

Reflection

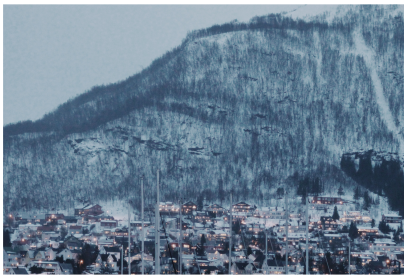
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1. Impression

— *What is the motivation of my interventions?*

NORÐVEGR, Old Norse, which is the etymological root of the name of a northern European country, Norway, and literally means the way northwards and refers to the sailing routes along the Norwegian coast. This is where my graduation project locates.

There is a famous Norwegian documentary series called <Where No One Would Believe that Someone Could Live>. Judging by the name of which, one could make a first guess that the urbanization process in this country is a history of humankind struggling to earn square inch of living space from the domination of nature. During my field trip to Norway, I found that human settlements are usually limited to a narrow strip of flat land between sea and mountain. Infrastructure of enormous size is constructed to connect mainland and surrounding islands. The preciousness of available land for urbanization makes coastal areas incomparably crucial and more densely populated than the inland mountainous areas.



The mean sea level along the coastline of Norway has been dropping for the last century, with glacial isostatic adjustment as the main contributor to GMSL(global mean sea level) change which could mitigate the ongoing sea level rise in global settings. This means that Norway is not considered to be vulnerable to sea level rise, for now. Under this circumstance, lots of transformation projects, such as former shipyards and port areas transformed into residential, commercial and office areas area taking place.

However, due to the largely concentration of the population in coastal urbanized areas and uncertainties lies in future sea level, it is crucial to develop an integrated plan or design with the IPCC(Intergovernmental Panel on Climate Change) projections on sea level change.

2. Definition

— *What is the definition of Amphibious Urbanization in my graduation project?*

The title of my project is “Sharing Fluid Ground”, with which I wish to indicate the space we live in could act like Leviathan, it should have the quality of amphibious. In this case, the boundary of ‘land’ and ‘sea’ blurs in a harmonious scene of sharing the same space among all the species through time. Time would be the witness of this natural succession on this ‘fluid ground’.

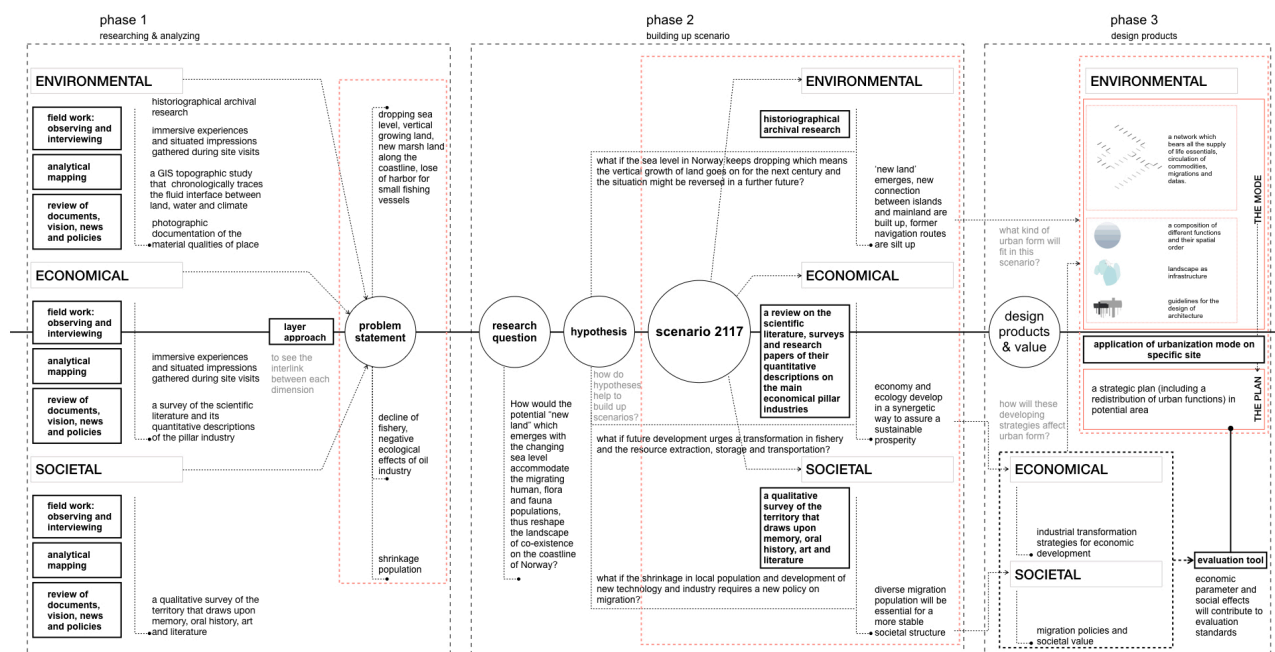
Just as the topic of our studio this year: NORTH SEA: Landscapes of Coexistence, the ideal vision of co-existence between human and nature will always be an objective for us to design with changing sea level, unstable physical conditions on land and develop a more adaptable futuristic lifestyle.

I try to define what amphibious urbanization is in the whole graduation phase. And it's still changing along with the deeper delving in my design and understanding of the chosen site.

To me, the identity of a Norwegian city is a harmonious status of urban tissue blending into natural environment and I do not intend to change that. Thus a new urbanization mode would only enhance that characteristic. The amphibious urbanization does not simply mean an occupation on potential 'new land' which might emerge with a dropping sea level in an less greenhouse gas emission scenario. It will include a cautious urban expansion on 'new land' which would be adaptable to environmental uncertainties and respect the nature of site as much as possible, a connection with more flexible infrastructure from mainland to make it accessible, a transformation on the surrounding built and natural environment where this new urbanization would have an intense interaction with.

3. Relation

— *What is the relation between research and design?*



The methodological framework of my thesis consists of 3 phases, the research or design results of former phase would contribute to the developing of next one. The general procedure could be concluded briefly as follows:

Through researching (observing, interviewing and reviewing, etc.) and analyzing (data collecting, layer approach, etc.), I would conclude a problem statement covering issues related to the intervention site in three dimensions which are environmental, economical and societal. Then my own proposition build upon this statement which is the research question, and in my project it would be: How would the potential "new land" which emerges with the changing sea level accommodate the migrating human, flora and fauna populations, thus reshape the landscape of co-existence on the coastline of Norway? To answer this question, I will set up limits in order to do a more specific design for the next phase. The limits will be presented in forms of hypotheses on 3 dimensions corresponding to the problem statement, in my case it would be: What if the sea level in Norway keeps dropping which means the relative vertical growth of land goes on for the next 100 years then the situation might be reversed in a further future? What if future development urges a transformation in fishery and resource extraction, storage and transportation? What if the shrinkage in local population and development of new technology and industry requires a new policy on migration? Based on these hypotheses I would build up a scenario for the next century which serves as the pre-condition of my design which will be: 1. an amphibious urbanization mode which consists of the construction of the whole infrastructural network which itself should be amphibious, contributive in leading life to 'new land' and effective in linking new urbanization to the existing urbanized territory and series of patterns which are compositions of different urban functions and their performances in holding human and fauna

activities, design of public space and design guidelines of amphibious architecture in this new urbanization mode; 2. a strategic plan on potential site to assure the synergetic development of the experimental fields of amphibious urbanization mode and surrounding areas. Besides, other than spatial interventions, series of developing strategies and societal policies will be part of the final products as well, which will also contribute to the evaluation tool to evaluate the feasibility and value of spatial design.

To elaborate more of research and design methods in each phase, I will explain the related methods and interlinks in chronological order.

Phase1: Researching & Analyzing

The main aim of phase1 is to develop a problem statement which covers all three dimensions as mentioned: environmental, economical and societal. Through historiographical navigation map and GIS topographic study, a relative rational recognition of the whole region could be achieved. Research findings will be produced as a series of layer maps, each of which focuses upon different topics and flows. Each mapping study can be read independently as a singular narrative, and in the mean time they would be overlaid to contribute to read the interrelations between different topic in different dimensions which may presents a more nuanced tale of temperature, climate, maritime topography, migration of flora and fauna, circulation of water, resource exploitation, soil type and politics, etc. The interpretation of these informations which firstly present themselves in raw datas is most decisive in proposition making. These objective maps provide new information and insight into previously hidden territorial logics and will contribute to an subjective opinion on potential site.

However, this multilayer approach may not be enough to let a researcher dive into the spiritual inherent context of intervening site which requires a site visit to travel deeply into the intriguing complexity and possibilities of landscape and urban environment. Through the dialogue between the cartographies delineated in datas and plans and the real natural and built environment where one could sense, feel and wander, researcher would have a more holistic recognition of this territory and more accurate judgement of existing problems.

Phase2: Build Up Scenario

In the former phase of researching and analyzing, critical reflections on the seemingly disparate and contradictory social, economic and environmental phenomena would help to understand what issues I am dealing with which would come up as problem statements. In this phase, the proposing of research question will firstly depend on what kind of value one could construct from literature reviewing and professional practicing with which the intention of my design endeavor will not be meaningless. Then based on this value and former research on the history of urbanization and reference projects, a general idea of "what to do" will be generated. After that, series of hypotheses would help to answer the "how to do" question. However, the specific design interventions will start from building up a scenario which could clarify project objectives and serve as the pre-condition of design interventions. Moreover, the construction of scenario is an essential transitional process to put one's propositions and concepts into the tangible or visible urban forms and spatial elements. The actions toward landscape and urban systems will decided by the hypotheses one make and the corresponding scenario built upon these series of hypotheses. This scenario will indicate propositions in environmental, economical and societal dimensions as to relate to the former problem statements. And these propositions should come from the former process of analyzing with the methods of historiographical archival research, scientific, literature and research papers reviewing, mapping and context study.

Phase3: Design Products

In the former phase, the construction of scenario help to clarify the specific area where the design interventions would happen, thus the physical conditions of potential site will be concrete. It would also be clear that which group of people or animated beings I will design for, what perspectives I will consider for them, and the main direction of industrial transformation. So the first part of the design products will be a spatial strategical plan for the potential area. The plan deploy defined measurements and succinct labels to illustrate territorial dynamics. The most important part and key element of which would be the innovation, redefinition and construction of the infrastructural network. The network itself should possess this characteristic of amphibious which would make the definition of infrastructure more broad. And this could be the most innovative point of my project. So the main methods involved will be a critical reviewing of existing plan and then mapping of my own spatial strategies.

A new urbanization mode will be developed which in my case it would be an amphibious urbanization mode. It would be applied with pattern tools which are categorized in three types including the multi-function patterns, public space patterns and amphibious architecture patterns. These design patterns would be inlaid in the whole network and serve as the basic spatial elements that could transform depending on specific location and contribute to the functioning of amphibious urbanization mode.

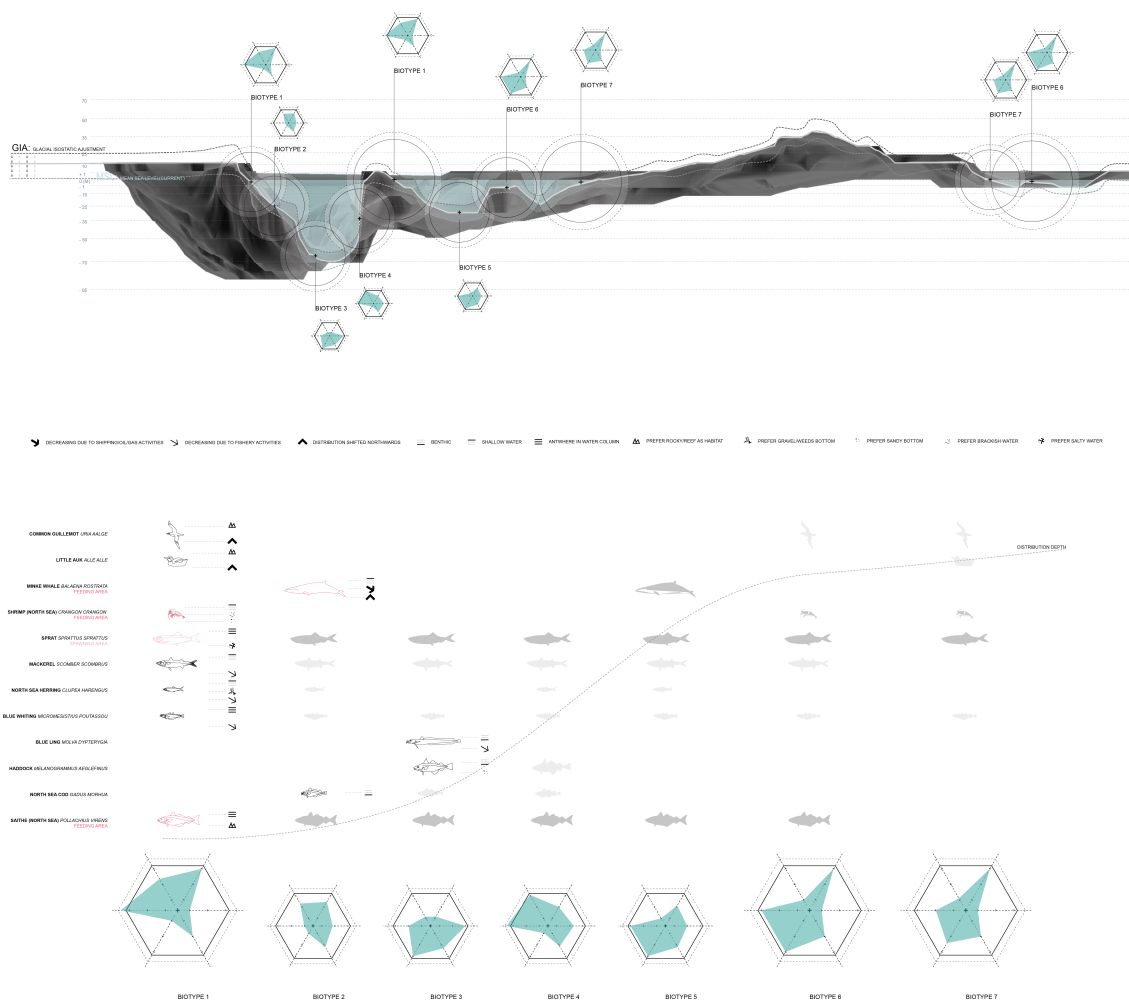
As for the economic and societal dimensions, a series of strategies will be produced and the strategy making process will also contribute to the construction of evaluation standards. Analytical mapping and typo-

morphological urban form study will be applied in the interpretation process of transforming strategies to urban form.

4. Application

— *How to apply amphibious urbanization on specific sites?*

Stavanger is the intervening site I chose for my project. Known as Europe's capital of energy, Stavanger region is the the richest and most automobile dependent region in Norway, it is also the fastest growing urban area, a strong cultural hub and a destination for breathtaking extreme sport. The Stavanger region has an income per capita that is about 20% higher than the national average. Incomes in the Stavanger region will also grow much faster than the national average in the years up to 2040, according to government projections. With the declining in its traditional economic strength — oil industry and dropping of sea level



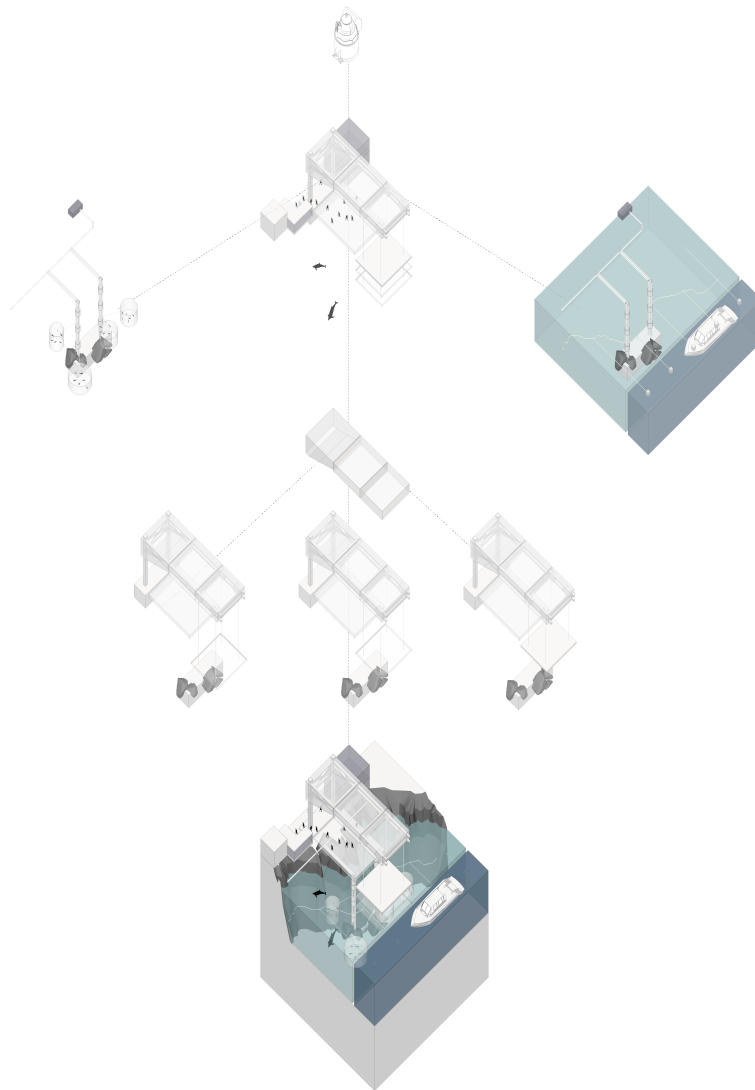
would affect the logistic shipping routes, the geographical condition of the Stavanger Region could be a perfect location for the spawning area of certain fish species, there is an urgent

demand for industrial transformation towards a more sustainable and environmental friendly development.

Besides, Stavanger has a very convenient transportation connection through all means with the world and the development of this region relies largely on migration for the local population is shrinking which could lead to a shortage in labor force.

Thus, after studying sections on typical sites and collecting corresponding datas, based on the physical conditions such as soil type, stability, salinity of water and position in water column, combining with fauna distribution and habituating status in this region, I developed different biotypes. In these evaluation polygons as shown in this map, one could have a relatively reasonable and scientific recognition of certain sites and then proper designing proportions and strategies could be made out of it.

For example, in biotype 1, the distribution of commercial species such as saithe and shrimp in this type of environment indicate a potential to develop fishery in relevant area. In the mean time



with the spawning area of sprat in this region means the waters should be protected from pollution. The habitat of common guillemot and little auk calls for the preservation of natural environment such as rocky and reef coasts. These research conclusions on habitation could lead to very specific design tactics.

5. Reflection

— *What does the memory of a site mean to me? What is the limitation of expansion and renovation?*

When I was cycling along the North Sea Road, on my way from Stavanger to Egersund, I came across a billboard on which says “A sandy ridge extending from Harabekken north to Bringsvagen once provided a welcome harbor for small boats. The sandpit, rising 3-4 meters above sea level, offered a natural breakwater. Inside, following many centuries of sinking seas and encroaching vegetation, the original shallow lagoon has become a marsh...” For me, the memory of this site builds upon a sole visit, a single message i got from this place that there used to be a harbor but replaced by marsh land, the rocky coast and weeds slope that extending for miles on the gravel salty marsh I captured. For other campers, this place may reminds them of a happy or frustrating experience with families and friends. For local fishing communities, the sea is their spirit. The changes in coastal environments means a changing of lifestyle to them, a life style that passed through generations of fishermen living in this region, the stories that been told by their ancestors. For the seabirds, it is where they nest and feed and meet with other creatures on earth.

Even if there are uncertainties lie in the status of the coastal area, the relationship between land and sea is changing all the time, those memories of the human and other fauna populations who used to live here or passed by will haunt this space like a spirit. For human beings, those memories contribute to the sense of belongings to one place.

I keep on asking myself one question while doing this project: do we really have to extend our living space on water? Do we really have to colonize this fluid territory? Then I realize that maybe I have placed an attitude too negative on this matter. I don't have to let the building technology today become a limitation on exploring futuristic possibilities.

With the developing in technologies, as long as we are clear about what kind of effects we want to achieve, living on fluid ground and sharing with other species could not be just an imagination. It is kind of similar to how we live at the beginning of civilization in a primitive society when human hold in awe and veneration in front of nature, less invasion of urbanization towards nature has taken place. Maybe in the future, with the help of advanced technologies, we could have a chance to reverse the harmful explorations we did on earth and go back to where we were, to live with nature.



SOURCE: PHOTOGRAPHED BY YELIN ZHANG, NORWAY, 2017

