

**RIGS OF REFUGE:
SPATIAL AGENCY AND
ITS ROLE IN CONFLICT**

A Thesis Presented for the
Master of Architecture
Degree
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DEDICATION

For my parents, who welcomed me back home and always made sure my dog was well taken care of during those late night studio sessions.

And for Thomas, who is endlessly supportive and always willing to listen to my rants, academic and otherwise.

ACKNOWLEDGEMENTS

I would like to thank Professor John McRae for being my advisor in this and many other endeavors. You have always encouraged students to use their skills to make meaningful contributions to society, and in doing so have set an example of how to keep people at the heart of design.

I would also like to thank Katherine Ambroziak and Liz Teston for being a part of my committee. They are both incredibly insightful professors who bring an attention to detail and nuance that pushes students to create more holistic designs.

ABSTRACT

Architecture is an inherently political endeavor. As such, designers should carefully consider the spatial dialogue that the built environment creates between those who control spaces and those who use them. In times of crisis, this dialogue often ceases to be an equal exchange, pushing users' needs aside and exerting authority in the most expedient way possible.

This thesis proposes that amidst settings of conflict, hyper-responsive architectural systems can counteract landscapes of authority by returning spatial agency to users. As the means of providing such a system, oil rigs should be repurposed as a network of deployable crisis response hubs.

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01 | AUTHORITY AND CONFLICT

Architecture as a Political Act

We all live within landscapes of authority. The first images that spring to mind under this topic are always the most egregious: Nazi Soldiers goose stepping through a square, Guantanamo Bay, Soviet era monuments. But the reality is most of us live our day to day lives within a much subtler hierarchy of societal, economic, and political influences that are reflected in the spaces we inhabit. We wander through the windowless box stores that let us focus on spending. In the city we stroll past raised planters with diminutive skateboard-wrecking sculptures protruding every two feet and benches subdivided so citizens can sit (and only sit, you hear?) and enjoy their surroundings. We work in places where the boss sits at the head or middle of the table. These are the subtle turnings of authority at play.

In truth, there's no way around this. The spaces we make and the interactions they foster are inherently political. Those who own or craft space may intend them for a set purpose, while the occupiers or users (who normally outnumber those with authority) may wish to use them in another manner entirely. In *Anarchitecture*, Lebbeus Woods acknowledges this conflict. He states that "dialogue is an essential part of heterarchy, as are other forms of interaction between people and things, such as buildings and spaces for living and work, such as the city itself. By contrast, in the hierarchical city [...] dialogue is always overshadowed by the monologues of authority, which issue from the apex of social and political pyramids of authority in the city and filter down (11)." Shifting monologues may disrupt the identity and lifestyle of a community. If these changes are drastic and unwelcome, at what point is that faction justified in establishing its own framework instead?

In the face of alienation and resentment, how can architecture be used to reintroduce an equitable dialogue between authority and community? This project seeks to explore the role of spatial agency in conflict by examining the dichotomous relationship between landscapes of authority and autonomy during times of crisis.

Types of Conflict

Before we can analyze landscapes of authority, we must first examine the three primary types of conflict. The typical response to each of these generates different patterns of control and disruption in people's lives and so must be addressed separately rather than one overarching solution. Relying on the classic literary

definition, we can define conflict with the following primary typologies:

Man v. Self

This typology acknowledges the inner battles that many face, some of which may be impossible to overcome without outside help or removing themselves from the triggers of their typical routine. These scenarios may include:

- Addiction
- Depression
- Eating Disorders
- Spiritual Reflection

Man v. Nature

With some exceptions, this typology typically sees less political polarization than the other two since those affected are seen as innocent victims with no power over the situation. While the immediate response to disasters may be swift, support for recovery and relief may dwindle over time due to lack of coverage and waning public interest. These scenarios include:

- Natural Disasters
- Epidemics
- Pollution
- Rising Sea Levels
- Drought
- Famine

Man v. Man

This version is what typically jumps to mind when people address conflict. It is marked by violence or force and many times the best solution is to abandon the situation if at all possible. However, people may be unwilling to leave due to financial or emotional ties, distrust of alternate arrangements, or are simply unsure where to go. Examples of this kind of conflict may include:

- War
- Religious Persecution
- Ethnic Persecution
- Abuse
- Witness Protection

As can be seen in Figure 1.1, 27.8 million people were displaced in 2015 alone by conflict and natural disaster. When one considers the population density as represented in Figure 1.2, hotspots for the three types of conflict become even

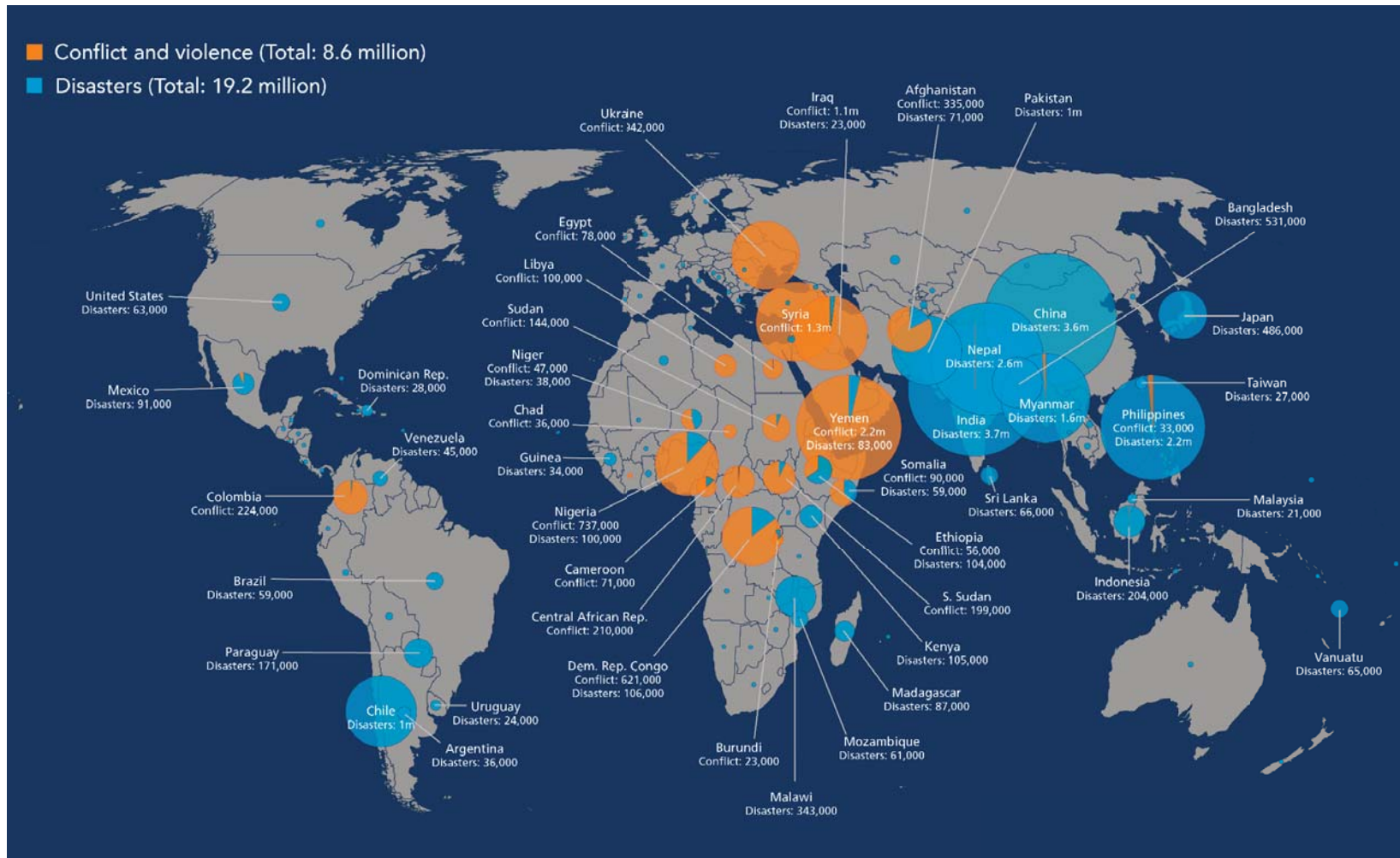


Figure 1.1 UNHCR Global Displacement Map - 2015

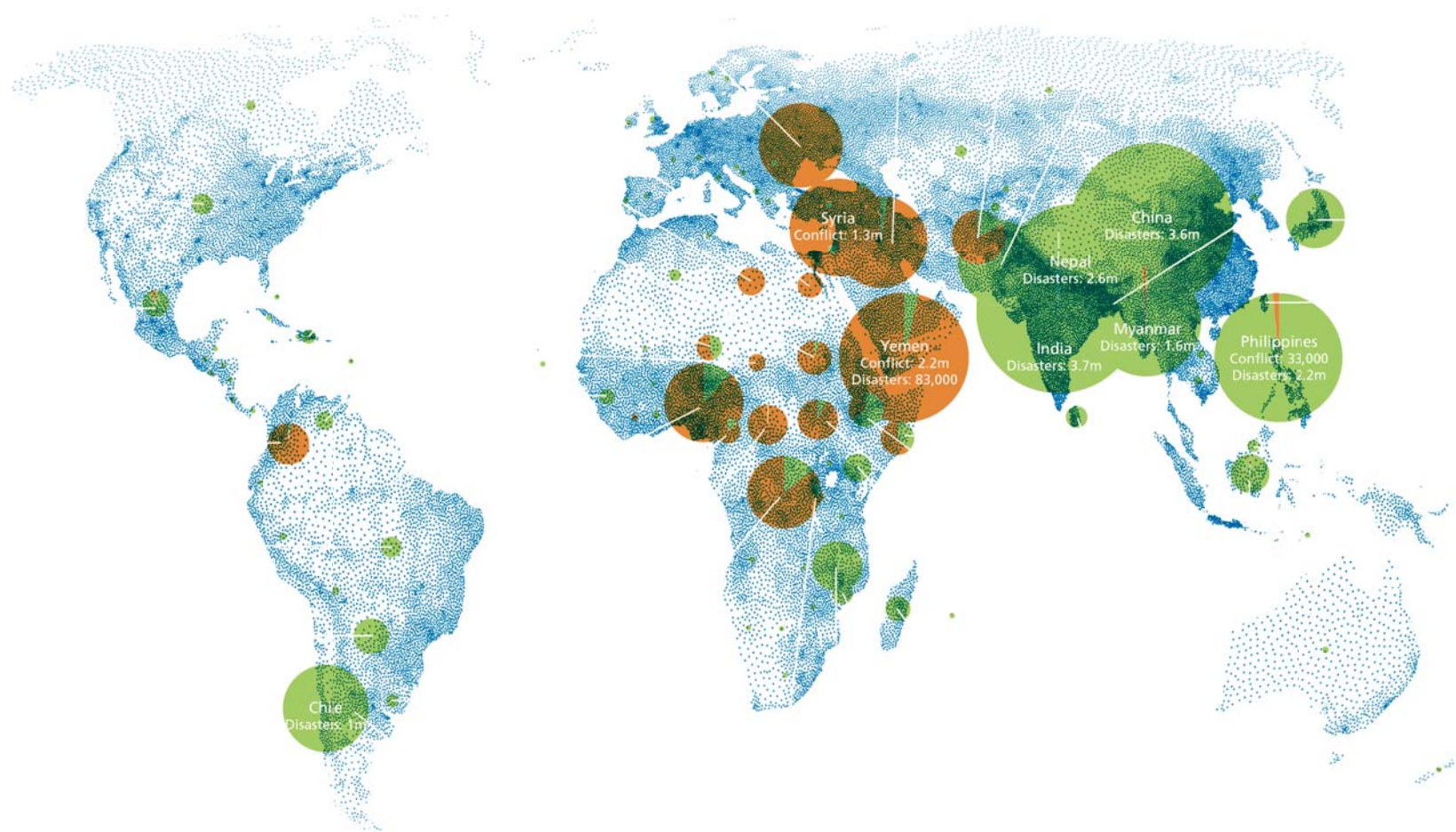


Figure 1.2 Global Conflict Typologies

more apparent. This thesis will address the varying needs of each of the three conflict typologies, but will draw most heavily from man v. man when exploring the impact of conflict on spatial authority and autonomy.

Ultimately, this exploration is meant to call into question the role of architecture in conflict. In the face of dire circumstances, does it really matter? In crisis situations, the physical and psychological benefits of architecture and public spaces begin to disintegrate. As can be seen in Maslow's pyramid of needs (Figure 1.3), shelter and security are considered basic needs. During times of stability, these needs are generally adequately met, allowing societies to focus on higher level needs and their corresponding spaces. These spaces go beyond shelter to reinforce cultural identity and values, creating a sense of belonging and community. Ownership and care of personal property can contribute to self-esteem needs. And architecture is certainly a contributing factor to aesthetic needs and ideals of beauty. However, once a person is forced away from the network that meets these higher order needs, their lives become destabilized. They can no longer achieve their full potential while struggling to fulfill basic needs. However, in crises we often only seek to meet the basic needs of shelter, forgoing the higher order influences that well-designed, culturally reflective spaces can have. In fact in many instances, hosts providing shelter to communities whose lives are disrupted actively obstruct or discourage changes to the systems they have provided. In scenarios like this, who should be in control? Do users have a right to spatial agency that facilitates higher order needs even if they don't own the spaces?

Current Scenarios

If this project is to explore the role of spatial agency in conflict, it stands to reason that the end users of this project should be a community that regularly operates in landscapes of authority and would benefit from greater ownership in their environment. A sample community from each of the three conflict types has been selected to demonstrate how an adaptive deployable hub network respond to different scales, cultures, and crises.

Man v. Self | Drug Addiction | New York City

With nonviolent drug offences on the rise, court ordered rehabilitation is being seen as a more viable option than prison. Inpatient facilities away from the user's daily environment are the most effective method of rehabilitation but are generally too expensive for low income individuals without government assistance or insurance. Establishing a state or non-profit run inpatient rehabilitation center adjoining Hoffman island would be an ideal alternative that would provide all the benefits of a secluded inpatient facility while maintaining affordability and accessibility to the

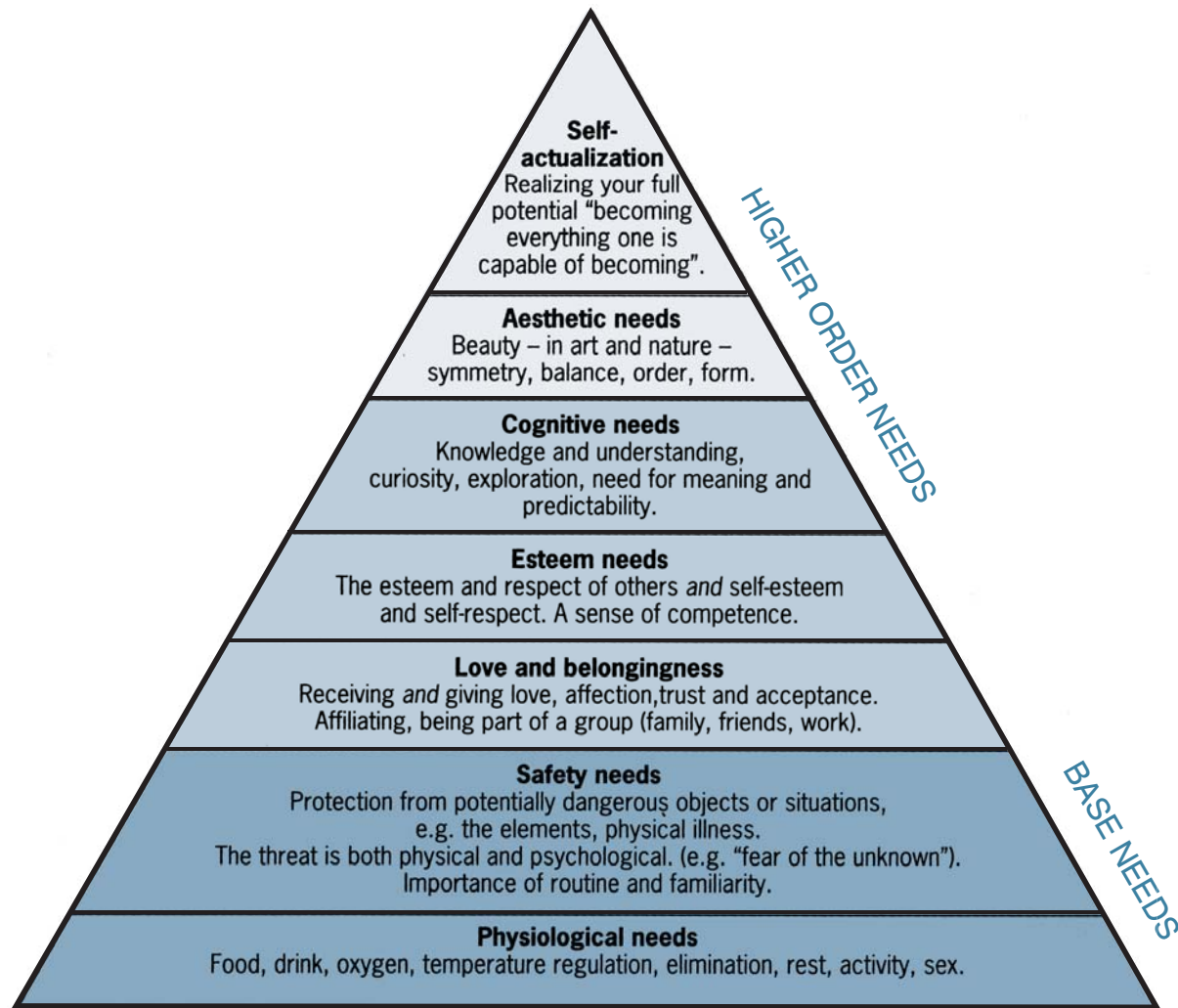


Figure 1.3 Maslow's Extended Pyramid of Needs

city. Figure 1.4 shows the number of drug misdemeanors per NYC precinct along with the proposed site of intervention.

Man v. Nature | Earthquake | Port au Prince, Haiti

In 2010, a massive earthquake devastated the Haitian capital, Port au Prince. 10 years later, nearly 50,000 individuals remain in camps for internally displaced persons (IDPs). Figure 1.5 shows the location of remaining encampments throughout the city. Conditions are typically unsanitary and unsafe but there are no alternatives for those who either can't afford to rebuild or have others squatting on their land. An ideal intervention would provide safe and sanitary living conditions along with jobs and education opportunities.

Man v. Man | Syrian Civil War | Syria

Figure 1.6 reflects the number and spread of IDPs and refugees resulting from the Syrian Civil war. While shelter options are beginning to benefit from new innovation, the methods of organizing and operating a camp have seen no such overhaul. Often times, camps meant to shelter refugees are run from the top down method, giving residents little say in how they are to operate within the framework of their new environment. This may lead to strategies that are out of touch or insufficient for the needs of a particular culture. An adaptable system that could be manipulated to reflect the cultural identity and long term needs of Syrian inhabitants would be ideal.

Spatial Agency and Authority

The civil war in Syria and resulting diaspora are a prime example the impact of spatial agency and its role in cultural expression. Figure 1.7 shows a panoramic view from the citadel in Aleppo prior to the war. Many different typologies of spaces are present in the view that demonstrate different facets and values of Syrian culture (Figures 1.8-1.15). Two recurring themes are the gradation of privacy and the importance of shaded gathering spaces. Public spaces get progressively more intimate as they transition towards the buildings surrounding them. Arcades and vestibules articulate the transition between spheres even more distinctly. Traditionally, homes feature further gradations of privacy, beginning with an inner courtyard where they may spend time with family and friends. Opposite genders typically do not fraternize, especially in public. Thus the home becomes a place of more relaxed decorum. In apartments lacking courtyards, the balcony may hold a similar function by using a sheet or curtain for privacy. Older apartments may feature ornately carved mashrabiya, which are oriel windows that are screened for to prevent passersby from seeing inside. In addition to providing privacy, courtyards and balconies provided shaded well ventilated areas for people to cool

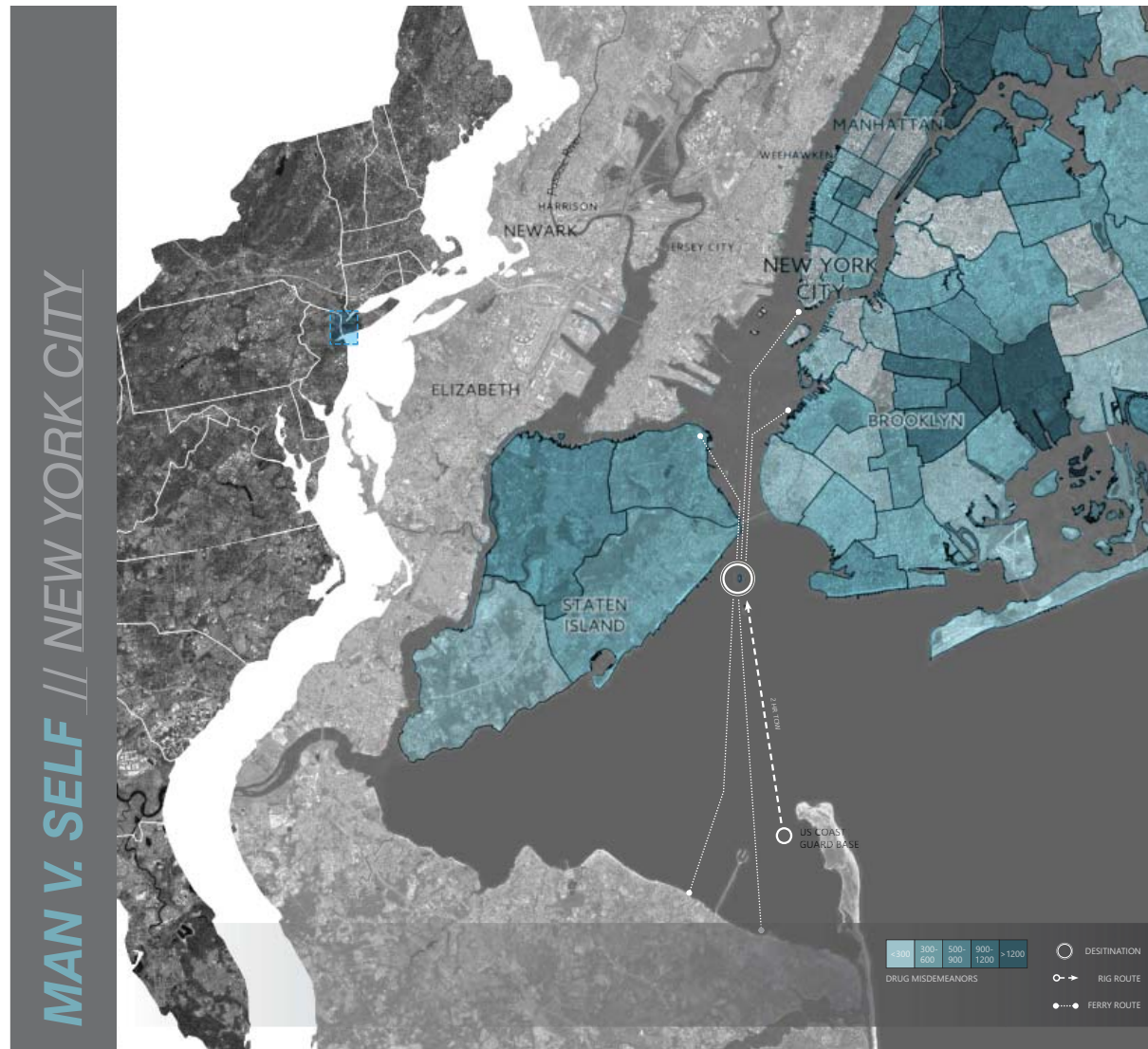


Figure 1.4 Man v. Self Map

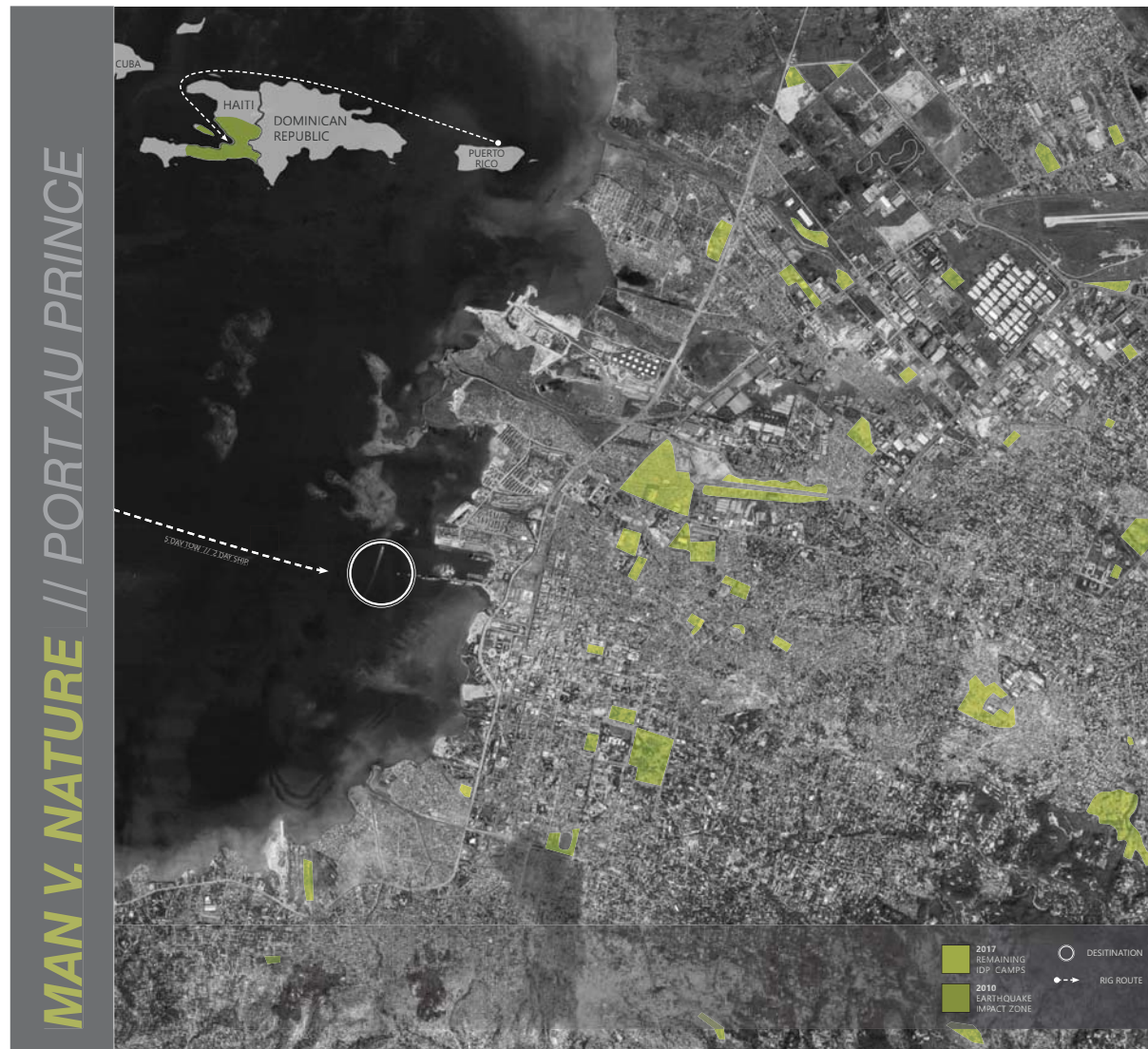


Figure 1.5 Man v. Nature Map

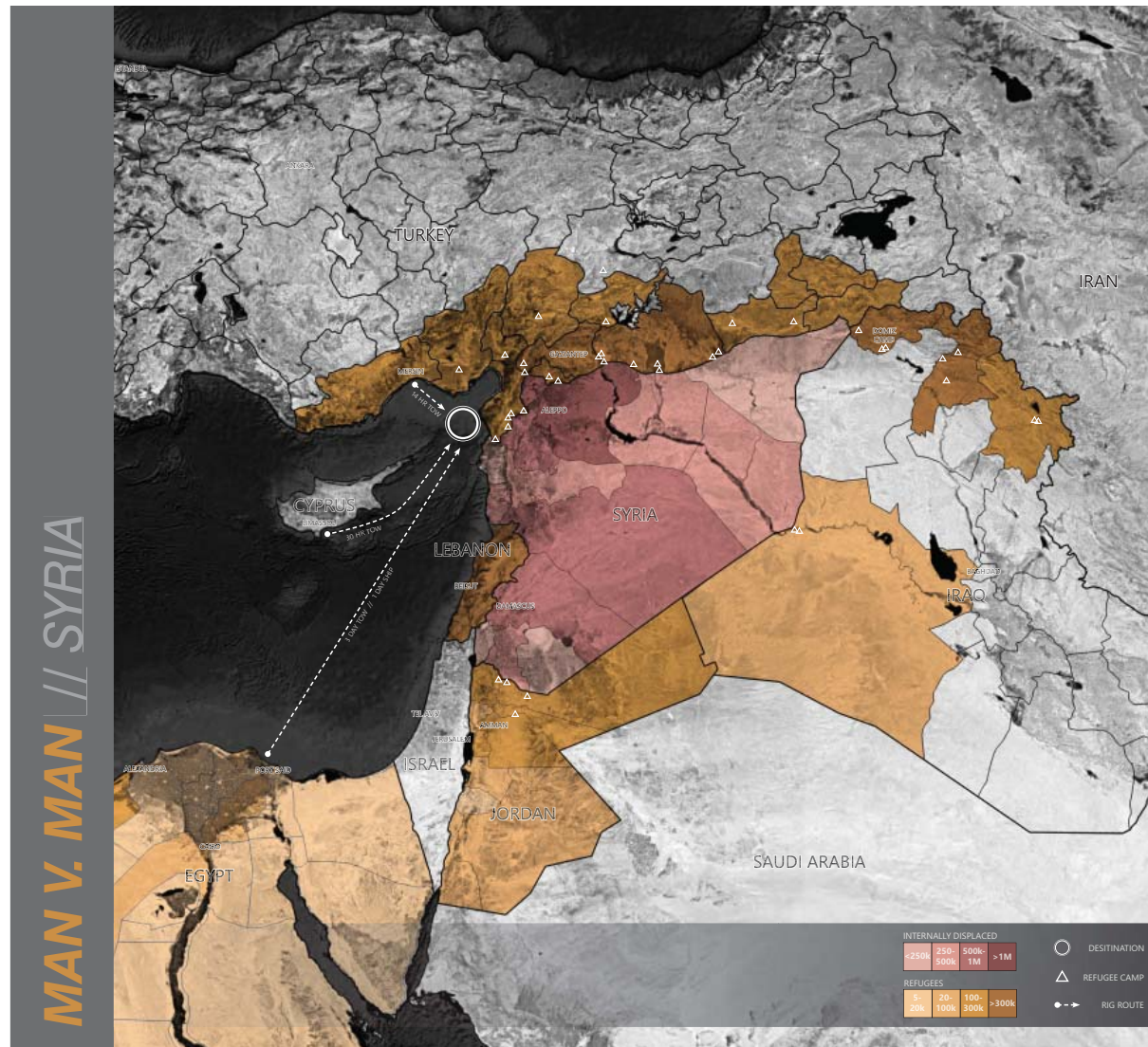


Figure 1.6 Man v. Man Map

Figure 1.7 Spatial Agency, Pre-war Aleppo



Figure 1.7 Continued



Figure 1.7 Continued



Figure 1.8 Home with Courtyard, Aleppo

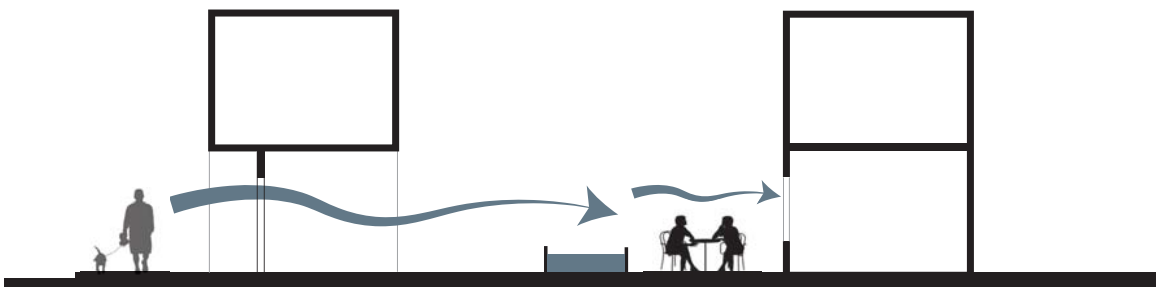


Figure 1.9 Courtyard Diagram



Figure 1.10 Plaza Cafe, Aleppo

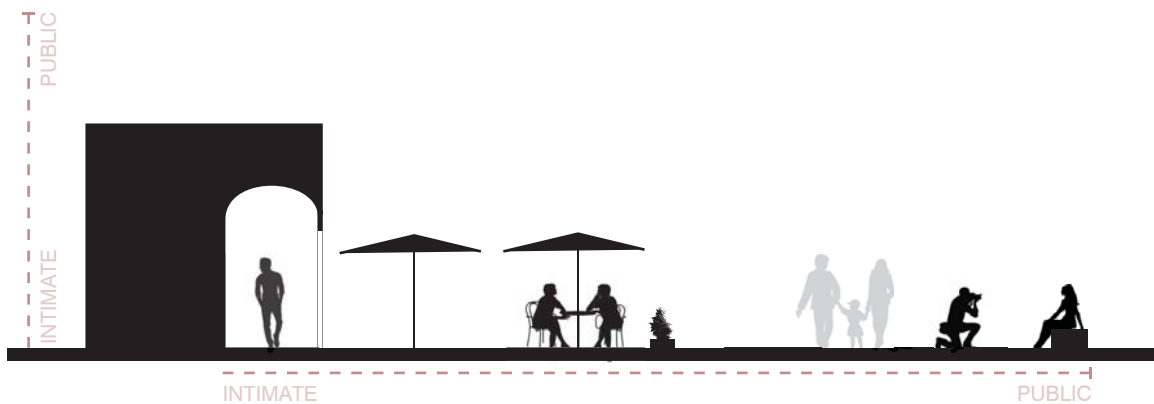


Figure 1.11 Plaza Diagram



Figure 1.12 School, Syria

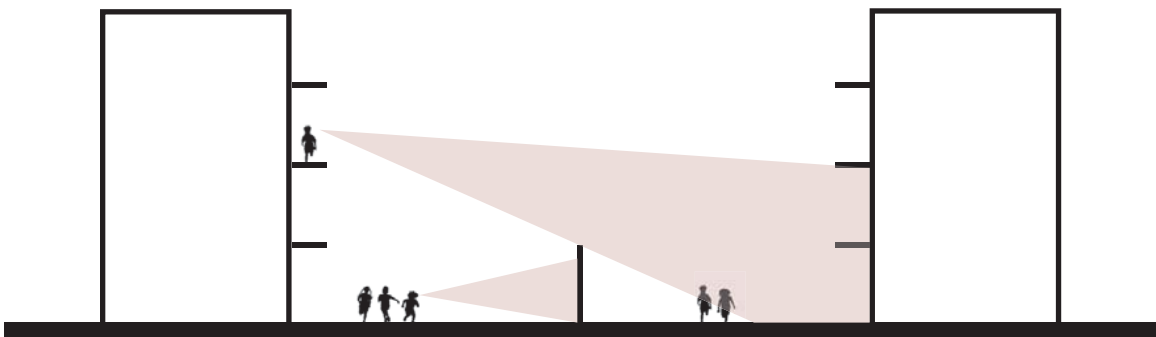


Figure 1.13 School Diagram



Figure 1.14 Bazaar, Aleppo

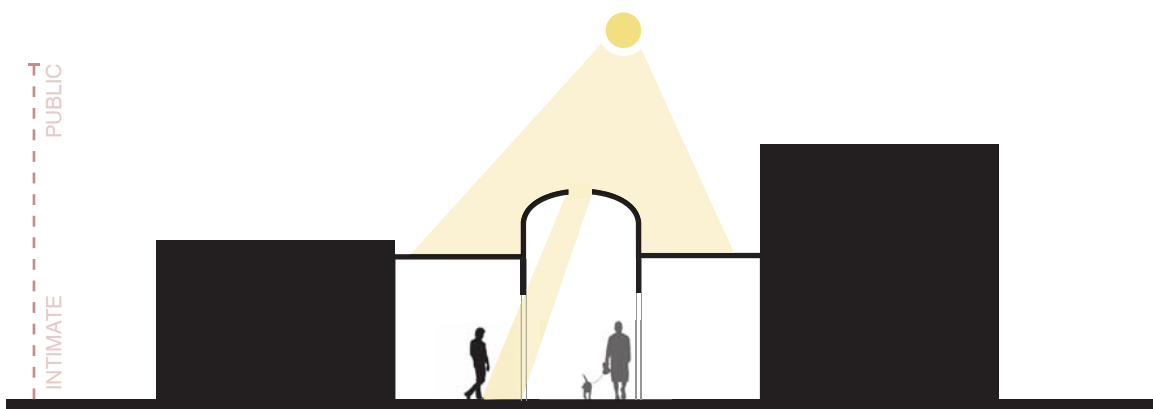


Figure 1.15 Bazaar Diagram

off in the evenings. Daytime gathering areas such as cafes and bazaars also rely on shade as both a social cue and to make unconditioned spaces more tolerable for their customers.

These architectural traditions are key components of the Syrian urban fabric that serve to reinforce their cultural values. However, once the war began and people started to flee, refugees were unable to rely on spatial traditions to reflect and support their social patterns. This in turn undermined the sense of belonging and familiarity that are key elements in Maslow's pyramid. Instead, when arriving at a camp, refugees are forced to adjust to a foreign quasi-urban fabric that is designed to facilitate the smooth running of the camp, not reflect the values of its inhabitants. Thus many of a camps spaces begin to form a landscape of authority. Figure 1.16 shows a street in Domiz refugee camp with some surprisingly controversial areas highlighted.

A standard issue tent can be seen in the far right of the image while on the left we see examples of how residents have begun to adapt their dwellings to suit their needs. Technically, these alterations aren't allowed as they undermine the presumptive "temporary" nature of the camp. However, the UNHCR knows that this will be a protracted conflict, so residents have found ways to subtly push the rules. There is a balancing act in the camps, a subtle push and pull to determine who is really in charge. Agencies running the camps prefer open orderly grids for security and operational reasons, but the enforced dichotomy of public and private directly undermines Syrian spatial tradition and agency. In addition to residential implications, this can be further noted by the lack of a formal covered bazaar. Instead, the street becomes a sprawling bazaar in its own right since it is one of the few clearly delineated public spaces. Formal shops can be found on the street of the main entry, but this development resembles a typical European high street or American strip mall more than a Syrian commercial typology.

If spaces do not reflect the identity of a culture, then its people will never feel that it belongs to them. But that begs the question, if they are not the owners and operators then who is? As Jenny Donovan, head of Inclusive Design, states, "Intervention can warp surviving social structures by seating places that people don't feel belong to them and create a new and unfamiliar landscape of authority (Donovan, 2)." Without agency, refugees' perception of the situation shifts from one of autonomous resilience to one of authority. Prior to the Cold War, Refugees had legal precedent to both move freely about their country of asylum and seek employment. As states' concerns of safety and nationalism began to shift, camps have become mechanisms of segregation designed to keep refugees and IDPs at arm's length from the rest of the population, casting them in the role of the ubiquitous "Other."

Figure 1.16 Spatial Agency, Domiz Refugee Camp



Figure 1.16 Continued



Figure 1.16 Continued

The fact of the matter is, if you have no say in where you live, how you live, or what you earn, then you have lost three major elements of control in life. When people lose this autonomy, they are essentially forced into a state of dependency. Traditionally speaking, when individuals (especially heads of house) feel dependent on others, they lack fulfillment in their role as providers or contributors and self-worth begins to falter. From here, Maslow's pyramid begins to crumble, creating a host of internal conflicts that exacerbate an already difficult situation.

02 | CRISIS INTERCHANGE

Energy Crisis or Opportunity?

As of December 2016, there were 1412 offshore oil rigs in the world (“Global Offshore”). Many of these rigs are no longer actively extracting oil, but instead sit idle while awaiting new contracts or to be decommissioned entirely. Over the last 5 years, oil production has slowed due to a combination of factors (Figure 2.1). Many of the reserves located below the relatively shallow waters of the continental shelf have been depleted by earlier exploits, pushing drilling operations into deeper waters and requiring larger, more advanced machinery. As oil prices began to plummet in 2014, the return on investment for the creation and operation of such rigs also decreased, making them cost prohibitive for most oil companies. While a steady stream of decommissioning has already begun in mature oil fields like the Gulf of Mexico, other areas must rapidly transition to dismantling a formerly lucrative industry. According to the Financial Times, British oil producers will spend £30-60 billion by 2050 to remove around 470 platforms, 5,000 wells, 10,000km of pipelines and 40,000 concrete blocks from the North Sea (Kiran).

In many parts of the world companies are legally required to remove rigs, but the high expense of doing so often causes them to delay the process. But what if this cost could be shared through a mutually beneficial partnership? Communities whose lives have been disrupted by conflict and breaches of authority could choose to extricate themselves and form their own micro-societies. In the past, micro nations such as Sealand have done just that on a small scale, operating loosely within the framework of both British and independent citizenry. Instead of leaving rigs in the sea waiting to be scrapped, they should be repurposed by encouraging oil companies to partner with other organizations and communities to introduce a new phase of the rigs lifecycle. There are already successful precedents for such partnerships, including Rigs to Reefs. In this program, oil producers pay the government half of what it would have cost to dismantle a rig, and in return the government uses the money to recycle the platform and transform the sub-sea structure into a reef (“Rigs to Reefs”). The reefs support aquatic life and in turn draw tourist for fishing and scuba diving.

Crisis Solving Crisis

As seen in Figure 2.2, currently over half of the UN High Commission of refugees top 20 donor are oil producing countries. As the use of offshore rigs becomes less and less viable, countries could initiate programs that share the cost of repurposing

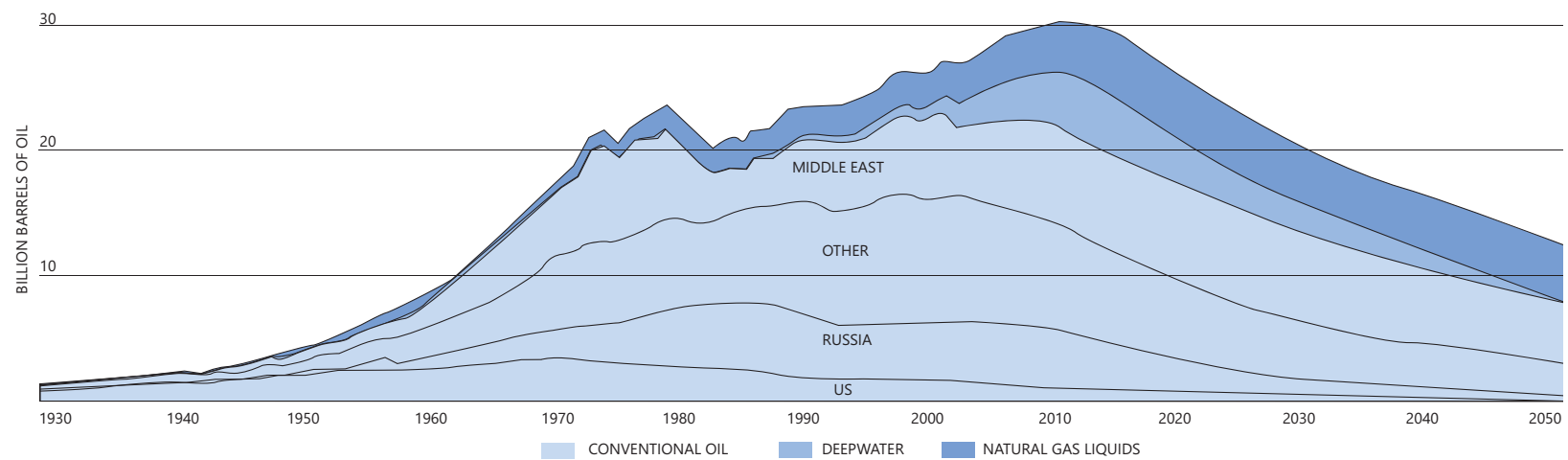


Figure 2.1 Offshore Oil Production

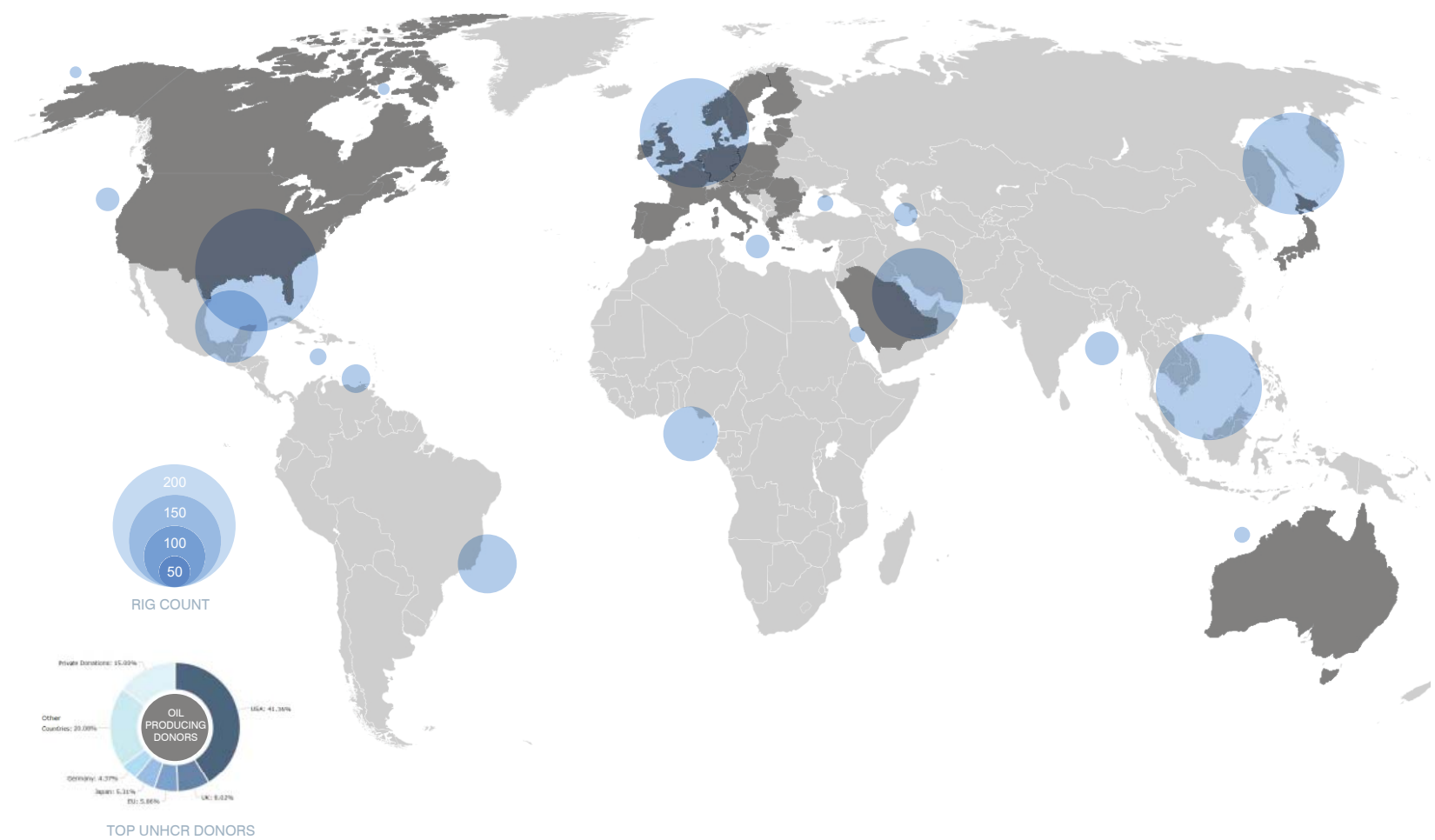


Figure 2.2 Global Rig Dispersement

oil rigs between the state and private companies therein. Not only would this save oil companies money, it would also provide the state with ownership of a fleet of rigs that could either be lent in-kind as part of an aid package or retained for use in their own country. The goal of using this rig network would be to redress the current landscapes of authority and dependency inherent in current camps. This will be achieved through the following measures:

1. Return spatial agency to residents so that they feel ownership rather than alienation.

- 1-A. Since it is not practical to custom build a solution for every culture, Repurposed rigs should be hyper-adaptive in order to allow for maximum user manipulation in order to best meet their needs and allow for cultural expression.

- 1-B. Returning autonomy to users is not to prevent state sponsored aid groups and NGOs from crafting spaces for their needs, but rather that their spaces and ideas should engage refuge spaces as a dialogue instead of the authoritative monologue that Lebbeus Woods warned against.

2. Rigs should provide economic opportunity to support financial stability upon repatriation or immigration.

3. Refugees should be allowed to transfer freely between traditional camps and rigs. If they don't have freedom of movement within their country of asylum, at least there would be a network of mobility that is independent of any individual state.

Oil Rigs 101

There are many different structures that are colloquially referred to as oil rigs. It should be noted that there are in fact two main divisions in rig types: production rigs and drilling rigs. Production rigs are typically stationary though some large floating units can also store oil in their hulls. Drilling rigs are used for discovering new reserves and drilling wells prior to the installation of a permanent production platform (McLendon). They are inherently mobile so that they can drill numerous wells. This project is based on a jack up rig, which is both the most prevalent type and easiest to relocate. Figure 2.3 provides a more detailed analysis of why this rig type was selected as a prototype. Rig information and design was based specifically on the Maersk Inspirer (Figure 2.4 - 2.6). The Inspirer has living accommodations at the front of the rig for 120 workers, with the deck and hull being used for drilling machinery and operations (Figure 2.7). With non-essential drilling machinery removed, the ample deck space can become a central public

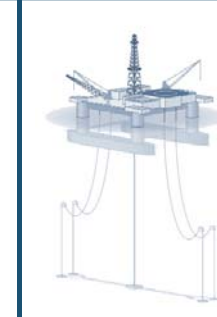
RIG SELECTION CRITERIA							
	DRILLSHIP	JACK-UP	TENSION LEG	SEMI-SUBMERSIBLE	SPAR PLATFORM	FIXED PLATFORM	
	NUMBER	150	630	25	182	17	266
	MOBILITY	✓✓✓	✓✓	✓	✓✓	✓	
	TRANSIT SPEED	SELF-PROPELLED 12 kts	DRY TOW 14 kts WET TOW 4-6 kts	DRY TOW 14 kts WET TOW 3 kts	DRY TOW 14 kts WET TOW 10 kts SELF-PROPELLED 6 kts	WET TOW 4-5 kts	
	INSTALL TIME	<2 HRS	1-6 HRS	2-5 DAYS	2-4 HRS	10-13 DAYS	5-7 DAYS
	STABILITY		✓✓	✓	✓✓	✓	✓✓✓
	DEPTH RANGE	2000-12000'	15-500'	1000-4900'	500-10000'	2000-10000'	0-1400'
PRICE	\$\$\$	\$\$	\$\$	\$\$\$	\$\$\$	\$	

Figure 2.3 Rig Selection



Figure 2.4 Maersk Inspirer

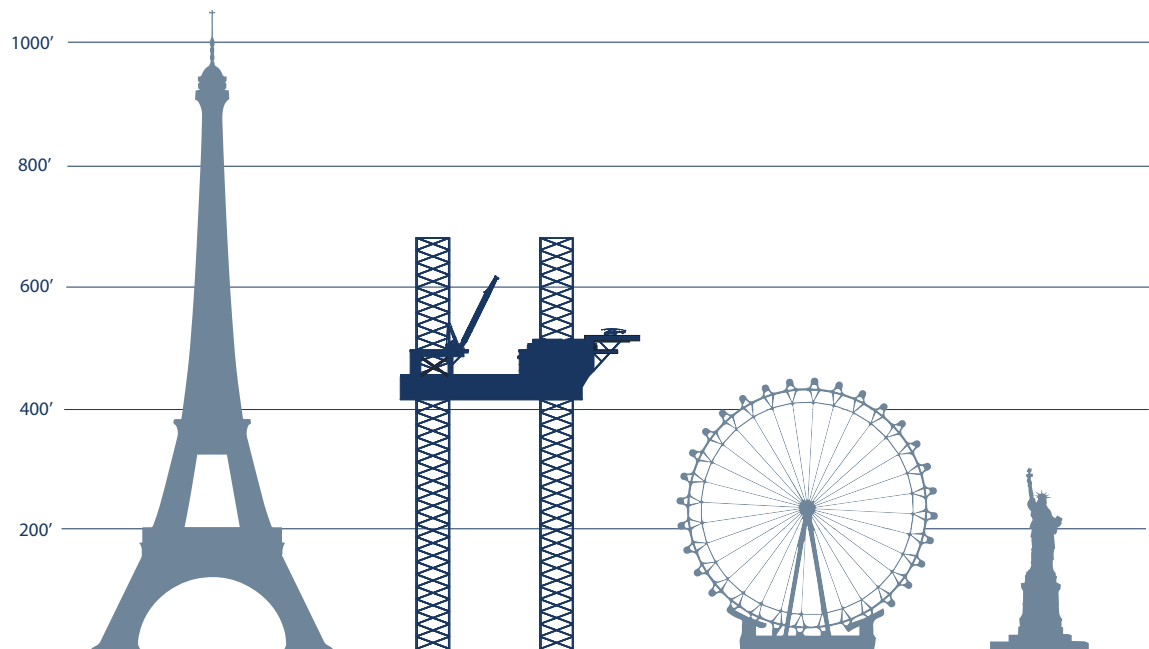


Figure 2.5 Rig Size Comparison

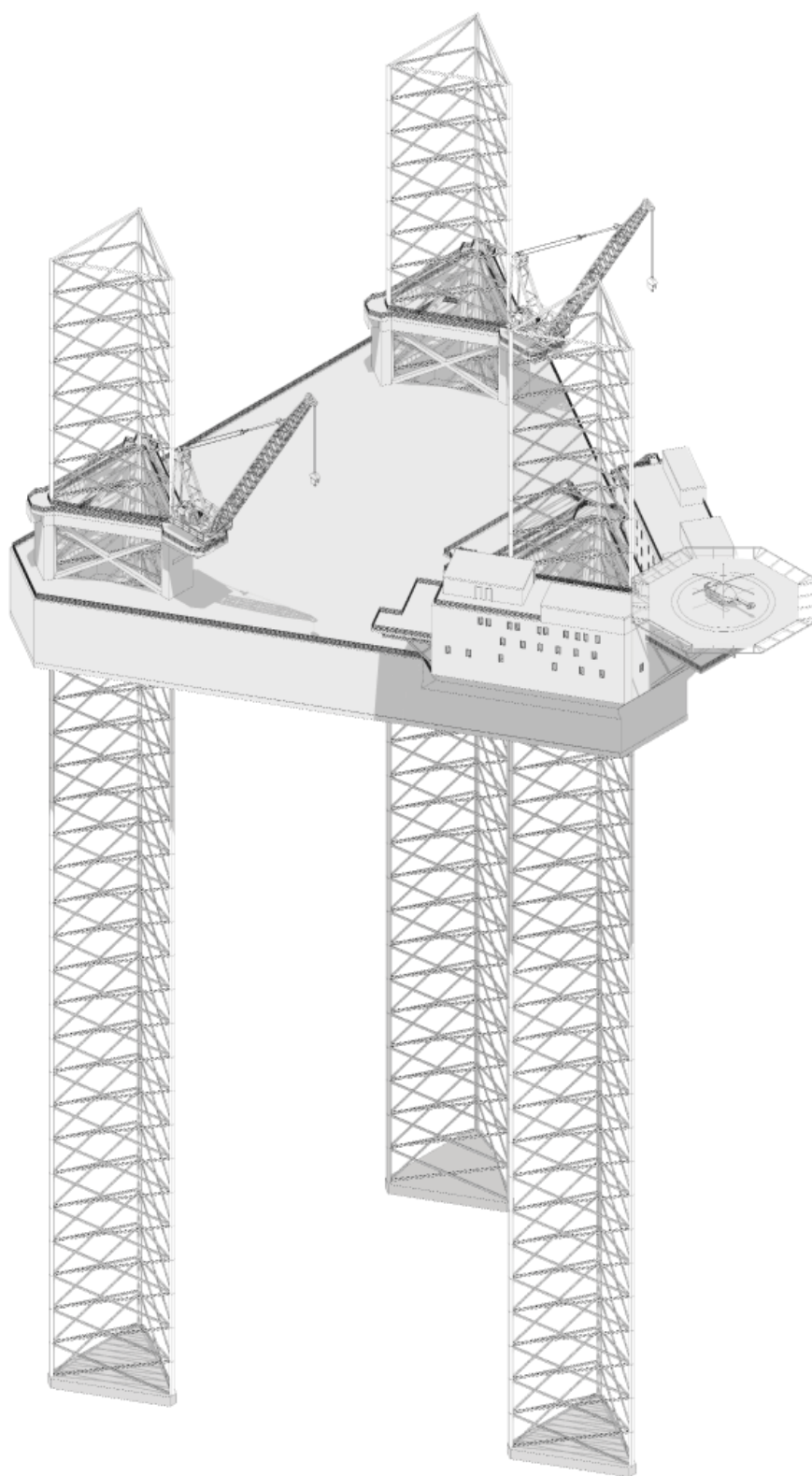


Figure 2.6 Maersk Inspirer Model Axonometric

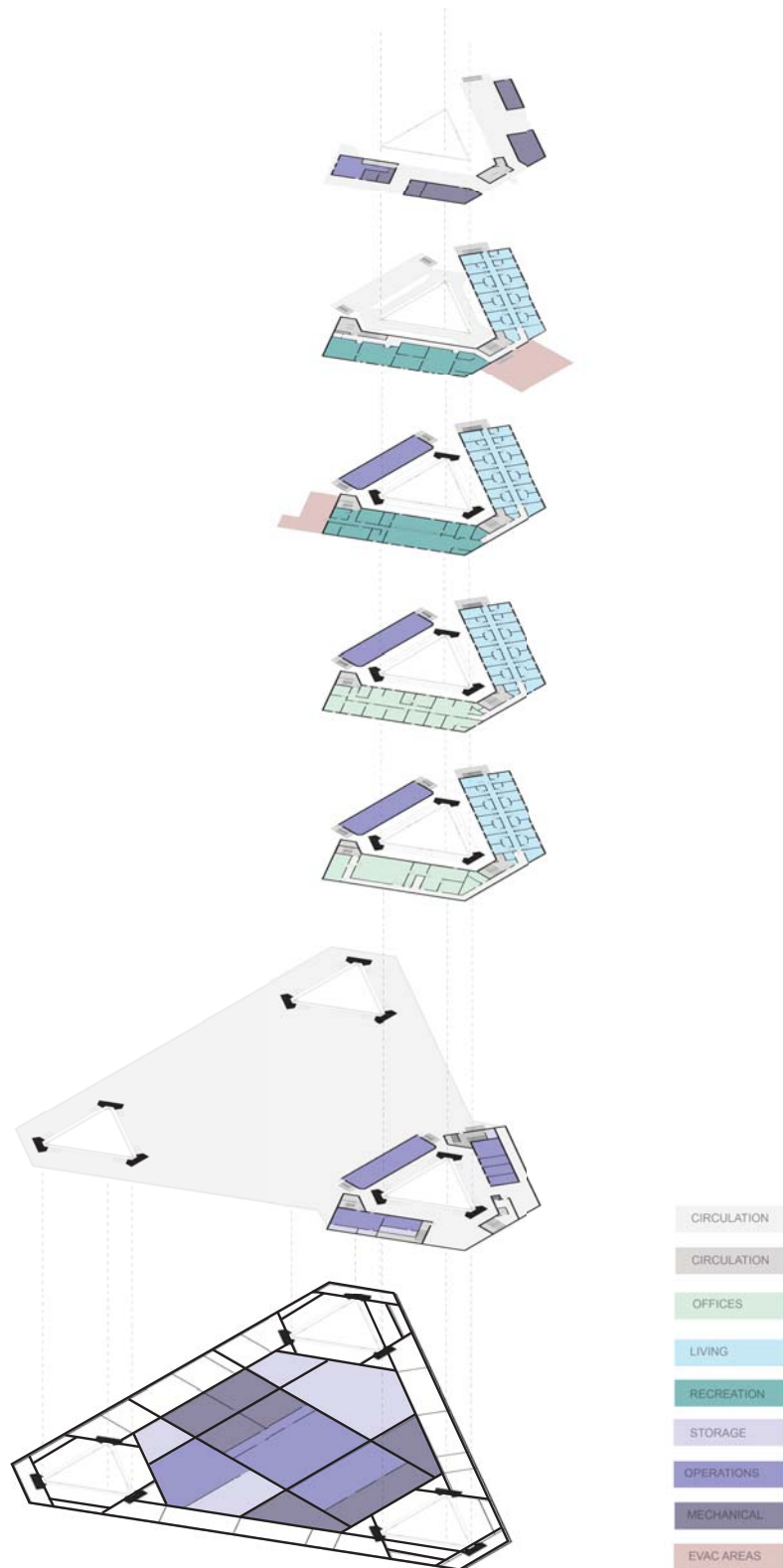


Figure 2.7 Maersk Inspirer Program

space accessible to all future inhabitants. Space in the hull can be repurposed to suit other community and operational functions. Furthermore, the legs themselves can ultimately become supporting structures for tower-like development, boosting the residential capacity of the rig to as much as 2600 people. This figure is based primarily on the limitations of the desalination system used to provide fresh water for both consumption and drilling purposes while at sea. As illustrated in Figure 2.8, the system on the *Inspirer* can produce 134,200 gallons of potable water per day (“Maersk *Inspirer*”). That’s enough for 2600 to have as much as 50 gallons with an emergency reserve to spare. This is significantly higher than the UN mandated minimum and would eliminate time consuming water gathering duties that typically fall to women and children and sometimes prevent them from working or going to school (UNHCR).

Crisis Response Network

When not in use, rigs will be stationed in port cities around the world. Figure 2.9 shows potential locations of deployment hubs based on the population density of surrounding regions, risk of crisis, and rig deployment response time. Each of the scenario maps shown earlier includes a travel time from the nearest hub(s). Ideally most locations could be reached in no longer than 5 days. As seen in Figure 2.10, the speed of deployment is greatly influenced by the tow method used. Dry towing, in which the rig is loaded on a specialized semi-submersible ship, is more than twice as fast as wet towing, in which the rig is pulled by tugboats as it floats on the surface. Each method has its own benefits and drawbacks. While dry towing is suitable for rapid deployment or covering long distances, it is also more expensive and may be delayed if it must wait for a ship. This makes wet towing a more feasible, albeit slower, option. With these factors in mind, low risk or low density areas that are far from hubs may have a delayed response times, so traditional response methods might be more appropriate in those situations.

Figure 2.8 Rig Section and Systems

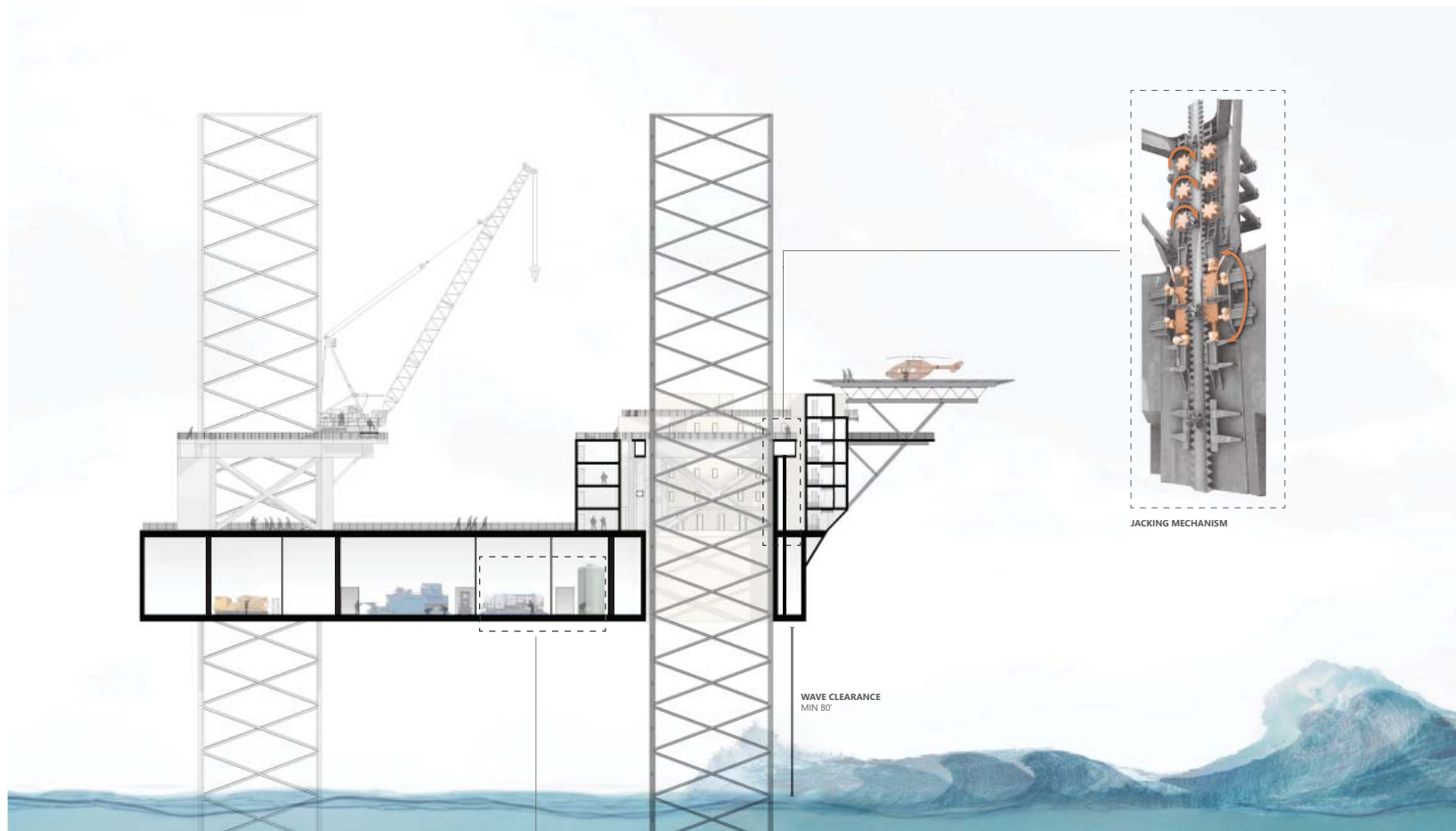


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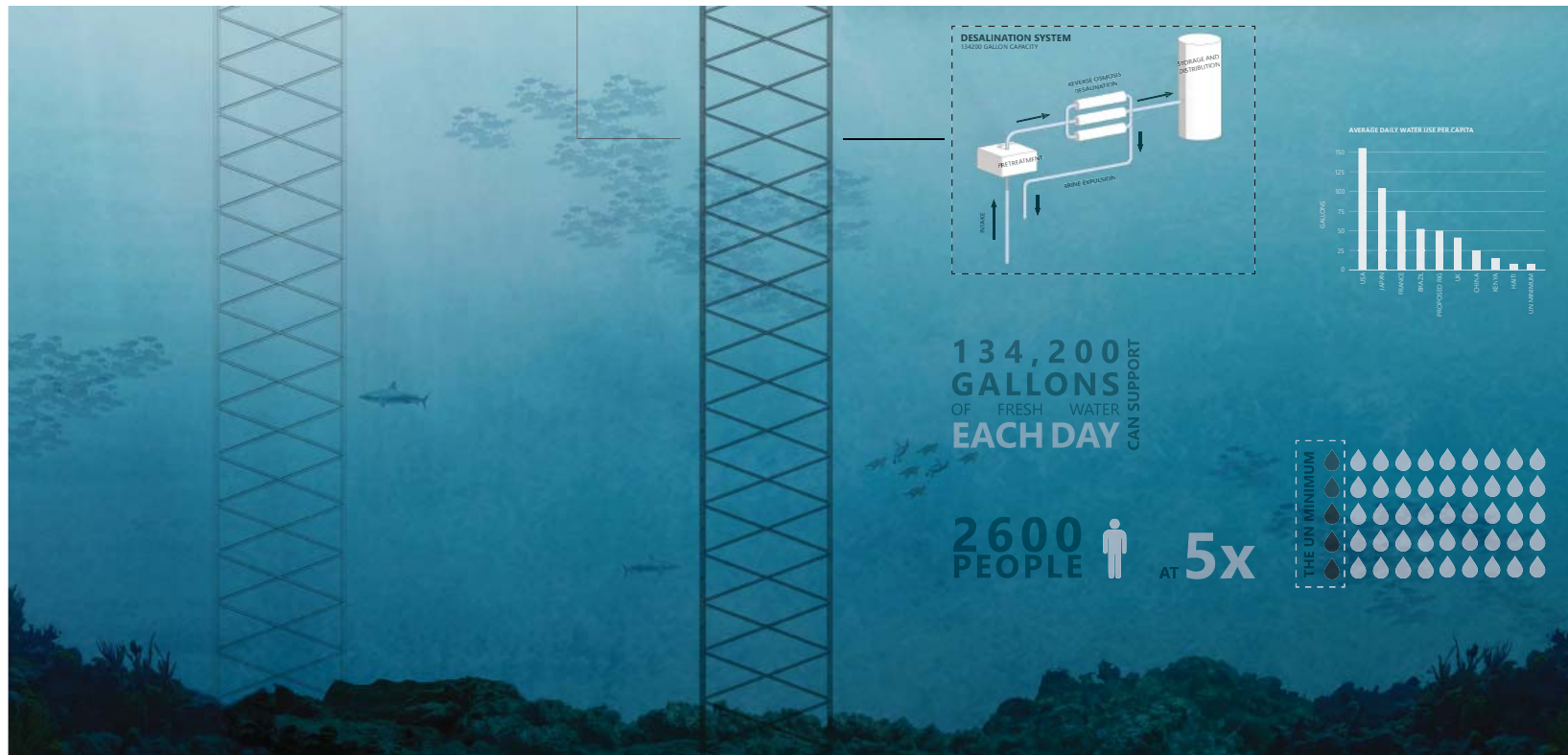


Figure 2.8 Continued

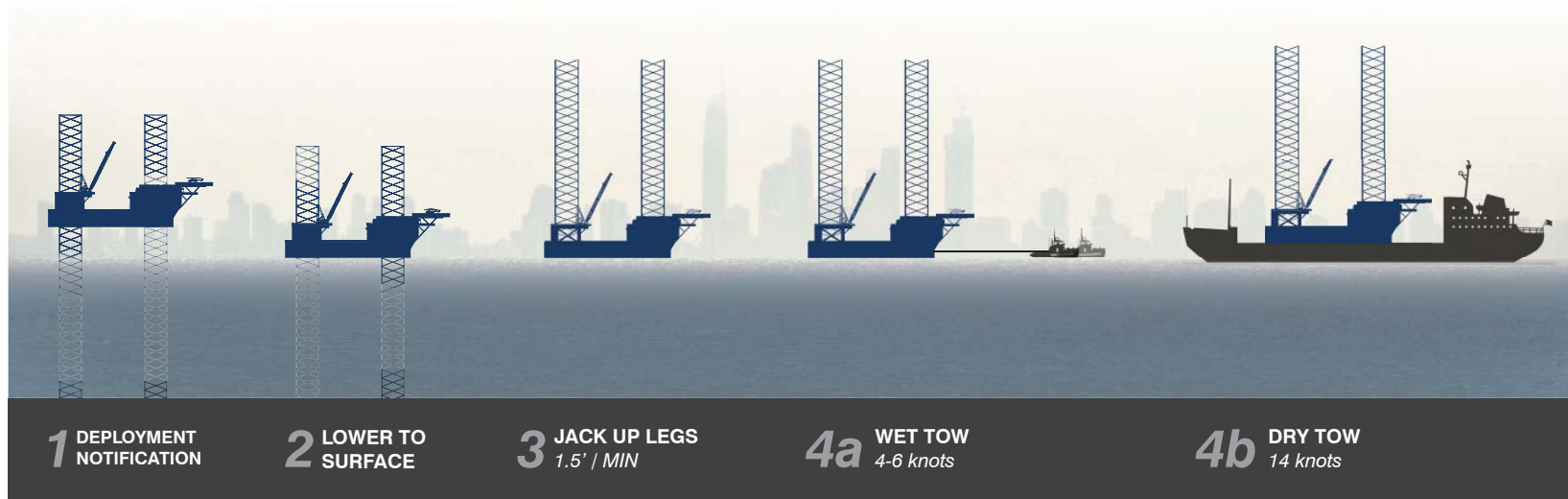


Figure 2.10 Rig Deployment Methods

03 | *AN EXTRASTATE PROPOSAL*

Precedent | Megastructures and the Situationists

Perhaps one of the most appropriate precedents for this study is Constant Nieuwenhuys' New Babylon project (Figure 3.1-3.2). The project evolved from 1959-74 as Constant explored the tenants of Unitary Urbanism. This principle held that architects have ignored how capitalism and mechanization have turned cities into machines of production. Constant argued that as automated production took hold, people would transcend the old cities and emerge as Homo Ludens, or Man at Play. Homo Ludens would cast aside old social norms of work and behavior and instead focus on self-fulfillment. People would drift among megastructures making and appreciating art, pursuing leisure activities, sleeping wherever (or with whomever) they want, eating wherever they want, and so on. According to Constant, "Technology has long been the new nature that now must be creatively transformed to support a new culture. The increasingly traumatized inhabitants have to take over the shaping of their own spaces to recover the pleasure of living (Wigley, 6)." As a culture of complete freedom and self indulgence, Homo Ludens would need to cast off traditional architecture in exchange for hyper-adaptive megastructures in which spaces could be changed at will to meet their needs. Instead of architecture creating atmosphere, the atmosphere would inform the architecture (Wigley,18).

These transient atmospheres were dubbed "situations" and became the driving informant of Constant's designs. The development of these situations would be guided by Guy Debord's practice of *dérive* (or drift), which encouraged people to abandon "all their other usual motives for movement and action, and let themselves be drawn by the attractions of the terrain and the encounters they find there (Debord)." In New Babylon, the visible order would inform a psychological order, directing and luring Homo Ludens throughout the structure by means of psychogeographically informed *dérive*.

When repurposing oil rigs, many of Constant's design strategies form important precedents for the crafting of space and atmosphere. However, it is not necessary to wholly undermine certain practicalities and traditions of contemporary society, like say, being able to shower or sleep in private. This brings the project in closer alignment with the work of Yona Friedman (Figure 3.3-3.4), who focused on mobile architecture that would provide supplemental living space amidst pre-existing cities.



Figure 3.1 New Babylon Montage

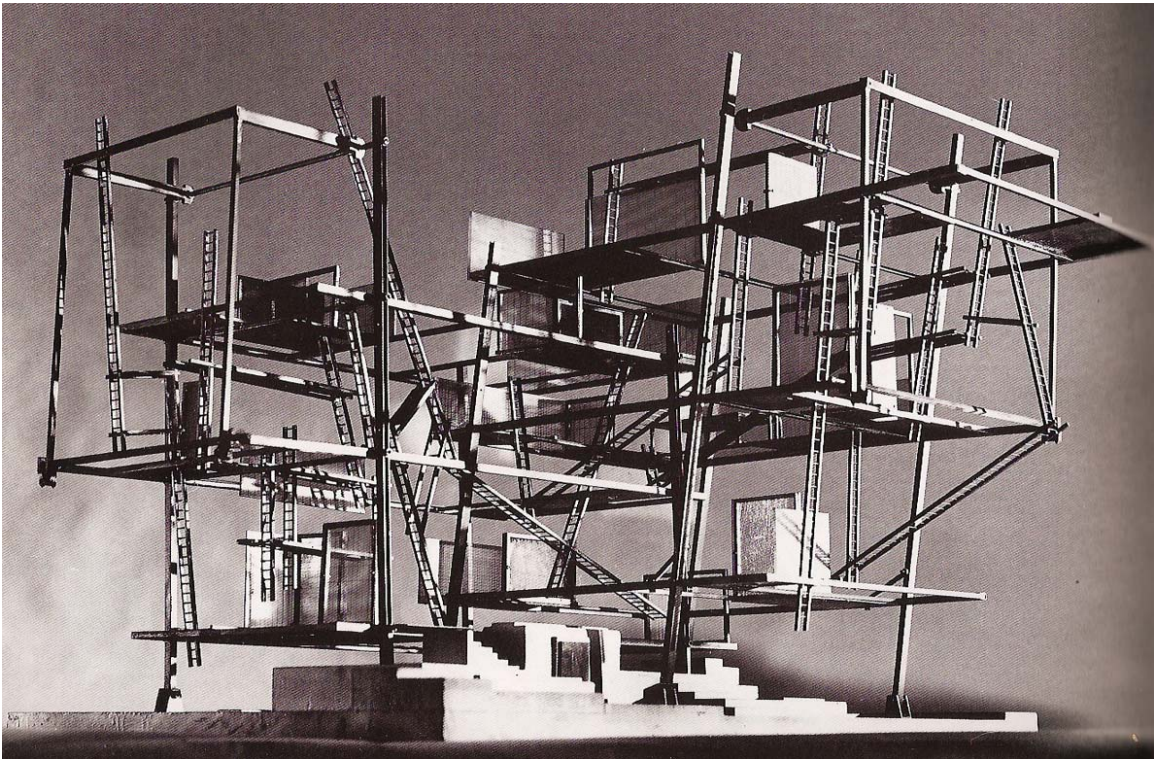


Figure 3.2 New Babylon Model

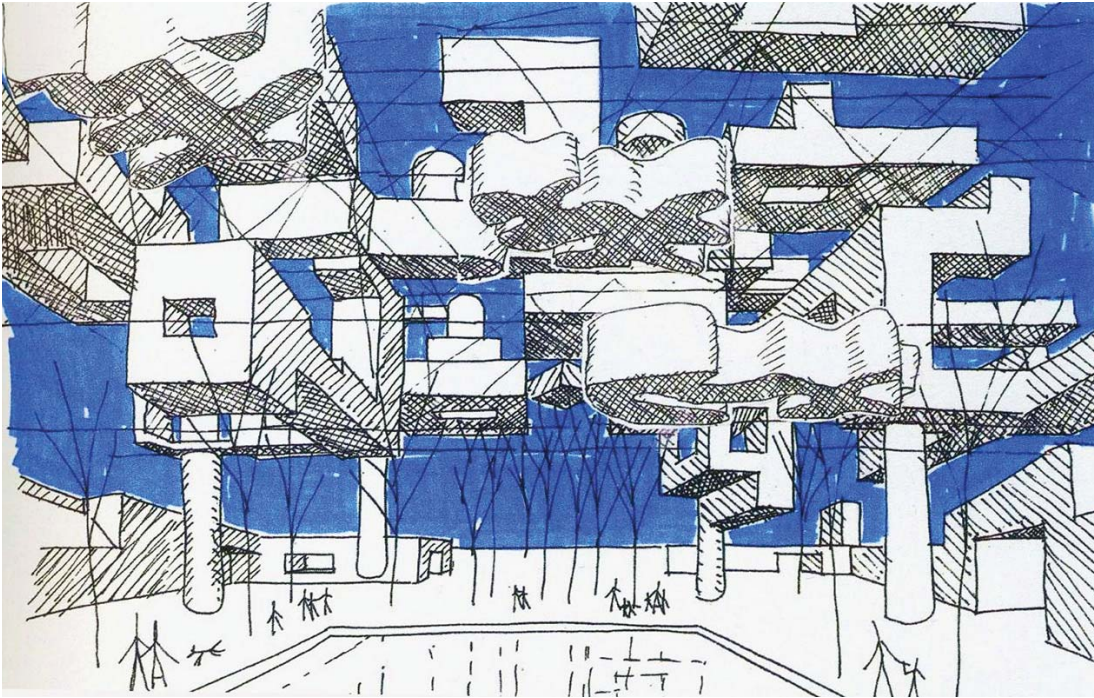


Figure 3.3 Spatial City View 1



Figure 3.4 Spatial City View 2

Precedent | Neft Dashlari

Nearly 40 miles off the coast of Baku, Azerbaijan lies Neft Dashlari, or Oil Rocks. Surrounded by the Caspian Sea, this aquatic colony is a little known relic of the Soviet era that is still a permanent home to almost 1000 people and hosts another 2000 shift workers that rotate from the mainland biweekly. In 1949, the USSR discovered a large oil field and constructed a 17,300 acre artificial island on a series of platforms to host workers and a production facility. Over the next decade, the compound grew into a network of 2,000 platforms connected by 186 miles of roads running across bridges. At one point it was home to over 5,000 people and featured many of the amenities you would expect to find in a city, such as apartment buildings, a movie theater, soccer pitch, library, restaurants, and even vegetable gardens and a tree lined park made with soil from the mainland (Frank). It was a bustling community until the dissolution of the USSR, when Neft Dashlari fell into disrepair. Over the past 20 years, many of the platforms have been abandoned and only 30 miles of the original roads remain accessible after some major arteries crumbled into the sea (Frank). While it is currently still productive, much like the rest of the world's oil fields it's days are numbered. This industrial giant is expected to have exhausted the remaining oil stores by 2035.

And so the question remains... what is to be done with the bones of Neft Dashlari? The government of Azerbaijan has concluded it would be far too expensive to remove the rambling structure. Instead they have begun repairs and renovations to the existing facilities and have expressed interest in transforming Neft Dashlari into a resort once the oil runs out. This is of course, a viable option that could be applied to many of the world's abandoned oil rigs. A self sufficient island surrounded by ocean could be an ideal relaxing environment for some. Yet the conditions of Neft Dashlari offer some unique design principles for crafting environments for long term residents as well.

First and foremost is the strategy of connecting multiple rigs with bridges. Despite each platform having a proportionally small footprint, the transitions between begin to activate the vast amount of interstitial space, creating the illusion of a larger urban fabric than physically exists (Figures 3.5- 3.6). This effect could be enhanced by incorporating these waters as part of the urban fabric. Using the walkways to define a positive space around the water would bring portions down to the human scale, much like a pond or lake within a park. By transforming the interstitial space into an experience, it would become part of the city rather than a distinct border. In sequence, these could potentially have the same effect as a flooded Garden City. Another strategy to bring open waters down to human scale could include using space frame structures to span grottoes between piers, creating dynamic outdoor rooms whose atmosphere would vary wildly depending on the scale.



Figure 3.5 Aerial View, Neft Dashlari



Figure 3.6 Central Hub, Neft Dashlari

Another lesson that can be gleaned from Neft DASHLARI is the strategy of framing views. In Figures 3.7-3.8, one can see how buildings are arranged and layered in such a way that they fully blocked the view of the sea in certain directions. When standing in the main plaza or walking between buildings, this design strategy creates the impression that you're traversing a traditional streetscape on land, rather than one poised above a vast sea. It also enables the buildings to use sea breezes for cross ventilation, while creating a sequence of exterior zones that are more sheltered from the wind.

Crafting Communities

Once rigs are deployed, there are a number of different configurations that could be applied depending on the context of the situation. In large scale responses, rigs should be arranged in ways that foster a sense of community and identity. If each individual rig acts as a block, then grouping them together can begin to create a new method of aquatic urbanism. Returning to the original conflict scenarios enables us to examine the principles of aquatic urbanism more closely.

Man v. Self | Drug Addiction | New York City

In this scenario, the rig is responding to the needs of a small residential population who need isolation yet easy access to the city when necessary. As seen in Figure 3.9, a single rig is all that is needed in this case, but it is accessed via Hoffman Island. The island is an ideal site since it has a pre-existing ferry dock and ample room for outdoor recreation, which could prove beneficial to different rehabilitation methods. Small scale interventions like this have the benefit of being able to be placed near strategic access points and integrated more seamlessly in urban networks than large scale interventions.

Man v. Nature | Earthquake | Port au Prince, Haiti

In disaster relief scenarios, direct access to affected areas is critical. Local residents need an easily accessible staging area so that they can both receive aid and begin to oversee the recovery process for any property they may have. The proposed arrangement in Figure 3.10 uses an existing cruise dock to provide its residents with direct access to the heart of Port au Prince, thereby ensuring easy access to markets, shops, and transportation throughout the recovery process. The clustering also ensures that ships can still access the port while making it easier for those on board the rig community to travel to different "blocks" more quickly. At this scale, you begin to notice the spatial relationships that different sides of the rigs form when they face each other. Varying the arrangement and connections between blocks ultimately begins to inform the character of the community and establishes its identity as a neighborhood.



Figure 3.7 Accomodations, Neft Dashlari



Figure 3.8 Plaza, Neft Dashlari



Figure 3.9 Small Scale Deployment

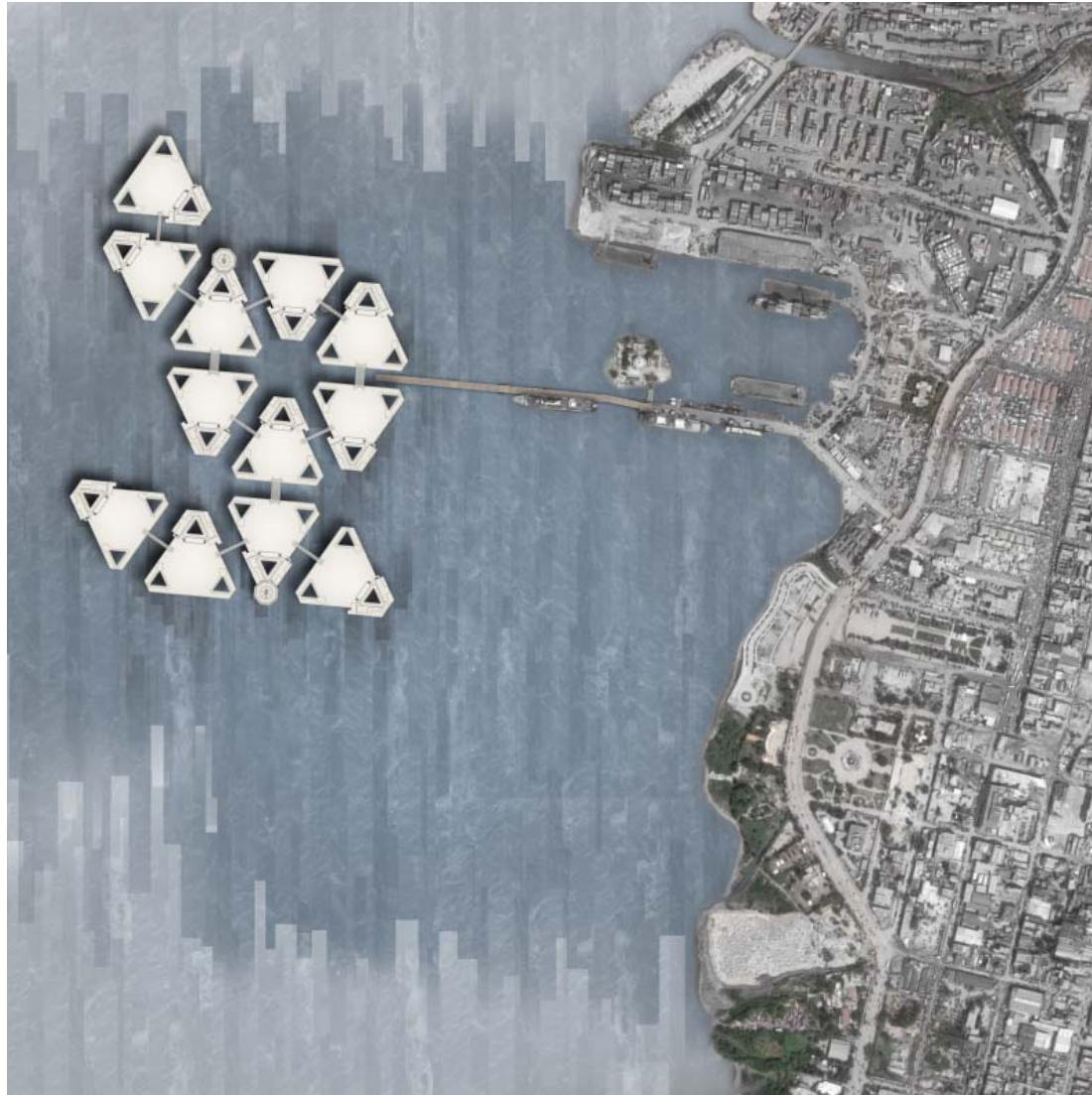


Figure 3.10 Clustering with Shore Access

Man v. Man | Syrian Civil War | Syria

Figure 3.11 shows how the clustering method used for disaster relief might be extrapolated to support even larger communities who do not have access to shore. The conversation generated between neighborhoods helps define the character of an aquatic city. Different formations might make the water below read as straights or coves, thereby visually integrating it as part of the urban fabric. Much like Hoffman Island provides an access point and transitional space in the man v. self scenario, supplemental garden barges would be used for recreation, agriculture, and simplifying rig accessibility as people arrive or travel between neighborhoods.

Crafting Neighborhoods

One of the most complex elements of refurbishing an oil rig human occupation is that you are essentially designing a miniature city within a limited space. Furthermore, it must be able to meet the needs of a diverse population that may change every few years if the rig moves to address a new crisis. There are two primary categories of spaces within the program: occupied and operational.

Operational spaces are those needed to support life on a rig. These include:

- Management spaces
- Medical facilities
- Loading zones
- Mechanical spaces
- Lifeboat storage
- Supply Storage
- Water and sewage treatment

Occupied spaces are those that people interact with and experience on a daily basis. These include the following:

Public/Social Spaces

These will be some of the most flexible spaces since they could vary between assembly spaces, playscapes, communication hubs, etc. They will be places for people to gather and reinforce a sense of community through interaction and communal placemaking. Figure 3.12 shows how adaptable shade structures could be used to integrate intimate spaces in the midst of large public areas. Another interesting opportunity would be to have playscapes double as safety mechanisms. Extensive rails or screens could at times be replaced by elaborate netting systems attached to structural elements that would provide places for children to play and climb.

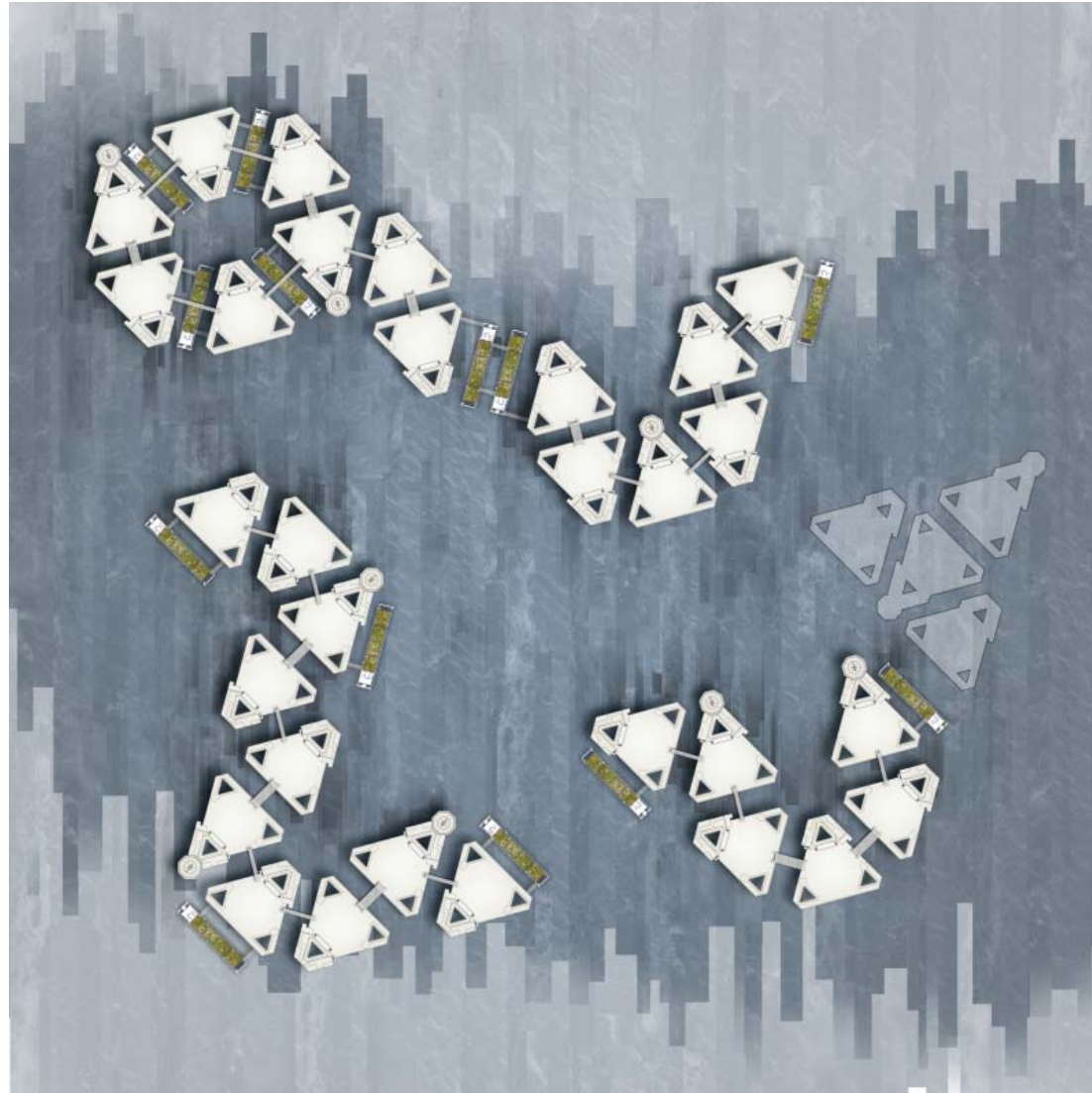


Figure 3.11 Aquatic Community with Garden Barges

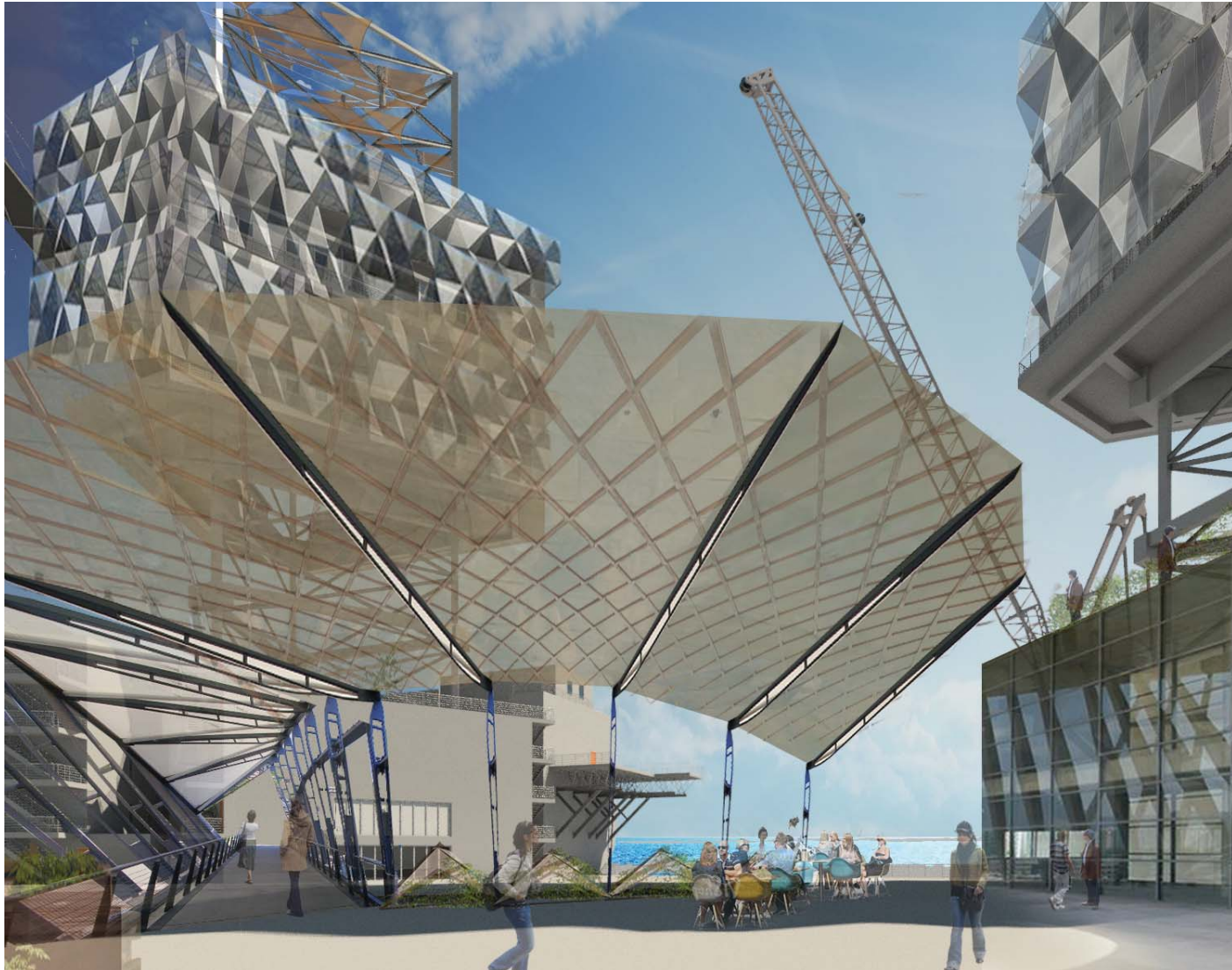


Figure 3.12 Rig Deck Public Space

Residential

These areas will be one of the core components of renovated rigs. Rigs normally only host up to 200 workers, but the removal of production related machinery can free up as much as 100,000 sq.ft. for homes. Currently, most refugees live in shelters that are 200-700 sq.ft. depending on the size of their family (UNHCR). Units will need to be able to adapt to accommodate the needs of a variety of family types and sizes. Once rigs are in place, the legs can utilize a similar jacking mechanism to lower additional floors in place and provide structure for either autonomous development or for adaptable pod units to be inserted into the framework. The speculative representation in Figure 3.13 shows how the interior of the leg could function as a small courtyard with residences attached to the perimeter.

Education

As with any crisis recovery situation, educational opportunities reinforce an atmosphere of stability and a return for normalcy. For adults and children who have not had prior education, it also provides access to a basic human right that hopefully be of benefit in the next phases of their life.

Digital Hubs

In an age global connectivity it is critical to provide residents with digital and cyber freedom. When people are able to remain connected with their friends and family and follow the events of the world around them, they are less prone to feel isolated. Digital access can also provide access to alternative jobs and educational opportunities beyond those offered on the rig, returning more autonomy to people's lives.

Food Preparation

Preparation strategies would likely vary depending on cultures. The most efficient method would be to have a central kitchen that cooks for the entire population of the rig. However, food and meal rituals are cornerstones of cultural identity so enforcing a cafeteria style method would create another form of authority. It would also cobble families' autonomy over their food choices. Co-housing methods with communal kitchens shared among groups of units could be an effective compromise. An electric powered cooking pod or cart in each household could be another strategy to reduce risk while maintaining autonomy over meals.

Industry

One of the primary benefits of choosing to live on the rig rather than a traditional camp would be the economic partnerships that provide jobs for residents. During times of crisis, refugees and IDPs may have no stable income as there are often restrictions on their rights to work. By providing job opportunities, families would be able to save money so that when they return to their country, they are doing so

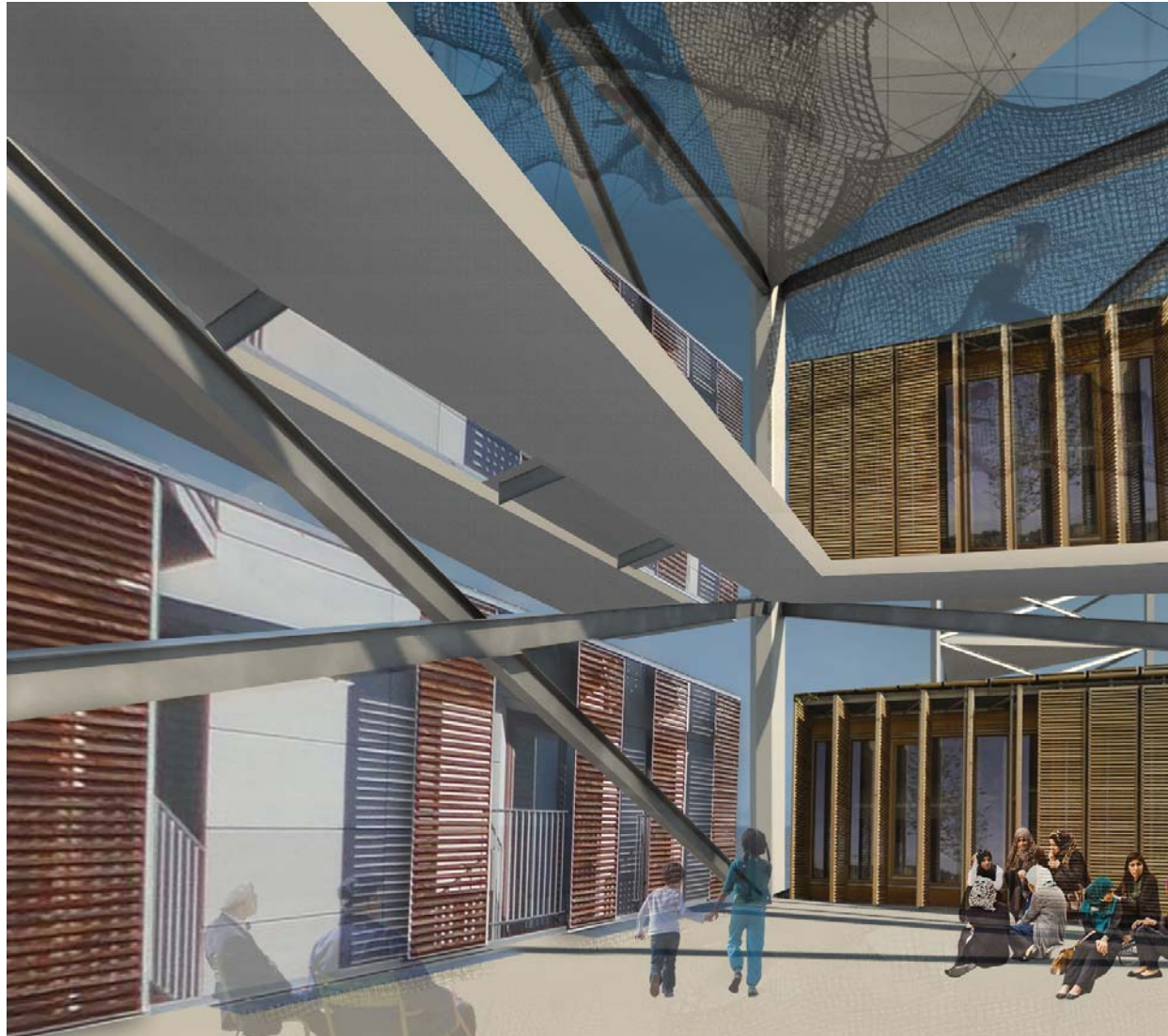


Figure 3.13 Residential Courtyard in Rig Leg

in a position of economic stability rather than dependency. This would make it easier to rebuild communities following disasters or conflicts and expedite the return to normalcy.

The first type of job would be operational jobs on the rigs. While at first these may need to be filled by a crew, over time they could train residents and then phase out, leaving paid positions available for community members. These could include maintenance workers, teachers, program coordinators, cooks, and more.

The majority of jobs would come through the economic partnership with corporations or businesses. Digitally based jobs such as tech support, call centers, web design, and marketing jobs would be ideal. However, there could be interesting niche markets unique to the ocean environment based on adapted auxiliary barges. These industries could include cultivating seaweed or oysters, harvesting salt, or operating saltwater based fisheries.

The final job type would be small businesses run by rig residents themselves. These could vary wildly depending on the skills a person has. Others may ship in goods to sell on board or raw materials to craft into things like clothes or furniture. Just like in any traditional city, businesses will spring up to support the needs of its population. The goal of the rig will be to accommodate such evolution, rather than inhibit it.

Final Thoughts

This thesis project was successfully defended on April 27, 2017. The jurors responded favorably to the exploration of spatial authority and the creation of an extrastate system to provide a subversive alternative to traditional camps. They commended the project for going beyond a direct response to a specific crisis and grappling with larger questions about the role of agency in design. One notable discussion that arose was that these rig communities could theoretically create a new wave of colonialism if implemented differently. Jurors wondered what would happen if rigs were left empty for anyone to occupy. Without any regulating body, what micro-nations or blends of different cultures might arise? Or would existing nations use the opportunity to extend their territory?

While the goal of this thesis was to create a network of crisis response hubs and explore the implications of spatial authority, further veins of study could delve more deeply into the spatial character of rig communities. These could be iterative studies of how users establish agency and adapt spaces over time or other methods exploring their evolution.

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IMAGE SOURCES

Figure 1.1 UNHCR
 Figure 1.2 Author with Base Data by UNHCR
 Figure 1.3 <http://innermelbpsychology.com.au/tips-for-stress-and-burnout/>
 Figure 1.4 Author
 Figure 1.5 Author
 Figure 1.6 Author
 Figure 1.7 Author montage with images from Google Maps
 Figure 1.8 <http://www.abbis.photo/portfolio/traditional-courtyards/>
 Figure 1.9 Author
 Figure 1.10 https://archnet.org/sites/6415/media_contents/76405
 Figure 1.11 Author
 Figure 1.12 <http://www.open.edu/openlearn/society/international-development/international-studies/schooling-displaced-children>
 Figure 1.13 Author
 Figure 1.14 <http://www.livingstone.cz/prakticke-informace/fotogalerie/asie/syrie/>
 Figure 1.15 Author
 Figure 1.16 Author montage with images from Refugee Republic

 Figure 2.1 http://www.resilience.org/wp-content/uploads/articles/Geneal/2013/09_Sep/Figure02_PRf.png
 Figure 2.2 Author
 Figure 2.3 Author with rig icons from worldoceanreview.com
 Figure 2.4 <http://www.maerskdrilling.com>
 Figure 2.5 Author
 Figure 2.6 Author
 Figure 2.7 Author
 Figure 2.8 Author with jack detail from ABB.com
 Figure 2.9 Author
 Figure 2.10 Author

 Figure 3.1 Constant Nieuwenhuys
 Figure 3.2 Constant Nieuwenhuys
 Figure 3.3 Yona Friedman
 Figure 3.4 Yona Friedman
 Figure 3.5 <http://photobaku.com/oil-rocks-caspian-sea-shelf-capital-photos/>
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 Figure 3.8 Still from “Oil Rocks - City Above the Sea”
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 Figure 3.13 Author

VITA

Brittany Lauren McGraw moved about quite a bit in her life before attending Clemson University to get a Bachelor of Arts in Architecture. After graduating in 2013, she moved to Orlando, where she worked for two years before deciding it was time to go back and get her Master of Architecture at the University of Tennessee. Brittany has a love of engaging communities with her work and hopes to continue to do so as she moves forward in her career.