at Deltares. In evening go back to Rotterdam.

Day 9: Take a train from Rotterdam Central station (15min) to Dordrecht, Plan Tide. (Soft approach) In evening go back to Amsterdam (1 hr. and 30 min)

Day 10: Travel to Waddenzee from Amsterdam. Stay in Waddenzee for a night.

Day 11: Take a guided tour in Waddenzee. Take a train (3 hours) back to Amsterdam.

Day 10: Take flight back from Schipol Airport to JFK.

I feel confident of achieving above mentioned itinerary because Holland is a small country and it has very well established network of public transport. By keeping three days for each of my category, it gives me a room for flexibility and interaction with local people.

### Cost:

\$1140(if I go in August) for flight

\$480 for 12 days of housing

\$250 for train ride

\$300 for food

\$82.50 for Visa Fee (Being an Indian Citizen I have to apply for Schengen Visa)

\$30 for health insurance

**Total: \$2282.50**

I will be able to cover my food and Travel Visa as I have had summer jobs and also will be getting some financial help from my parents.

The comparison of one category to another category will help me do analysis of the concept of Resiliency better and that indeed would be of great help for my Master's Project, "Resiliency of Liberty State Park and its surrounding neighborhood." By visiting and understanding the above mentioned places I will be able to bring concept and stories to share at Blake and also for my master's project.

One of my friends who lives in Amsterdam will be accompanying me in my travels in Amsterdam and Rotterdam. She has been living in Amsterdam for the past 2 years. I cannot stay with her because she herself stays in a hostel.

My stay in USA and other foreign countries like Malaysia and Singapore has made me capable enough to respect and adjust to different ethnicities, cultures and languages.

To prepare myself for sketching, before going on the study tour I will go to NYC and practice at a sketch crawl.

**Master Study Product:** My study product would be an exhibition of all the revised sketches and sketching over photographs. All my sketching would be showing processes exhibiting resiliency, construction exhibiting resiliency, or thought process of making it resilient.

Thank you for your time and consideration.

Regards,

Milani Mody

## References

Heuvel, Tracy Metz and Maartje van den. 2012. *Sweet & Salt: Water and the Dutch*. Rotterdam: NAI.

Nordenson, Guy. 2010. *On the Water-Palisade Bay*. New York: Hatje Cantz ;Museum of Modern Art, Ostfildern, Germany, New York.

"I am Amsterdam," last modified January 15, 2014, <http://www.iamsterdam.com/>

"Deltaworks," last modified December 30, 2013, <http://www.deltawerken.com/23>

"Geography," last modified March 14, 2014, [geography.about.com/od/specificplacesofinterest/a/dykes.htm](http://geography.about.com/od/specificplacesofinterest/a/dykes.htm)

"Waddenzee," last modified March 10, 2014, [www.coast-alive.eu/content/waddenzee-netherlands](http://www.coast-alive.eu/content/waddenzee-netherlands)

"Encyclopedia," last modified March 12, 2014, [www.pantheon.org/articles/l/little\\_dutch\\_boy.html](http://www.pantheon.org/articles/l/little_dutch_boy.html)

"Dutch Amsterdam," last modified March 31, 2013, [www.dutchamsterdam.nl/907-amsterdams-historic-canal-belt-placed-on-unescos-world-heritage-sites-list](http://www.dutchamsterdam.nl/907-amsterdams-historic-canal-belt-placed-on-unescos-world-heritage-sites-list)

"Water Studio," last modified Feb 1, 2014, [www.waterstudio.nl](http://www.waterstudio.nl)

"Deltares," last modified Feb 15, 2014, [www.deltares.nl/en](http://www.deltares.nl/en)

"Resilient Landscapes," last modified March 24, 2014, [www.christenfund.org/issues/resilient-landscapes/](http://www.christenfund.org/issues/resilient-landscapes/)

