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# **Library Award for Undergraduate Research Winners**

## **Title**

Understanding Psychological Buffers to Health Adversities WithinSustainable Communities

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## **Reflective Essay**

When I began my project, I knew that I wanted to do research on a topic that explores how psychological processes interact with the physical design of one's environment. I did a broad sweep on Google to identify relevant topics that I could potentially do resarch on. This involved not thoroughly reading academic papers, but taking notes on the overview and conclusions. From my class on Sustainable Communities with Dr. David Pellow, I was introduced to different readings that allowed me to get a grasp on sociological theories such as Just Sustainability, Regenerative Design, and Shared Paradigm. I kept notes on these readings to see how they would connect to social psychology theories. I also had a list of sources from my work as a research assistant in the Social Psychology Lab. Working within Professor Sherman's lab, as well as assisting his graduate student for the past two years, has prepared me to conduct literature searches. I reviewed the list for relevant sources that would go with my paper and took notes on the ones that were could explain how community design and layout could affect one's health (such as the Construal Level Theory, and the Regulatory Focus Theory).

I utilized the off campus library access to use licensed resources. I mainly utilized Article Indexes and Databases, as well as the UCSB Library search. The main two databases I used for my research were PsycInfo and Google Scholar. I began on PsycInfo to become more familiar with the application of psychological theories in studies and in real life. Google Scholar was used to search for articles that looked for the overlap between psychology and environmental studies, such as how the environment plays a role in psychological buffers to poor health.

In conducting my literature review, I would use keywords (ex. health, community design) to gain an understanding of the subject on hand. After gaining that understanding and foundation, I would elaborate on the subject by searching from a key term "Psychological Barriers" and further specify to "Psychological Barriers and Environmental design". This is useful for narrowing down the number of results and to ensure that the article would be relevant to my final paper. I evaluated sources by looking at the number of times they have been sorted and seeing who they referenced in order to understand why they chose to reference a certain article, and what specific information could be gained from citing that author. Additionally, Web of Science was useful to check to see what other articles have cited this article since it was published. I used Zotero to keep track of my sources. Not only is it handy to keep all of my sources in one place, but it also automatically cites my sources in the style you choose. I cited mine in APA format. Using Zotero was a tip I learned from Dr. Daniel Frank in a Technical Writing course I took the previous quarter.

Prior to writing the paper, I used a google document to include the citations, abstracts, and summaries of why I chose to include the articles, the central findings, and any questions I thought of while reading the articles. Overall, this led me to have many questions, to which I narrowed down to three main ones I wanted to explore in my analytical paper:

- What are the psychological factors that buffer low socioeconomic status people from health risks?
- What physical barriers to sustainability also act as psychological barriers to health?
- How can communities be designed to enhance buffers among at-risk groups?

The research process is a lengthy ordeal, but having experience with literature reviews from working as a research assistant, and developing better writing skills from past projects, have better prepared me to accomplish my research. My main goal I strive to accomplish with research is to communicate my findings to the general public in an easy to understand and engaging manner. Being organized with my sources, before beginning my paper, allows me to be concise with the findings and demonstrate how they all connect to the bigger picture.

Understanding Psychological Buffers to Health Adversities Within
Sustainable Communities
Emily La
<b>Keywords</b> sustainable communities - psychological barriers - psychological buffers - self efficacy -
health adversities
17 March 2019

#### Abstract

Background Research has found that beliefs and emotions can play an important role in promoting health. It depends on which particular beliefs and experiences have more meaning and value in a person's sociocultural context. People who are higher socioeconomic status (SES) and people who are lower SES have different psychological strategies when it comes to dealing with their environment. Lower SES people who cope with stressors by shifting, or accepting stressors and adjusting to the environment, and persist, or find meaning and enduring despite adversity have better health, have a higher chance at preventing health adversities, including physical and mental health (Levine, 2017). Therefore, lower SES individuals may benefit living in a community that places greater value and a higher priority on connecting with others.

**Purpose** Through reviewing various academic literature, I want to further understand barriers to sustainability in urban areas and compare it to coping strategies of lower SES groups. The questions I seek to answer are

- 1. What are the psychological factors that buffer low SES people from health risks?
  - a. *Hypothesis*: Integration of cultural identity in the community, convenience and access to transportation and goods, and shared services all lead to a stronger sense of community which is a necessary resource for coping strategies of low SES people.
- 2. What *physical* barriers to sustainability also act as *psychological* barriers to health?
  - a. *Hypothesis*: Traditional architecture and infrastructure layout of communities are designed to hinder, on a psychological level, resources that are necessary for promoting the health and well being of people. This effect is even more harmful to low SES people, who lack economic, social, and possibly psychological resources, and are not able to buffer health adversities as effectively.
- 3. How can communities be designed to enhance buffers among at-risk groups?

a. *Hypothesis*: Through understanding the main takeaways from models of sustainable cities, and being able to adapt it to the unique needs of the community.

I will explore these questions through both literature research and a survey that seeks to better understand people's thoughts of their community and their personal attitudes and behaviors.

**Method** For my literature review, I wanted to compare on two levels. First, drawing on psychological and sociological theories then seeing how they compare in real life applications. I wanted to explore what the physical and psychological buffers and barriers are. Additionally, I drew from readings from the class to compile the top most common themes sustainable communities share. The three key components of sustainable communities that I define in this paper are 1) Accessibility to information and services, 2) Community building, and 3) Services sharing. Based off of the information I gathered, I created a survey that I dispersed through Facebook. I wanted a wide range of participants, so I did not exclude anyone along my scale of demographics (age, gender, race, level of education, etc).

Conclusions The findings support the role of sustainable communities in providing buffers that promote academic success, physical health, mental health, etc. Additionally, there is no significant impact on high SES individuals when promoting interventions for low SES individuals, meaning that society as a whole does well once the most at-risk groups are helped. Overall, adopting sustainable practices is not only beneficial for environmental health and conservation, but for individuals' health as well.

#### Introduction

Psychological processes and disparities amongst high and low SES individuals Psychological distance refers to the perception of when, where, whom, and whether an event occurs. Psychological distance plays a role in coping with stressors in how people perceive the problem as either concrete, closer and more tangible, or abstract, further away and more intangible (Trope & Liberman, 2010). Shift and persist strategies, which are the most feasible way for low SES individuals to modify their life situations and

regulate their emotions, is accomplished by psychologically distancing oneself from the stressor (Chen & Miller, 2015). This also plays a role in regulatory focus theory which states when there is a match between one's goal orientation and the manner in which the goal is pursued, motivation increases (Higgins, 1997). The two types of regulatory orientation are promotion focus, or seeking gains in relation to hopes and aspirations, and prevention focus, preventing losses in relation to duties and obligations. Low SES people tend to be more prevention focused while high SES people tend to be more promotion focused. Findings have suggested that high SES individuals value the ability to control and choose outcomes in life, whereas low SES individuals value the ability to maintain the self even in the face of changing environmental circumstances. In contrast, high SES individuals tend to use more proactive efforts at coping that are aimed at eliminating stressors that represent an obstacle to a higher level goal (Chen & Miller, 2012). In general, people are motivated in ways to protect their self identity and promote their self efficacy. This is also known as their worldview. When people's worldviews are disrupted, by threats to oneself and one's choices, but also to the place, social group, and the society they are a part of, defensiveness occurs. Worldview defense may lead people to have lower psychological resources such as a positive self-view, sense of control, social support, and a desire for stability. Having a high level of psychosocial resources is associated with a lower risk for depression and psychological distress. Researchers are focusing more on what factors may protect low SES people and promote better health outcomes in this group. In lower SES contexts, there is often an emphasis on interdependence, attention to others, and adjustment to the environment. In these environments, they are more likely to experience uncontrollable, frequent stressors, such as living in neighborhoods with higher rates of violence. Additionally, due to lower levels of geographic mobility, there tends to be deep lasting ties with family, friends, and others in the local community. There needs to be interventions that acknowledge and support how the social and structural context of lower SES people are going to be the most physiologically protective and promotes the most buffers against poor health outcomes. This follows principles of Just

Sustainability, which calls for a better quality life for through an equitable manner while staying within the limits of the ecosystem. I argue that sustainable communities follow this principle, but can push beyond these limitations by regenerative development. Communities can be set up to do more than just prevent people from health adversities, but to promote psychological resources that increase people's health.

**Relationship between environmental design and health.** It is already known that human health is linked with environmental condition. It is helpful to understand how features of communities can affect human issues. The two main examples from unsustainable models of communities I want to highlight is reliance on automobiles and food deserts and their effects on people's health. One physical barrier is the car dominant model of urban and suburban development. Exurbs that are designed almost exclusively for cars and require massive supporting highway and parking infrastructure are not sustainable. In fact, exurbs are the least environmentally and economically sustainable form of urbanization. Car ownership cost an average of \$5683 per vehicle in 2009. Other indirect costs include carbon impacts, caused by constructing and maintaining parking spaces, roads, and other infrastructure and pollution, leads to an estimated \$29 billion a year in damages within the United States (Karlenzig, 2010). In particular, children, elderly, and disabled people are most at risk by vehicular hazards to pedestrians. Increased time sitting in the car is associated with isolation effects and loss of physical function in adults over 55 years of age. Each additional 10 min of commuting time reduces community involvement by 10% (Putnam, 2000). Food deserts are seen in low income neighborhoods and is characterized by when residents cannot afford to buy healthy food. This is usually due to the growth of large chain supermarkets on the outskirts of inner-cities in more affluent areas. These expansions force smaller, independent, neighborhood grocery stores to close. This creates barriers to accessing better quality, variety and price for food options that only those with a car or ability to pay for public transportation costs are able to overcome. Being low income and having the lack of financial resources and transportation have consequences on health

outcomes, due to having a diet that is high in fat, sugar, and sodium. Additionally, societal problems tend to create an unequal distribution among prices. Food prices are higher and food quality is poorer in areas where poverty is the highest, in comparison to more affluent areas (Walker et al., 2010). This is associated with increased crime rates in these areas that drive up the cost of food items even more that perpetuates this vicious cycle. These features are designed to promote intergroup conflict, limit physical and mental health, and degrade the environment. However, sustainable cities are breaking free from this destructive model.

#### Common themes in sustainable communities

1) Accessibility to information and services Cities need to enable development of mixed used communities that create a sense of place, and allows for transportations choices (apart from private automobiles). Investment in high quality pedestrian, bicycle and public transit infrastructure can create a shift from reliance on automobiles to more accessible options for people to get the services and goods they need. Technology overcomes barriers for people to have easy access and shared connectivity to rich information sources (Karlenzig, 2010). Carbon emissions and food insecurity can be reduced through developing regional organic food production, food processing, and metro area food distribution networks. 2) Community building It is evident that many illnesses, including colds, heart attacks, strokes, cancer, and depression, and premature deaths, are inversely related to social ties to group memberships. Poor social capital is as bad or worse than smoking, obesity, elevated blood pressure, or physical inactivity (Putnam, 2000). These are the same risks associated with lower SES communities. In studying low income residents, researchers have found that the presence of green space, or trees and grass amongst identical public housing, is associated with the formation of strong social ties among neighbors. Restricted access to outdoors is the key factor in these adverse health effects. Proximity to nature may provide buffering effects to health adversities because of its' ability to facilitate social contact and support (Wells & Evans, 2003). Residents report a stronger sense of belonging in societies where

presence of public buildings (churches, libraries, community centers) are accessible. Psychologically, these design elements provide a sense of ease and comfort. In order to explore unfamiliar settings, it is essential that people feel safe (Jackson, 2003). Neighborhoods that are configured to maximize informal contact among residents, also show a reduction in street crime, better supervision of children, and overall greater expression of happiness with people and their physical surroundings. Copenhagen is creating sustainable designs that is more friendly and inviting. They want people to utilize outdoor spaces from putting out more seating areas and planters to implementing adult playgrounds (Agyeman & McLaren, 2005). Their city is set up to promote eye contact, and their culturally integrated settings increase participation of citizens in the political process.

3) Services sharing Sharing services and goods allow society to break from the linear model of thinking that every person must own their own property (which must be the newest and more expensive than their neighbors) in order to be at the top of society. Instead, the sharing paradigm focuses on building well being for all by promoting solidarity instead of competition and division (Agyeman & McLaren). Seoul demonstrates this through their 'sharing' culture that emphasizes altruism even amongst strangers. Their plan: Sharing City, Seoul, is a city funded project that wants to expand physical and digital sharing infrastructure, and make use of public resources that aren't being used by promoting sharing economy startups. Lending libraries are increasingly popular amongst apartment buildings that offer books, tool rental, repair, and even host workshops for people to learn skills. Their startups are creative and go beyond selling a product to really foster bonds within communities, such as Zipbob, which allows people to gather and eat a home-cooked meal (Agyeman & McLaren, 2005).

Across the literature and case studies, it is clear that cultivating a sustainable community does more than conserving the environment. Adopting sustainable solutions can be a way to let everyone benefit. The common reason being that sustainable communities also promote stronger social support, a known

buffering agent, through increasing community bonding. This is especially relevant for minority groups, who are disproportionately affected, by leading them to have a more positive affect and stronger self efficacy. Based on the current research, I created a pilot study to discover if a relationship between key components of sustainable communities and increased pro environmental behavior and attitudes could be discovered.

#### Method

Design and Procedure I constructed this survey using google forms, and then gathered responses for a week. The whole survey contains 5 sections, and took approximately 5-10 minutes to fill out completely. I hypothesized that there would be a significant interaction of the effects of key components of sustainable communities and self efficacy on an increase of pro environmental behavior. I believe that key components do not directly affect pro environmental behaviors, but by increasing self efficacy it can. I also expect to see discrepancies in types of transportation with pro environmental attitudes. Low SES individuals will have higher self efficacy when their area also reflects more key components.

After collecting the data, I re-coded the responses to a numeric value in an excel sheet. I decided to exclude question 4, which inquired about how many tasks can be done in an allotted amount of time because I felt that it did not accurately measure what I was intending it to (accessibility within communities). I then uploaded to data into SPSS. From there, I merged together responses to create four new variables: key components, self efficacy, environmental behaviors, environmental attitudes. This was done by computing a new variable by finding the mean of all the questions that made up the variable. I excluded type of transportation from key components because it was a categorical response, not continuous. In total, there were 9 variables that I compared to each other:

 Key components, self efficacy, environmental behaviors, environmental attitudes, age, education, gender, race, and SES status.

## Legend:

- Key components = the top three factors that I believe, based off research conducted in my literature review, are the most important components of sustainable communities (Accessibility to information, Community building, and Services sharing).
- Self Efficacy = Overall feeling of capability and sense of self worth.
- Environmental Behaviors = Current behaviors and activities that range from easy to do, to something that requires more effort.
- Environmental Attitudes = The ability for people to think hypothetically about how their actions will impact the future.

I then created a bivariate correlation table to seek out significant correlations at the 0.01 and 0.05 level (2-tailed).

Answers	Answers re-coded to numbers							
	1	2	3	4	5	6	7	8
Section 1,3,4	Strongly disagree	Disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Agree	Strongly agree	
Section 1	car	bike	bus	walking				
Section 1	Never	Once every few months	Once a month	Once every couple of weeks	Once a week	Multiple times a week		
Section 2	Not at all true	Hardly true	Moderatel y True	Exactly True				
Section 5	Male	Female						
Section 5	Grade school	Junior high	High School	Some College	A.A. degree	B.A. or B.S. degree	M.S. or M.A. degree	Ph.D, M.D., J.D. or other doctorate

Section 5	Asian	Hispanic	Black	White	Other		
Section 5	Lower class	Lower middle class	Middle class	Upper middle class	Upper class		

*Scales* Key Components of Sustainability Scale (La, 2019), General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995), Pro Environmental Behaviors and Intentions (Shteyn, 2018), Environmental Attitudes (Shteyn, 2018)

*Participants* Participants were recruited through an online survey I posted on Facebook. A total of 46 participants were collected from the results. In order to get a general attitude, the survey was not limited to age, gender, race, etc. However, these demographics were taken into consideration when analyzing the data.

Overall, 52.2% were female, and 45.7% were male (one person chose not to disclose their gender).
41.3% completed some college, 21.7% completed a B.A. or B.S. degree, 17.4% completed a high school degree, 10.9% completed a M.A. or M.S. degree, 4.3% completed an A.A. degree.

The main race demographics: 78.3% of participants were Asian, and 15.2% were White.

34.8% of participants were middle class, 28.3% were upper middle class, 15.2% were lower middle class, and 8.7% were lower class, with 13% preferring not to answer.

#### Survey questions

**Section 1** was intended to measure key components of sustainable communities.

Question 1: Please select how much you agree/disagree with the following statements, using a 7 point scale from Strongly Disagree to Strongly Agree:

*Question 2*: What is your main form of transportation?

Car	Bike	Bus	Walking	other

Question 3: How often do you utilize Facebook Marketplace pages/ public forums to buy goods and services in your local area? (i.e. book change, free & for sale, rideshare, etc)

Never	Once every few months	Once a month	Once every couple of weeks	Once a week	Multiple times a week
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Question 4: A hypothetical psychological distance question asked participants to image a scenario where they have a list of chores that you need to accomplish within two hours. The question asked them to please take into account travel time and any other "busy" times that you may encounter on an average day. How many items do you think you can get done in your local area within the time limit? Note: these do not have to be accomplished in order.

Grocery shopping	Clothes shopping	Exercise	Drop off a package at the	Stop by a pharmacy/
			post office	purchase medicine

**Section 2** measured self efficacy, using 5 statements from the General Self Efficacy scale (Schwarzer & Jerusalem, 1995).

Please select the choice that best represents you, using a 4 point scale from "Not at all true" to "Exactly true"

It is easy for me to stick to my aims and accomplishme nts	I can solve most problems if I invest the necessary amount of time into it	I can remain calm when facing difficulties because I can rely on my coping abilities	When I am confronted with a problem, I can usually find several solutions	If I am in trouble, I can usually find several solutions
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**Section 3** intended to measure Pro-environmental behaviors using 5 statements from the Environmental Behaviors scale (Shteyn, 2018).

Over the last three months, how often have you performed the following behaviors? Using a 7 point scale from "Strongly Disagree" to "Strongly Agree", but "Strongly Disagree" = not often at all, "Strongly Agree" = very often.

Took showers that were 5 minutes or less Used publ transporta or carpool		Bought green products instead of regular products (e.g., dishwashing detergent), even though they cost more	Attended rallies, public events, or town hall meetings to voice my support for solving environmental problems
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**Section 4** intended to measure environmental attitudes, using 3 statements from the Environmental Attitudes (Shteyn, 2018).

Participants were asked to answer a series of statements concerning their attitudes towards climate change, using a 7 point scale from "Strongly Disagree" to "Strongly Agree".

I would agree to an increase in taxes if the extra money were used to prevent climate change	I would pay more for products so that they can be made in more environmentally friendly ways	U.S. education standards should require students to learn about the scientific connection between climate change and the extreme weather events they will likely experience in their lifetime
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**Section 5** asked for the participant's demographics.

Age	Highest level of education completed	Gender Identification	Race	Socioeconomic status of immediate family
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## **Results**

Overall, Environmental behaviors is significantly related to Key components at the 0.01 level (.000), r = .487.

Self efficacy is significantly related to Key components at the 0.01 level (.0086), r = .375

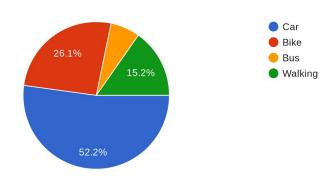
Education is significantly related to Key components at the 0.01 level (.001), r = .453

Environmental attitude is significantly related to Key components at the 0.05 level (.039), r = .268.

No significant interaction for gender, race, or age.

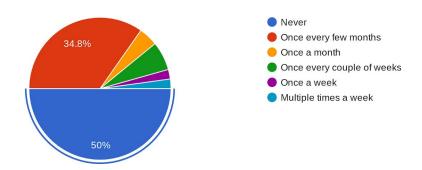
## What is your main form of transportation?

46 responses



*Figure 1.1* What is your main form of transportation?

How often do you utilize Facebook Marketplace pages/ public forums to buy goods and services in your local ar...e, free & pages/ public forums to buy goods and services in your local ar...e, free & pages/ public forums to buy goods and services in your local ar...e, free & pages/ public forums to buy goods and services in your local ar...e, free & pages/ public forums to buy goods and services in your local ar...e, free & pages/ public forums to buy goods and services in your local ar...e, free & pages/ public forums to buy goods and services in your local ar...e, free & pages/ public forums to buy goods and services in your local ar...e, free & pages/ public forums to buy goods and services in your local ar...e, free & pages/ public forums to buy goods and services in your local ar...e, free & pages/ public forums to buy goods and services in your local ar...e, free & pages/ public forums to buy goods and services in your local ar...e, free & pages/ public for sale, rides have goods and services in your local ar...e, free & pages/ public for sale, rides have goods and services are pages/ public for sale, rides have goods are pa



**Figure 1.2** How often do you utilize Facebook Marketplace pages/public forums to buy goods and services in your local area? (i.e. book exchange, free & for sale, rideshare, etc)

There is a relationship between the main use of transportation with utilizing social media to purchase goods and services in local areas. People are more likely to use non conventional ways of obtaining goods and services when they lack their own vehicle.

#### **Discussion**

Key components have significant relationships with socioeconomic status, education, self efficacy, environmental behaviors and environmental attitudes. This study suggests that sustainable communities have specific aspects that not only increase pro environmental behaviors and attitudes, but also a person's self efficacy as well. Self efficacy plays a huge role in persist and shift strategies, necessary for coping with stressors. This also suggests that lower SES communities tend to be missing the key components that would not only elevate their physical and mental health by improving the environment, but also their psychological abilities to deal with health adversities.

More research needs to be done on which particular psychological resources key components affect.

Limitations and Suggestions for future studies 1. Increase the number of participants. I would aim for over 100 responses for my future endeavors, with more representation across demographics. Additionally, for a future study, I would want to be more specific with targeted participants. For instance, to survey Isla Vista residents and compare their results with responses from a community that is similar in terms of socioeconomic status, but differ in the amount of key components of sustainable communities they share.

2. Improve measure of key components of sustainable communities. This could be done by providing a prompt and having participants free write their responses. Afterwards, their statements could be coded accordingly to the three key components I have chosen. Additionally, I would want to improve my question about utilizing Facebook marketplace for goods and services by expanding it to local services/ resources outside of facebook. For example, a tool library, mini libraries, interaction with neighbors, etc. This can also be done by including more questions: How often do you seek out other resources before turning to stores to get what you need? How often do you go to a store for goods and/or services? How

3. Lengthen survey to further specify what I am trying to measure. Overall, the survey was short and should be lengthened with appropriate compensation. One fear I had was not receiving enough responses, so I tried to keep it as short as possible in order to gain voluntary responses.

often do you shop from local merchants compared to big brand stores?

- 4. Include measures of coping. Future studies that are aimed at understanding how coping methods in relate to to socioeconomic status and environmental behavior. This can be done through free write responses, and then have their statements coded accordingly. For example, 1 = independent motives, 2 = shift and persist, 3 = other, 4 = not applicable.
- 5. Include measures of social support. In order to better understand if key components of sustainable cities promote an important factor to psychological buffers. Using Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet & Farley, 1988)
  - "My friends really try to help me"

- "I can talk about my problems with my family"
- "I can talk about my problems with my friends"
- "I get the emotional help and support I need from my family"
- 6. Include measures of perceived health. In order to better understand if key components of sustainable cities are related to, or is a mediating cause of, buffering health adversities. Using Health Perception Scale (Ware, 1976):
  - Current health: "I'm as healthy as anybody I know"
  - Prior health: "I've never had an illness that lasted a long period of time"
  - Resistance/ susceptibility: "I seem to get sick a little easier than other people"
  - Health outlook: "I think my health will be better in the future it is now"
  - Health worry/ concern: "Others seem more concerned about their health than I am about mine"
- 7. Look at a mean split analyses to see if there are interacting effects. For instance, the combined effects of key components and self efficacy on environmental behaviors.

*Final insights* Overall, the questions I sought out when I began my research was able to be answered through my various research.

Future questions to explore:

- How can sustainable communities be improved by applying Regenerative Development principles?
- Is the sharing paradigm enough to address inequalities?
- How does resilience in context of cities and communities mirror resilience in people's capabilities to utilize coping methods?
- Will these shift and persist coping methods be necessary or helpful in a regenerative development environment?

Educating people is the key factor in understanding why groups are disproportionately affected by their environment. It is not a matter about lack of resources, but rather an imbalance of power within our society. To put simply, the way we are living now is not sustainable. Progress will happen once we start building with regenerative design, and creating just transitions for displaced individuals.

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