ABSTRACT

Title of Thesis:	RECLAIMING ANTAKYA: POST-DISASTER COMMUNITY DEVELOPMENT FOR RESILIENT FUTURES
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As the global population continues to grow and settlements expand, an increasing number of communities are at risk of natural and man-made disasters. While the immediate focus in disaster management is to preserve lives and safeguard property through emergency response, the subsequent phases of recovery and preparedness present challenges in terms of planning and management. The earthquake that struck Turkey in February 2023 inflicted significant damage on the physical, social, and economic infrastructure of the affected region. Among the hardest-hit areas is the city of Antakya, which suffered severe destruction, thereby complicating and prolonging the recovery efforts. This thesis is dedicated to addressing the challenges associated with disaster management and recovery processes in Antakya. It emphasizes the importance of empowering the community to reclaim their surroundings, foster a sense of belonging, preserve culture, and revitalize life in the aftermath of the disaster. This approach aims to foster sustainable solutions and build resilience in the community.

RECLAIMING ANTAKYA: POST-DISASTER COMMUNITY DEVELOPMENT FOR RESILIENT FUTURES

by

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Introduction

In disaster management, the practice has traditionally focused more on emergency response mechanisms, favoring short-term solutions to catastrophic events which is essential in the first phase of response to disaster events. In the following phases, there is a lack of attention and investment directed towards mitigating risks and taking proactive preparation measures. As full recovery can be a long process, it is crucial to analyze the timeline and phases of disaster management to understand their implications on the environment, community, economy, and culture. This analysis helps identify key issues and challenges preventing a successful recovery process.

The recovery process should prioritize the well-being of the community and actively involve their participation.[1] Top-down recovery efforts, led by central decision-makers, often become inefficient and fail to address the community's specific needs. Decision-making that disregards the vulnerabilities of the community and the post-disaster conditions affecting their well-being can cause more risks, leading to dissatisfaction in the community and a future lacking resilience.

When we compare the types of disasters and the scale of damage they cause, earthquakes tend to be more destructive than other types. Although earthquakes accounted for only 3% of the total number of people affected by disasters between the years 1998 and 2017, they constituted 56% of the loss of life and 23% of the

[1] Kitagawa, Kaori, and Subhajyoti Samaddar. 2022. "Widening Community Participation in Preparing for Climate-Related Disasters in Japan." Ucl Open Environment 4: 053. doi:10.14324/111.444/ucloe.000053.

economic losses.[2] People that are impacted by such catastrophes endure not just physical but also economic, social, mental, and cultural losses, significantly complicating the process of returning to normalcy. The recent earthquakes in February 2023 that struck the South-western regions of Turkey and Northern Syria led to significant in the region, the deadliest disaster in Turkey's modern history.[3] The destruction caused by this event highlighted the lack of preparedness within these communities and the complexity of managing the recovery process.

The challenges encountered in the recovery process can be addressed through a community-centric approach that prioritizes localization and advocates for bottom-up recovery solutions.[4] Applying a localized approach to recovery management has the potential to create community leadership. As a result, this empowers residents to advocate for policies and decisions that effectively address the community's vulnerabilities, align with their needs and lifestyles, and respond to the concerns within their communities. This highlights the importance of a process that encourages collaboration among government, non-governmental entities, and communities to establish sustainable solutions. The development of social capital through collaborative decision-making between communities and organizations plays an

[2] UNDRR. "Economic Losses, Poverty & Disasters: 1998-2017." 10-12. Last modified 2018. Accessed December 16, 2023. https://www.undrr.org/publication/economic-losses-poverty-disasters-1998-2017.
[3] Bilginsoy, El Deeb, Armangue, Wilks. "Turkey earthquake: Rising Toll Makes Quake Deadliest in Turkey's Modern History." n.d. NZ Herald, 15 February 2023. https://www.nzherald.co.nz/world/turkey-earthquake-rising-toll-makes-quake-deadliest-in-turkeys-modern-history/KQHKJKUATJCZDIJUTQTAILHKJ4/.
[4] Maly, Elizabeth, Mittul Vahanvati, and Titaya Sararit. "People-Centered Disaster Recovery: A Comparison of Long-Term Outcomes of Housing Reconstruction in Thailand, India, and Japan." International Journal of Disaster Risk Reduction 81 (n.d.). http://dx.doi.org/10.1016/j.ijdrr.2022.103234.

important role in creating effective networking and equitable resource distribution in the aftermath of disasters.

The methodology of this research involves analyzing the phases in the disaster recovery process and management of these phases through a comprehensive examination of global practices and case studies provided by recent literature and data. This analysis aims to identify both the challenges faced and the distinct strategies implemented across different disasters in the world. Similarly, the research examines major earthquakes that have impacted Turkey to comprehend the nation's historical approach to disaster management, including its successes and challenges in community recovery. This historical context lays the foundation for addressing the issues concerning the most recent earthquake in February 2023 in the region of Hatay, Antakya.

In summary, this thesis aims to create resilient communities by place-making strategies that help empower post-disaster communities, restore a communal environment that promotes active engagement in the recovery process and foster trust and collaboration between public and private entities, thereby laying the foundation for a robust and resilient future.

Chapter 1: Disasters: The Damage and It's Management

As populations expand and human settlements sprawl across larger areas, an increasing number of communities face the threat of both natural and man-made disasters. Earthquakes are no exception to this trend; the global frequency of earthquake incidents has surged sixfold in the past forty years due to population growth.[5] Addressing disasters, from preparedness to recovery, is a collective challenge involving individuals and larger organizations alike that involves a period of time for emergency response, recovery and preparedness. In contrast to the urgency of immediate emergency response, the process of recovery and redevelopment is more intricate and uncertain for a longer period. While the primary focus remains on saving lives and safeguarding physical infrastructure, planning for recovery has not received the same level of emphasis from experts or practitioners, partly due to the less clearly defined processes in this phase.

To better identify problems and challenges that arise within the timeline of disaster management, it is beneficial to analyze the different phases making up the management process and identify what decisions and actions are taken accordingly. It must be identified what measures are in priority for the different phases, what are the communities need right after a disaster occurs, how do these needs differ later on. Additionally, what measures are to be taken to not only respond to disasters but also to prepare for possible risks and to mitigate those risks.

[5] Farooqui, Mudassir, Syed A Quadri, Sajid S Suriya, Muhammad Adnan Khan, Muhammad Ovais, Zohaib Sohail, Samra Shoaib, Hassaan Tohid, and Muhammad Hassan. "Posttraumatic Stress Disorder: A Serious Post-Earthquake Complication." Trends in psychiatry and psychotherapy 39, no. 2 (2017): 135–143. http://dx.doi.org/10.1590/2237-6089-2016-0029.

Disaster Management Phases and Timeline

Disaster management operates through an ongoing cycle made of four key phases: mitigation, preparedness, response, and recovery. This process is conducted and reinforced by both public and private organizations alongside individuals and communities. [6]

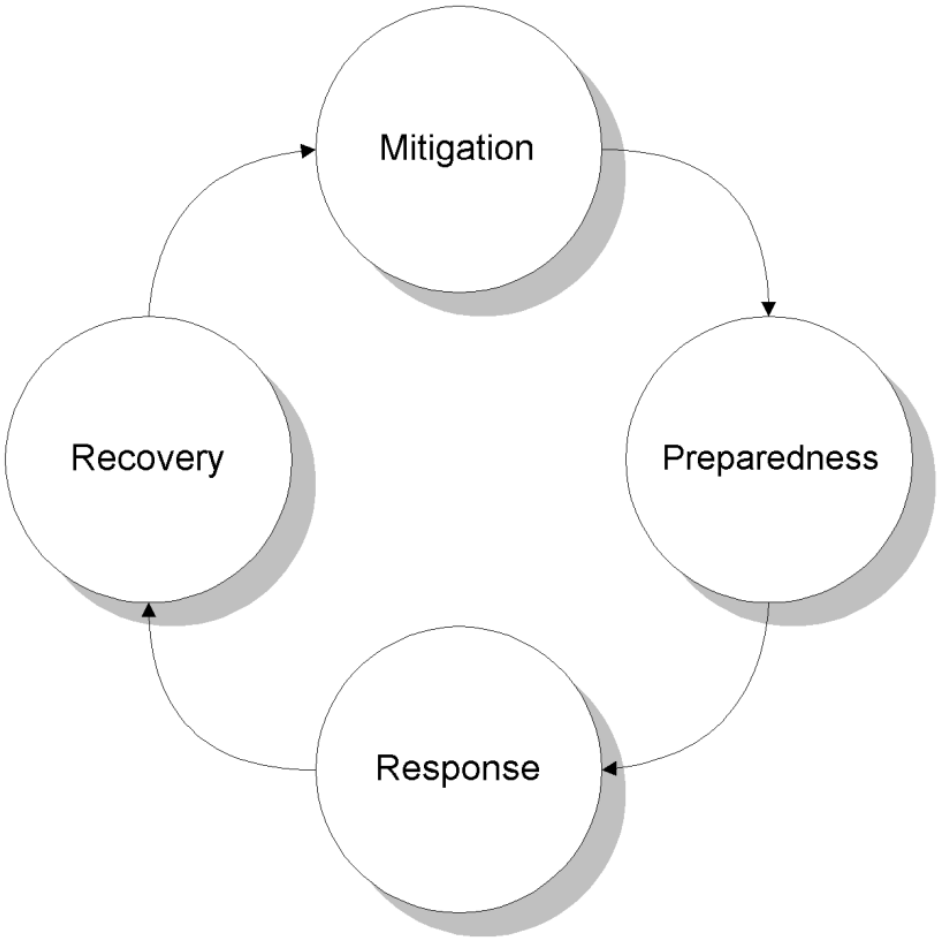


Figure 1. Disaster Management Phases Diagram. Source: FEMA

[6] FEMA, "Emergency Management in the United States" Livestock in Disasters, Unit 4. https://training.fema.gov/emiweb/downloads/is111_unit%204.pdf. Accessed November 20, 2-23.

The mitigation phase encompasses measures aimed at lessening or preventing the impact of disasters.[7] These steps may involve taking precautions in areas at risk. For example, reinforcing structures and infrastructures to avoid hazardous situations in the event of an earthquake is a safety measure.[8] Preparedness phase primarily involves strategic planning and training for situations where disasters cannot be fully mitigated. This phase necessitates the creation of comprehensive disaster plans, including strategies for evacuating residents and the implementation of practice drills to ensure readiness.[9] The response phase is initiated as the immediate action when disasters occur. Its primary objective is to swiftly execute recovery plans and rescue victims through dedicated missions.[10] This phase is of utmost importance in terms of time management, as it plays a pivotal role in gaining control over catastrophic events. The fourth phase is recovery, which pertains to the restoration period after the initial crisis has concluded.

During the recovery phase, which is typically supervised by centralized managers, communities experience the longest and most uncertain period characterized by reconstruction and rehabilitation. Ideally, the aim of this phase is to facilitate healing among residents, restore the damaged environment, and decrease vulnerability to prevent future crises by creating stronger and more resilient communities.

[7] FEMA, "Emergency Management in the United States" Livestock in Disasters, Unit 4. https://training.fema.gov/emiweb/downloads/is111_unit%204.pdf. Accessed November 20, 2-23.
[8] IBID.
[9] IBID.
[10] IBID.

Long and Short-term Impact of Disasters

Natural disasters can result in physical damage to both the built and natural environment, as well as cause physical, mental, and social distress within the people. Earthquakes, among other disasters, lead to extensive destruction of the built environment. While the mitigation and recovery processes are challenging and long-lasting, the aftermath can linger well beyond the completion of reconstruction efforts. Often overlooked in comparison to tangible losses, the survivors of disaster-hit areas endure physical, mental, and social hardships that significantly impact both rehabilitation and the long-term sustainability of the community. Research conducted on the 1999 and 2023 earthquakes in Turkey revealed an increase in instances and prevalence of psychiatric disorders, notably major depression and post-traumatic stress disorder experienced by over half of the survivors in the latter case. [11] [12]

The impacts of natural hazards extend beyond physical losses, affecting residents socially and mentally, thereby complicating the recovery process for the community's rehabilitation. Earthquakes have substantial short and long-term consequences. The destruction of homes and businesses can deepen levels of poverty, homelessness and economic inequality. Furthermore, the reconstruction of buildings,

[11] İlhan, Buğra, Göksu Bozdereli Berikol, Oğuz Eroğlu, and Turgut Deniz. "Prevalence and Associated Risk Factors of Post-Traumatic Stress Disorder among Survivors of the 2023 Turkey Earthquake." American Journal of Emergency Medicine 72 (2023): 39–43. http://dx.doi.org/10.1016/j.ajem.2023.07.026.

[12] Aker, A Tamer. "[1999 Marmara Earthquakes: A Review of Epidemiologic Findings and Community Mental Health Policies]." Turk psikiyatri dergisi = Turkish journal of psychiatry 17, no. 3 (2006): 204–12.

transportation networks, and infrastructure is a lengthy, cost-dependent process, leading to further income losses.

Chapter 2: Challenges in Community Recovery

Recovery efforts must extend beyond physical reconstruction and focus on the restoration of the community's social, economic, and cultural fabric, as well as the establishment of wellness. Overcoming these challenges relies on collective effort and collaboration between communities, as well as governmental or non-governmental organizations.[13] This collaborative approach is critical to facilitating the exchange of knowledge, resources, and skills that are effective in the long run, thereby fostering resilience in recovery efforts.[14]

Recovery systems can be categorized into two main types: top-down and bottom-up. Top-down systems involve government bodies serving as leaders who make decisions, plan, organize, and implement recovery efforts on their own. On the other hand, bottom-up refers to a recovery process managed by smaller, localized government bodies, civil organizations, and local community leaders recognized and supported by the community itself. The latter approach relies on community participation, volunteer work, and the utilization of local resources in a bottom-up manner. Both these disaster management approaches are beneficial for a successful

[13] Islam, Emadul, Haris Abd Wahab, and Odessa Gonzalez Benson. "Structural and Operational Factors as Determinant of Meaningful Community Participation in Sustainable Disaster Recovery Programs: The Case of Bangladesh." International Journal of Disaster Risk Reduction 50 (n.d.). http://dx.doi.org/10.1016/j.ijdrr.2020.101710.
[14] Beckham, Tira L., Bethany B. Cutts, Louie Rivers, Kathie Dello, Laura A. Bray, and Olivia Vilá. "BRIDGE Builders - Leadership and Social Capital in Disaster Recovery Governance." International Journal of Disaster Risk Reduction 96 (2023). https://dx.doi.org/10.1016/j.ijdrr.2023.103942.

recovery process. However, while both are essential, bottom-up approaches often receive comparatively lesser investment despite their importance.[15]

Centralized and Local Governance of Disaster Management

Government bodies, serving as the primary organizers and planners of disaster mitigation and recovery, operate within centralized systems. They are responsible for providing diverse forms of support for affected communities during each phase of emergency management and disaster recovery. Such large centralized bodies of governance often need help to function efficiently in times of long recovery processes. There can be a lack of communication and coordination with the communities and the central government bodies, resulting in redundancies between municipalities and resource waste during policy implementation.[16]

In times of crises, communities rely on organizers to establish a connection between government bodies and themselves.[17] As organizers become more centralized and distant from local communities, the effectiveness of the recovery efforts tends to diminish. This is often due to slower and inflexible procedures, as well as a limited understanding of the specific conditions and needs of local populations. The lack of connection between communities and centralized governance also affects trust

[15] Bhatt, Mihir, and Mehul Pandya. 2021. "Rethinking Capacity Development for Disaster Risk Reduction: Lessons from Bottom Up." Disaster Prevention and Management: An International Journal 30, no. 3 (July): 259–60. https://doi.org/10.1108/dpm-06-2021-413.
[16] Beckham, Tira L., Bethany B. Cutts, Louie Rivers, Kathie Dello, Laura A. Bray, and Olivia Vilá. "BRIDGE Builders - Leadership and Social Capital in Disaster Recovery Governance." International Journal of Disaster Risk Reduction 96 (2023). https://dx.doi.org/10.1016/j.ijdrr.2023.103942.
[17] IBID.

dynamics negatively.[18] Simplifying processes and ensuring accessible outcomes is crucial. This clarity is vital for developing effective solutions that build trust among all stakeholders involved.

Supplementary to centralized systems, localized systems led by civil organizations supported by the government can achieve long-term success in social, economic and environmental recovery as opposed to programs led only by government agencies. Housing reconstruction projects from countries such as Thailand, Japan and India show that people-centric recovery programs able to engage in government policy-making play an important role in recovery efforts that foster building trust and effective connections between communities and organizers.[19] In particular, civil organizations played a crucial role in meeting the communities' needs, including housing units and design, health and wellness services, education, and community building. They effectively bridged the gap between the government and the people. Such collaborative processes play an important role in long-term success in social, economic and environmental recovery as opposed to programs led only by government agencies.

[18] He, Lulu, Dale Dominey-Howes, Jonathan C. Aitchison, Annie Lau, and David Conradson. "How Do Post-Disaster Policies Influence Household-Level Recovery? A Case Study of the 2010-11 Canterbury Earthquake Sequence, New Zealand." International Journal of Disaster Risk Reduction 60 (n.d.). http://dx.doi.org/10.1016/j.ijdrr.2021.102274.

[19] Maly, Elizabeth, Mittul Vahanvati, and Titaya Sararit. "People-Centered Disaster Recovery: A Comparison of Long-Term Outcomes of Housing Reconstruction in Thailand, India, and Japan." International Journal of Disaster Risk Reduction 81 (n.d.). http://dx.doi.org/10.1016/j.ijdrr.2022.103234.

Inefficient Distribution of Resources

Another challenge that centralized systems struggle with is the efficiency in allocating and distributing resources to areas with the greatest need, potentially leaving some communities underserved. While it is important for governments to implement responsible planning and budgeting strategies to ensure the efficient distribution of resources in disaster recovery efforts, studies emphasize the significance of decentralized authorities in empowering local governments and communities. This decentralization facilitates a more tailored and responsive approach to recovery efforts.[20] A local government that acts as a facilitator helps people take charge, leading to better results for the community compared to a government that takes a top–down approach.[21]

Another factor contributing to this challenge is the community's willingness to share resources and take on tasks to assist others. Residents affected by a disaster are not the primary responsible party for responding to catastrophic events. Communities from the US and Japan demonstrated that building trust and mutual support within communities is essential in large-scale disaster cases.[22] When government aid is not immediately available, or the capacity of organizations to provide assistance is

[20] Beckham, Tira L., Bethany B. Cutts, Louie Rivers, Kathie Dello, Laura A. Bray, and Olivia Vilá. "BRIDGE Builders - Leadership and Social Capital in Disaster Recovery Governance." International Journal of Disaster Risk Reduction 96 (2023). https://dx.doi.org/10.1016/j.ijdrr.2023.103942.
[21] Kusakabe, Emiko. "Advancing Sustainable Development at the Local Level: The Case of Machizukuri in Japanese Cities." Progress in Planning 80 (n.d.): 1–65. http://dx.doi.org/10.1016/j.progress.2012.06.001.
[22] Chen, Cynthia, Daniel B. Abramson, Toshiyuki Yamamoto, Natsuki Kitagawa, and Katherine Idziorek. "Factors Influencing Willingness to Share Resources Postdisaster: A Cross-Cultural Comparison between US and Japanese Communities." Natural Hazards Review 24, no. 4 (2023). http://dx.doi.org/10.1061/NHREFO.NHENG-1836.

limited, trust emerges as an important tool for the community's survival. While certain residents are more prepared and experienced with more resources in hand, others may lack preparedness. Willingness to share one's resources is a associated with levels of trust within the community and attachment to place.[23] This can be considered an effective strategy for disaster preparedness, supported by community-building and place-making initiatives.

Physical and Socio-Economic Vulnerabilities Within Communities

Physical vulnerability encompasses deficiencies in infrastructure and the built environment that contribute to hazardous conditions. This is closely tied to inadequate building codes and regulations in addition to a lack of disaster planning. Moreover, it is crucial to acknowledge that these vulnerabilities often stem from issues such as economic capacity, corruption, limited educational resources, and a lack of accountability. Disasters serve as catalysts for change and learning. While communities often aim to return to pre-disaster conditions for a successful recovery, this may not always be the best course of action. Such conditions could encompass a vulnerable environment, deficient public infrastructure, and inadequate housing, potentially impeding progress in social justice.[24] There lies an opportunity to apply the lessons that communities and local governments have gleaned from these

[23] Chen, Cynthia, Daniel B. Abramson, Toshiyuki Yamamoto, Natsuki Kitagawa, and Katherine Idziorek. "Factors Influencing Willingness to Share Resources Postdisaster: A Cross-Cultural Comparison between US and Japanese Communities." Natural Hazards Review 24, no. 4 (2023). http://dx.doi.org/10.1061/NHREFO.NHENG-1836.

[24] Crow, Deserai A., and Elizabeth A. Albright. Community Disaster Recovery Moving from Vulnerability to Resilience. Cambridge: University of Cambridge ESOL Examinations, 2021. Accessed May 16, 2024. http://public.eblib.com/choice/PublicFullRecord.aspx?p=6794005.

disasters. This includes the construction of more robust and sustainable infrastructures based on resilient practices.

Disasters often worsen existing social vulnerabilities, such as poverty, inequality, and discrimination. Marginalized populations are disproportionately affected and face a greater impact on livelihood.[25] The absence of income generation, challenges in housing recovery, limited community participation, and lack of family support can result in long-lasting economic repercussions, impeding the progress of recovery efforts.[26] Moreover, vulnerable communities may encounter difficulties in securing safe and stable housing post-disaster. This can contribute to an increase in homelessness and negatively impact the social and physical fabric of the community as a whole. Addressing both physical and social vulnerabilities in disaster recovery efforts is essential to ensuring that all members of a community can fully recover and rebuild.

[25] Mutch, Carol. "How Schools Build Community Resilience Capacity and Social Capital in Disaster Preparedness, Response and Recovery." International Journal of Disaster Risk Reduction 92 (2023). https://dx.doi.org/10.1016/j.ijdrr.2023.103735.

[26] Aryal, April, and Suzanne Wilkinson. "The Role of Social Capital in the Recovery of Cultural Built Heritage." International Journal of Disaster Resilience in the Built Environment 11, no. 1 (2019): 44–57. http://dx.doi.org/10.1108/IJDRBE-06-2019-0033.

Chapter 3: Healing and Learning

Disasters can serve as an opportunity for change and learning. While communities often aim to return to pre-disaster conditions for a successful recovery, this may not always be the best case. Such conditions could create a vulnerable environment, deficient public infrastructure, and inadequate housing, potentially impeding progress in social justice.[27] In the aftermath of the 2013 Colorado floods, the community and local government received insight for shaping future policies and strategies regarding deficient public infrastructure, inadequate housing and social justice. Without addressing issues that hinder social capital and long-term resilience, disaster efforts risk being inefficient. The groundwork for transformation must be laid through healing, learning, and addressing vulnerabilities that obstruct disaster recovery efforts.

Establishing Wellbeing

Wellbeing must be recognized as a vital emergent property of disaster recovery systems. Recovery systems can be long-lasting, complicated, and sometimes uncertain phases during which individuals may feel overlooked or isolated. This can significantly impact one's mental state, leading to feelings of powerlessness and a

[27] Crow, Deserai A., and Elizabeth A. Albright. Community Disaster Recovery Moving from Vulnerability to Resilience. Cambridge: University of Cambridge ESOL Examinations, 2021. Accessed May 16, 2024. http://public.eblib.com/choice/PublicFullRecord.aspx?p=6794005.

sense of exclusion from their own surroundings. Additionally, it may damage the trust between individuals and leaders overseeing the recovery process.

Wellbeing refers to many facets, including an individual's feelings and perceptions of life's desirability. Families equipped with social capital, access to resources, and a support system are more likely to experience a fast and strong recovery in times of disaster. On the other hand, families lacking in connections and support find it challenging to reach a comparable standard. These groups can become discouraged leading to a loss of hope and long-term effects on their health and mental wellbeing.[28]

Fostering Collective Action

In the initial stages of emergency recovery, individuals rely heavily on external assistance provided by both governmental and non-governmental organizations. During this period, the supply and distribution of vital resources like water, food, and medication is paramount for survival. Nonetheless, even in situations where communities are heavily reliant on temporary aid, there is varying willingness to share these resources. This willingness is influenced by the strength of social bonds within the community, as well as connections to a particular place.[29]

[28] Blackman, Deborah, Girish Prayag, Hitomi Nakanishi, Jo Chaffer, and Ben Freyens. "Wellbeing in Disaster Recovery: Understanding Where Systems Get Stuck." International Journal of Disaster Risk Reduction 95 (2023). https://dx.doi.org/10.1016/j.ijdrr.2023.103839.

[29] Chen, Cynthia, Daniel B. Abramson, Toshiyuki Yamamoto, Natsuki Kitagawa, and Katherine Idziorek. "Factors Influencing Willingness to Share Resources Postdisaster: A Cross-Cultural Comparison between US and Japanese Communities." Natural Hazards Review 24, no. 4 (2023). http://dx.doi.org/10.1061/NHREFO.NHENG-1836.

At the later phases in disaster recovery, the concept of communal action becomes less actively applied at the rebuilding and reconstruction stage. This raises the question of how one can foster collective solidarity and engagement How does this impact long-term recovery and the development of resilience? Cases from Southeast-Asian and Caribbean disasters suggest that creating social networks that maximize interaction between communities and recovery managers ensures sustainable and adaptive strategies.[30] Policies that enhance resilience at communal level such as rewarding volunteer work, increasing social activities and providing sensible community centers within the urban environment help strengthen communal relations, build trust between different groups and create healthy and inclusive spaces. [31] These principles represent low-effort yet highly effective methods of investing in social infrastructure as opposed to making heavy spending on the physical.

Promoting Localized Recovery Governance

Communities rely on connections and systems established by the government. However, a significant portion of disaster recovery is managed through centralized systems that often have limited interaction with the communities when making decisions regarding recovery and rebuilding projects. Additionally, such centralized systems operate slowly and lack efficiency when it comes to providing inclusive

[30]Adger, W. Neil. "Social Capital, Collective Action, and Adaptation to Climate Change." Economic Geography 79, no. 4 (2003): 387–404. http://dx.doi.org/10.1111/j.1944-8287.2003.tb00220.x.
[31] Aldrich, Daniel P., and Michelle A. Meyer. "Social Capital and Community Resilience." American Behavioral Scientist 59, no. 2 (2015): 254–269. https://dx.doi.org/10.1177/0002764214550299.

support and building long-term resiliency. "A localized approach to recovery management holds the potential to foster community leadership. This, in turn, enables local residents to advocate for policies and decisions that address vulnerabilities, align with needs and lifestyles, and address the concerns of their communities effectively.

Recovery programs conducted by civil organizations supported by the government achieved long-term success in social, economic and environmental recovery as opposed to programs led only by government agencies. People-centric recovery programs able to engage in government policy making plays an important role in beneficial housing reconstruction efforts and beyond.[32] Varied recovery approaches in recovery planning and management can lead to the creation of different types of gathering spaces that serve as hubs for resource location and distribution. The Great East Japan Earthquake and Tsunami in 2011 demonstrated that, in community-driven recovery instances, diverse public spaces of varying sizes and forms were established, providing services effectively. Whereas in government-led cases, public spaces were characterized by primary and secondary areas lacking connection with each other. Community-led gathering areas respond to residents need of proximity, activity and accessibility better than government-led public hubs. [33]

Transitioning from a centralized to a localized recovery system provides a platform that actively promotes community engagement through the use of

[32] Maly, Elizabeth, Mittul Vahanvati, and Titaya Sararit. "People-Centered Disaster Recovery: A Comparison of Long-Term Outcomes of Housing Reconstruction in Thailand, India, and Japan." International Journal of Disaster Risk Reduction 81 (n.d.). http://dx.doi.org/10.1016/j.ijdrr.2022.103234.

[33] Ghezelloo, Yegane, Akihiko Hokugo, and Osamu Tsukihashi. "Production of Gathering Spaces in Post-Disaster Recovery Scenarios: Case Studies from the Great East Japan Earthquake and Tsunami-2011." City, Territory and Architecture : An interdisciplinary debate on project perspectives 10, no. 1 (2023). http://dx.doi.org/10.1186/s40410-023-00195-4.

community hubs that act as public centers accessible to all as in the case of Japan. This sets the groundwork for a process that enables bottom-up decision-making, placing a priority on people-centric recovery.

Chapter 4: Communication, Coordination and Collaboration

Communal Solidarity

In times of catastrophic events, nurturing trust and support within communities becomes crucial for effective healing and recovery endeavors. This is vital to cultivating collaboration and cooperation between individuals and local government bodies in disaster recovery efforts. Building a sense of community by willingness to share resource and undertaking tasks to help others can be a key mechanism for recovery purposes. It is an important resource in times where government aid is not provided immediately or organizations capacity to help is unsatisfactory.[34]

Although the inclination to share resources and offer assistance can be influenced by cultural factors, it is feasible to enhance communal bonds through the implementation of educational initiatives that encourage community participation and proactive disaster response measures, ultimately working to mitigate future disasters.[35] Engaging in collective action that fosters social networks and facilitates

[34] Chen, Cynthia, Daniel B. Abramson, Toshiyuki Yamamoto, Natsuki Kitagawa, and Katherine Idziorek. "Factors Influencing Willingness to Share Resources Postdisaster: A Cross-Cultural Comparison between US and Japanese Communities." Natural Hazards Review 24, no. 4 (2023). http://dx.doi.org/10.1061/NHREFO.NHENG-1836.

[35] Ali, Sameer, and Abraham George. "Fostering Disaster Mitigation through Community Participation- Case of Kochi Residents Following the Kerala Floods of 2018 and 2019." Natural Hazards 111, no. 1 (2021): 389–410. http://dx.doi.org/10.1007/s11069-021-05058-0.

interactions between communities and various disaster recovery stakeholders ultimately leads to an accumulation of social capital. While disaster recovery systems often prioritize investments on physical recovery and reconstruction efforts, social capital has become an important asset for low-cost community recovery efforts.[36]

Social Capital

Social capital is defined as the connections and relationships that exist between individuals within diverse networks and organizations, including those with higher status and power. [37] The hurricanes in North Carolina in 2016 and 2018 demonstrated the vital role of community-level leadership in rural areas. This leadership was essential for enabling the exchange of knowledge and resources, which is crucial for building resilience during recovery efforts. When successful recovery outcomes are achieved, it strengthens the bond and mutual concern between communities and their political representatives, enhancing preparedness for potential future crises.[38] In addition, other disaster recovery cases emphasize the significance of education centers in cultivating social capital in Asia-Pacific countries. Depending on the nature of disasters, schools can contribute to raising awareness and preparing both staff and students. This can be achieved through policy initiatives aimed at

[36]Aldrich, Daniel P., and Michelle A. Meyer. "Social Capital and Community Resilience." American Behavioral Scientist 59, no. 2 (2015): 254–269. https://dx.doi.org/10.1177/0002764214550299.
[37] Melo Zurita, Maria de Lourdes, Brian Cook, Dana C. Thomsen, Paul G. Munro, Timothy F. Smith, and John Gallina. "Living with Disasters: Social Capital for Disaster Governance." Disasters 42, no. 3 (2018): 571–589. http://dx.doi.org/10.1111/disa.12257.
[38] Beckham, Tira L., Bethany B. Cutts, Louie Rivers, Kathie Dello, Laura A. Bray, and Olivia Vilá. "BRIDGE Builders - Leadership and Social Capital in Disaster Recovery Governance." International Journal of Disaster Risk Reduction 96 (2023). https://dx.doi.org/10.1016/j.ijdrr.2023.103942.

training and equipping school personnel in disaster recovery and risk reduction strategies.[39]

Policy proposals can enhance social capital and help build community resilience. The policy can include rewarding volunteer work in order to strengthen communal relations, increasing social activities to build trust and cooperation between groups of people and sensible planning of community centers within the urban environment to create healthy and inclusive spaces.[40] These principles are marked as low-effort yet highly effective ways of creating social capital crucial to create communities prepared for emergency response. These programs facilitate sensitive and inclusive reconstruction measures that directly benefit the community.

People-Centric Recovery

Recovery programs conducted by civil organizations supported by the government can achieve long-term success in social, economic and environmental recovery as opposed to programs led only by government agencies. People-centric recovery programs able to engage in government policy making play an important role in beneficial housing reconstruction efforts and beyond. [41] Post-disaster housing in rural areas of Cankiri, Turkey lead by the Turkish Ministry of Environment and

[39] Mutch, Carol. "How Schools Build Community Resilience Capacity and Social Capital in Disaster Preparedness, Response and Recovery." International Journal of Disaster Risk Reduction 92 (2023). https://dx.doi.org/10.1016/j.ijdrr.2023.103735.
[40] Aldrich, Daniel P., and Michelle A. Meyer. "Social Capital and Community Resilience." American Behavioral Scientist 59, no. 2 (2015): 254–269. https://dx.doi.org/10.1177/0002764214550299.
[41] Maly, Elizabeth, Mittul Vahanvati, and Titaya Sararit. "People-Centered Disaster Recovery: A Comparison of Long-Term Outcomes of Housing Reconstruction in Thailand, India, and Japan." International Journal of Disaster Risk Reduction 81 (n.d.). http://dx.doi.org/10.1016/j.ijdrr.2022.103234.

Urbanization reflects the importance of people-centric recovery programs. Housing reconstructions with typical designs did not meet the users' needs and lifestyles, resulting in high levels of dissatisfaction. Conversely, housing types with custom designs tailored to the users' requirements garnered higher satisfaction rates. Incorporating considerations for lifestyles and well- being of communities during the design phase of post-disaster housing is critical to provide long-term recovery solutions.[42]

Another case from the Philippines following the impact of Typhoon Washi examines the adjustments made to resettlement efforts. The initial reconstruction decisions were made without considering community's needs and preferences. This lack of coordination led the resettled people to make modifications and extensions to the structure, although the local government was concerned that these extensions would create unsafe conditions once again. However, there was a pressing need for guidance and regulations from the local government to ensure that these transformations were conducted safely, thus preventing the creation of vulnerable environments.[43]

After 2011 earthquakes in Van, Turkey, post-recovery residents were left dissatisfied as a result of top-down implementation of recovery housing projects. These projects led by government organizations seek cost efficient and safe solutions but fail to consider user profile and their cultural needs derived from pre-disaster life

[42] Dikmen, Nese, and Soofia Tahira Elias-Ozkan. "Housing after Disaster: A Post Occupancy Evaluation of a Reconstruction Project." International Journal of Disaster Risk Reduction 19 (n.d.): 167–178. http://dx.doi.org/10.1016/j.ijdrr.2016.08.020.

[43] Carrasco, Sandra, Chiho Ochiai, and Kenji Okazaki. "Impacts of Resident-Initiated Housing Modifications in Resettlement Sites in Cagayan de Oro, Philippines." International Journal of Disaster Risk Reduction 17 (n.d.): 100–113. http://dx.doi.org/10.1016/j.ijdrr.2016.05.001.

style.[44] Such cases in post-recovery projects highlight how important it is to communicate and work together with the communities in disaster reconstruction efforts. Top-down and quick reconstruction solutions end up being dissatisfactory and require readjustments and improvement to meet cultural, social and physical needs of the affected population. When carried out without proper regulations and inspections, modifications to post-disaster reconstructions can lead to unsafe conditions vulnerable to future disasters. Moreover, these alterations incur additional costs in terms of both money and resources.

Chapter 5: Learning From Earthquakes in Turkey

Turkey is a country highly susceptible to significant disasters, particularly earthquakes. Positioned within the Alpine-Himalayan earthquake belt, approximately 90% of the country's buildings are situated in areas at risk of earthquakes.[45] The country faced devastating earthquakes that inflicted immense damage through its history. As a response, policy reforms were implemented, leading to significant changes in disaster response measures and strengthening the capacity of the management system.[46]

[44] KamacI-Karahan, Ebru, and Serkan Kemeç. "Residents' Satisfaction in Post-Disaster Permanent Housing: Beneficiaries vs. Non-Beneficiaries." International Journal of Disaster Risk Reduction 73 (n.d.). http://dx.doi.org/10.1016/j.ijdrr.2022.102901.
[45]Korkmaz, Kasım Armağan. "Earthquake Disaster Risk Assessment and Evaluation for Turkey." Environmental Geology : International Journal of Geosciences 57, no. 2 (2009): 307–320. http://dx.doi.org/10.1007/s00254-008-1439-1.
[46] SÜLEYMAN ÇELİK. "Towards Local and Protective Turkish Disaster Management System." Dumlupınar Üniversitesi Sosyal Bilimler Dergisi (2015).

A pivotal moment for implementing these measures occurred after the Marmara earthquake on August 17, 1999.[47] More recently, Turkey experienced another large-scale disaster in its Southeastern region in February 2023, impacting a total of 11 cities and causing even greater damage than the 1999 catastrophe.[48] With Turkey's increasing urbanization, more areas are at risk of earthquakes due to the lack of fundamental changes in policy, design, and construction practices. Moreover, solely responding to disasters is insufficient. Implementing proactive policies aimed at mitigation and preparedness is more beneficial in long term. These measures serve as crucial stages in fostering resilience against destructive natural events, aiming to minimize both physical and social damages by anticipating possible disasters.[49]

August 17, 1999, Marmara Earthquake

A seismic event measuring 7.6 in magnitude hit the Marmara region in Turkey, resulting in extensive damage and claiming the lives of 17,439 people.[50] This extremely destructive event has caused an economic loss of 15 to 17 billion dollars.[51]

[47]Karakuzulu, Zerrin, Fatih Arici, and Samet Dogan. "Spatial Development of Adapazarı City (Turkey) after the 1999 Earthquake (1999–2017)." Arabian Journal of Geosciences 13, no. 22 (2020). http://dx.doi.org/10.1007/s12517-020-06212-x.

[48]IBB, Istanbul Planlama Ajansi, BIMTAS. 2023. Review of Kahramanmaras Depremi Tespit ve Degerlendirme Raporu. Hatay Planlama Merkezi. https://drive.google.com/file/d/1i5AIj68fjrncoRJ4KRVa2HTUbTY-lP1T/view.

[49] Negi, Saurav. "Humanitarian Logistics Challenges in Disaster Relief Operations: A Humanitarian Organisations' Perspective." Journal of Transport and Supply Chain Management 16, no. 1 (2022). http://dx.doi.org/10.4102/jtscm.v16i0.691.

[50] IBB, Istanbul Planlama Ajansi, BIMTAS. 2023. Review of Kahramanmaras Depremi Tespit ve Degerlendirme Raporu. Hatay Planlama Merkezi. https://drive.google.com/file/d/1i5AIj68fjrncoRJ4KRVa2HTUbTY-lP1T/view.

[51] Bikçe, Murat. "A Database for Fatalities and Damages due to the Earthquakes in Turkey (1900-2014)." Natural Hazards : Journal of the International Society for the Prevention and Mitigation of Natural Hazards 83, no. 3 (2016): 1359–1418. http://dx.doi.org/10.1007/s11069-016-2397-7.

The catastrophe became a turning point that awakened the Turkish administration.[52] Reforms were introduced to enhance the system's response capacity, notably through the implementation of an earthquake tax allocated that would be used for disaster preparedness.[53]

However, there remains considerable improvement for enhancing mitigation efforts aimed at reducing the impact of earthquakes on the physical environment and local communities before they strike. In November 2022, another earthquake measuring 5.9 magnitude struck the same region, resulting in the destruction of 19 buildings, with thousands of others ranging from slight to severe damage. While no lives were lost during this event, the significant damage caused by a 5.9 magnitude earthquake underscores that the policies and regulations implemented after 1999 were insufficient in terms of preparedness and mitigation efforts.[54]

February 6, 2023 Earthquake

On February 6, 2023, South-eastern regions of Turkey was hit by two earthquakes measuring 7.7 and 7.6 was felt across 11 cities affecting 14 million people, including the northern regions of Syria.[55] The Ministry of Interior Disaster and Emergency Management Presidency (AFAD), functioning as the main institution in the nation in disaster management, has reported over 50,000 deaths and 107,000

[52]SÜLEYMAN ÇELİK. "Towards Local and Protective Turkish Disaster Management System." Dumlupınar Üniversitesi Sosyal Bilimler Dergisi (2015).
[53] IBD.
[54] "Literatur Arastirma ve Ornek Inceleme Raporu." Hatay Planning Center, 3.2.118-134. Accessed December 27, 2024. https://drive.google.com/file/d/1PMwM-Jv_EUKtT0R8eDgy_5AF5AOBDvRD/view
[55] Parkinson, Drew Hinshaw, Thomas Grove and Joe. n.d. "After Turkey's Earthquake Comes the Reckoning. 'Why Are We Unprepared?'" WSJ. Accessed February 27, 2023. https://www.wsj.com/articles/turkey-earthquake-erdogan-unprepared-edbe4d5d.

injuries resulting from the earthquakes and tremendous damage to the built environment and infrastructure of cities and towns of all scales.[56] More than 40,000 buildings either collapsed or were severely damaged, forcing residents to temporarily or permanently abandon their homes. Public and civic facilities were utilized as temporary shelters, complemented by the establishment of emergency tents to provide immediate housing assistance.[57]

Figure 2. Tent City Set up in Hatay, Turkey by AFAD on February 18, 2023. Murat Sengul. Source:Anadolu Agency.

[56] İlhan, Buğra, Göksu Bozdereli Berikol, Oğuz Eroğlu, and Turgut Deniz. "Prevalence and Associated Risk Factors of Post-Traumatic Stress Disorder among Survivors of the 2023 Turkey Earthquake." American Journal of Emergency Medicine 72 (2023): 39–43. http://dx.doi.org/10.1016/j.ajem.2023.07.026.

[57] Kemal Önder Çetin, Makbule Ilgaç, Gizem Can and Elife Çakır. 2023. *"Preliminary Reconnaissance Report on February 6, 2023, Pazarcık Mw=7.7 and Elbistan Mw=7.6, Kahramanmaraş-Türkiye Earthquakes."* Middle East Technical University Earthquake Engineering Research Center 10: 85-89

The disaster highlights that AFAD alone may not have been adequately equipped to respond to an event of such magnitude spanning a vast area. The humanitarian aid, along with delays in coordinating and controlling the situation, proved insufficient and resulted in a delayed response.[58] As the most affected administrative area in this catastrophe, Hatay holds significant cultural heritage, particularly with the city of Antakya. To aid the recovery process, the Hatay municipality, in collaboration with the Istanbul municipality, established the Hatay Planning Office (HTO). This initiative aims to support the area's recovery through a collaborative and coordinated approach, fostering resilience for the city's future.

This disaster has revealed the region's lack of preparedness, not only in terms of the extensive area affected but also due to the absence of a systematic approach to large-scale recovery and redevelopment. This highlights the deficiencies in drawing lessons from past events and the country’s ongoing challenges in effectively preparing for earthquakes.

Chapter 6: Program

Introduction

The program's primary objective is to help communities recover by gathering, healing, learning and collaborating with the different stakeholders of disaster management leaders and other organizations. It offers adaptability across various

[58] “Literatur Arastirma ve Ornek Inceleme Raporu.” Hatay Planning Center, 3.2.118-134. Accessed December 27, 2024. https://drive.google.com/file/d/1PMwM-Jv_EUKtT0R8eDgy_5AF5AOBDvRD/view

sites, contexts, and timelines during different phases of disaster recovery. While the program is responsive to the community's recovery needs, its broader aim is to cultivate awareness, responsibility, and empowerment, thereby nurturing resilient communities capable of handling future disasters and fostering overall resilience.

The program is developed organizationally, spatially, and programmatically with the goal of proposing an alternative to the current temporary container cities found in post-disaster recovery sites. Additionally, the program aims to transition from a temporary development scheme to a permanent one within a specific site in Antakya, Hatay, Turkey. Both phases of the program focus on rebuilding communities and revitalizing post-disaster environments by establishing community hubs. These hubs serve as public centers designed to gather people and empower them. At its core, the community hub serves as the heart of the program, providing communal spaces accessible to all and facilitating activities across four key zones. Specifically, designated healing spaces offer mental and social support and care. Learning spaces are dedicated to training and educating community members to foster resilience. Lastly, collaborative zones serve as platforms for engaging diverse stakeholders, advocating for community-responsive policies, and leveraging social capital assets to rebuild healthier and more robust environments.

Concept Program

	Number	Area	TOTAL
Tea Garden	1	2000 sqf	2000 sqf
Amphitheater	1	4000 sqf	4000 sqf
Auditorium	1	2000 sqf	2000 sqf
Total			8000 sqf
Community Park			
Restaurant	2	1500 sqf	3000 sqf
Mental Health Center	1	1500 sqf	1500 sqf
Total			4500 sqf
Greenhouse	2	3000 sqf	6000 sqf
Library & Computer Lab	1	2000 sqf	2000 sqf
Lecture Space	4	500 sqf	2000 sqf
Informative Gallery	1	2000 sqf	2000 sqf
Total			12.000 sqf
Planning Studio	2	750 sqf	1500 sqf
Meeting Room	4	350 sqf	1500 sqf
Conference Hall	2	1000 sqf	2000 sqf
Exposition Space	1	4000 sqf	4000 sqf
Total			9000 sqf
TOTAL			33.500 sqf

Table 1. Concept Program by Author.

The program's primary objective is to help communities recover by gathering, healing, learning and collaborating with the different stakeholders of disaster management leaders and other organizations. It offers adaptability across various sites, contexts, and timelines during different phases of disaster recovery. While the program is responsive to the community's recovery needs, its broader aim is to cultivate awareness, responsibility, and empowerment, thereby nurturing resilient communities capable of handling future disasters and fostering overall resilience.

Precedent Analysis

Jintai Village Reconstruction / Rural Urban Framework, China, 2014:

Figure 3. Jintai Village Reconstruction. Photographs by Rural Urban Framework. Source: Archdaily.

With support from the local government and NGOs, this project demonstrates a socially and environmentally sustainable model for earthquake reconstruction while restoring a community. A total of twenty-two houses were rebuilt including a community center. A vertical courtyard increases light and ventilation and channels rainwater for collection. The design also invests in reed bed waste-water treatment and collective animal rearing. By relating various programs of the village to an ecological cycle, environment responsiveness is heightened, transforming the village into a model for nearby areas.[59]

Sanjaynagar Slum Redevelopment Project / Community Design Agency, India, 2022:

[59] ArchDaily. "Jintai Village Reconstruction / Rural Urban Framework" Accessed December 19, 2023. https://www.archdaily.com/882714/jintai-village-reconstruction-rural-urban-framework?ad_source=search&ad_medium=projects_tab

Figure 4. Sanjaynagar Slum Redevelopment. Photographs by Rajesh Vora. Source: Archdaily.

Through a collaborative and participatory planning and design approach, the residents of Sanjaynagar actively participated in shaping design decisions across various scales, ranging from neighborhood-level developments to personalized modifications within their individual homes. Sanjaynagar is envisioned to become a fully operational neighborhood, equipped with essential amenities. These include provisions for water, efficient drainage systems, well-designed roads, adequate street lighting, childcare and community centers, inviting courtyards to encourage healthy recreational activities, and innovative edible rooftop spaces. [60]

[60] Hana Andel. "*Sanjaynagar Slum Redevelopment Project/Community Design Agency."* ArchDaily. Accessed December 19, 2023. https://www.archdaily.com/982534/sanjaynagar-slum-rehabilitation-project-community-design-agency?ad_source=search&ad_medium=projects_tab

Reverse Engineering

Ruiz Community Center / bgp arquitectura, Mexico, 2021:

Figure 5. Ruiz community center. Photographs by Jaime Navarro. Source: Archdaily.

This Community development center project aims to be a place to attend the necessities of a high marginated area by offering educational, legal and medical services, and a community dining room; it also could be used as a distribution point for food and supplies in case of natural disasters. The project is organized in three parallel volumes in an East-West orientation to reduce sun exposition directly on the facades and the heat gain it implies, and it is distributed in one single level to guarantee universal accessibility.

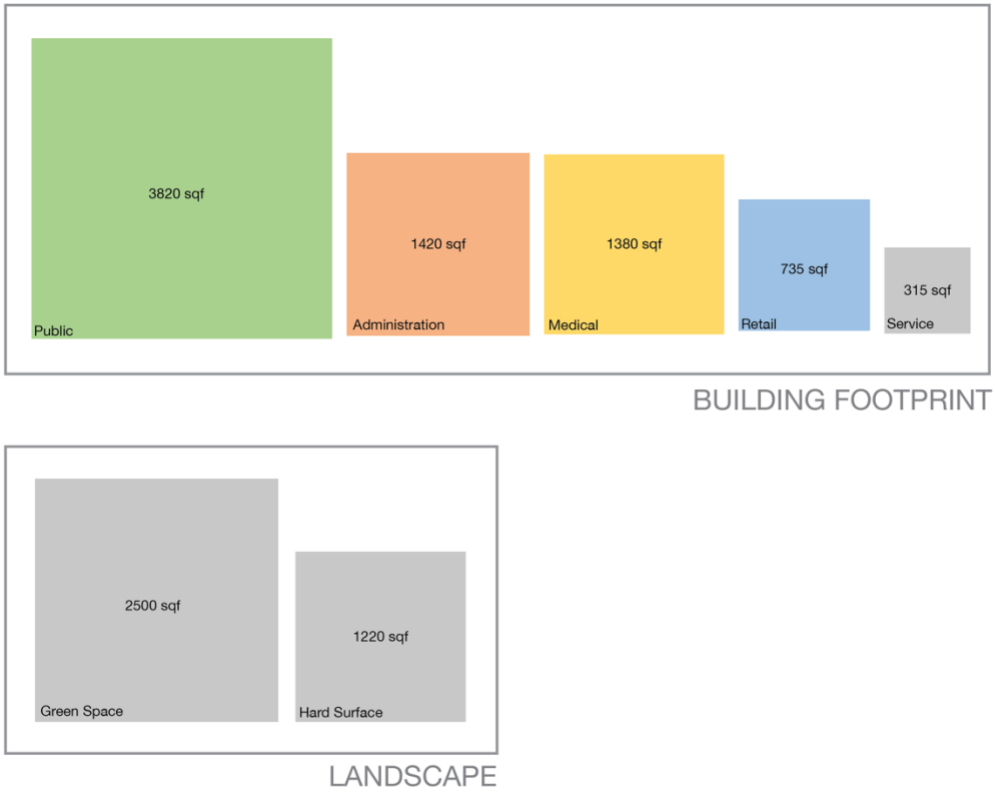


Table 2. Ruiz Community Center Tabulation of Program. By Author.

The project is also providing support to everyday activities for the people in the area and to any contingency for all the community while looking to improve the urban development in the town.[61]

SITE	BUILDING	
	RETAIL	735 sqf
	PUBLIC	2380 sqf
	MEDICAL	1380 sqf
	ADMINISTRATION	1420 sqf
	SERVICE	315 sqf
	COURTYARD	1440 sqf
	LANDSCAPE	
	Green Space	2500 sqf
	Hard Surface	1220 sqf
	TOTAL	11410 sqf

BUILDING	RETAIL	
	Store	735 sqf
	PUBLIC	
	Kitchen	560 sqf
	Multipurpose Room	860 sqf
	Restrooms	480 sqf
	Guest Hostel	480 sqf
	Courtyard	1440 sqf
	MEDICAL	
	Consulting	290 sqf
	Physical Teraphy	550 sqf
	Special Care	470 sqf
	Pharmacy	70 sqf
	ADMINISTRATION	
	Admin Office	690 sqf
	Other Office	750 sqf
	SERVICE	
	Strorage	315 sqf
	TOTAL	7690 sqf

Table 3. Ruiz Community Center Tabulation of Program 2 by Author.

Chapter 7: Site

Introduction

The site selection matrix evaluates the significant areas impacted by the February, 2023 earthquake in Turkey, encompassing three provinces that have

[61] Coulleri, Agustina. “Ruiz Community Center / BGP Arquitectura.” ArchDaily. Accessed December 19, 2023. https://www.archdaily.com/985735/ruiz-community-center-bgp-arquitectura?ad_source=search&ad_medium=projects_tab.

experienced varying degrees of damage. Hatay being culturally more significant and suffering worse from the earthquake are some of the reasons for selecting a site from this province. Within the province of Hatay, different cities were also analyzed in terms of their potential. These cities include Antakya, Kirikhan and Iskenderun.

Site Selection Matrix

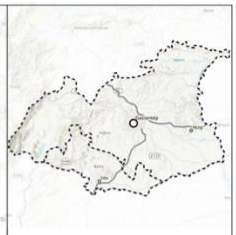
	 HATAY Province Population: 1.6 million	 KAHRAMANMARAS Province Population: 1.1 million	 GAZIANTEP Province Population: 2.1 million
SITE SELECTION CRITERIA			
Severity of Damage	9	7	5
Disaster Risk & Hazardeous Environments	8	7	5
Social, Economic Vulnerabilities of the Community	6	6	7
Economy Generators & Opportunities	7	6	8
Community's Historic & Cultural Ties to Place	9	6	8
Availability of Cultural & Recreational Amenities	6	4	6
Existing Recovery and Reconstruction Plans	6	5	4
Local and Central Governments Assistance in the Area	7	7	6
Non-profit Organizations Activities	7	6	5
Awareness in Disaster Recovery and Preparedness Among the Community	5	4	5
TOTAL	70	58	59

Table 4. Site Selection Matrix. Source: National Geographic Map Maker. Table by Author.

The site selection criteria delve into several attributes of these locations, such as their geographical positioning, available resources, demographic composition, economic activities, and the ongoing status of recovery and reconstruction endeavors. This comprehensive analysis seeks to pinpoint both the vulnerabilities of these places

and the potential opportunities that can facilitate their restoration. The selection criteria led to the choice of the site positioned at the heart of Antakya due to its strategic location, offering significant advantages in terms of accessibility, historical relevance, and recreational potential. These qualities align with the previously introduced program concept.

	 Population: 383.350	 Population: 120.000	 Population: 248.380
SITE SELECTION CRITERIA	ANTAKYA	KIRIKHAN	ISKENDERUN
Distance from major settlements/number of urban centers	8	8	6
Local socio economic status	8	5	7
Economy generators (natural, industrial, other resources)	7	4	8
Vulnerable community population	-	-	-
Community's historic/cultural ties to place	9	7	7
Areas under disaster risk and risk management policies	8	8	6
Existing recovery and reconstruction plans	8	6	-
Local and central governments assistance in the area	7	5	-
Non-profit organizations and activities	7	-	-
Accesibility to socio-cultural and recreational amenities	6	4	4
Awareness in disaster recovery and preparedness among the community	-	-	-

Table 5. Site Selection Matrix 2. Source: Google Earth. Table by Author.

The selected site is located right across the historic center, across the Asi River. It is at the heart the city, next to commercial and civic use. The previous program for the site includes institutional, commercial and residential use. There is a large high school complex at the western side of the site including a large grive and some vacant land. At the most easter tip, there is a historical city hall building.

What's in between is mixed-use apartment blocks densely built. The before and after images showcase how badly the whole was damaged, leaving almost no building standing.

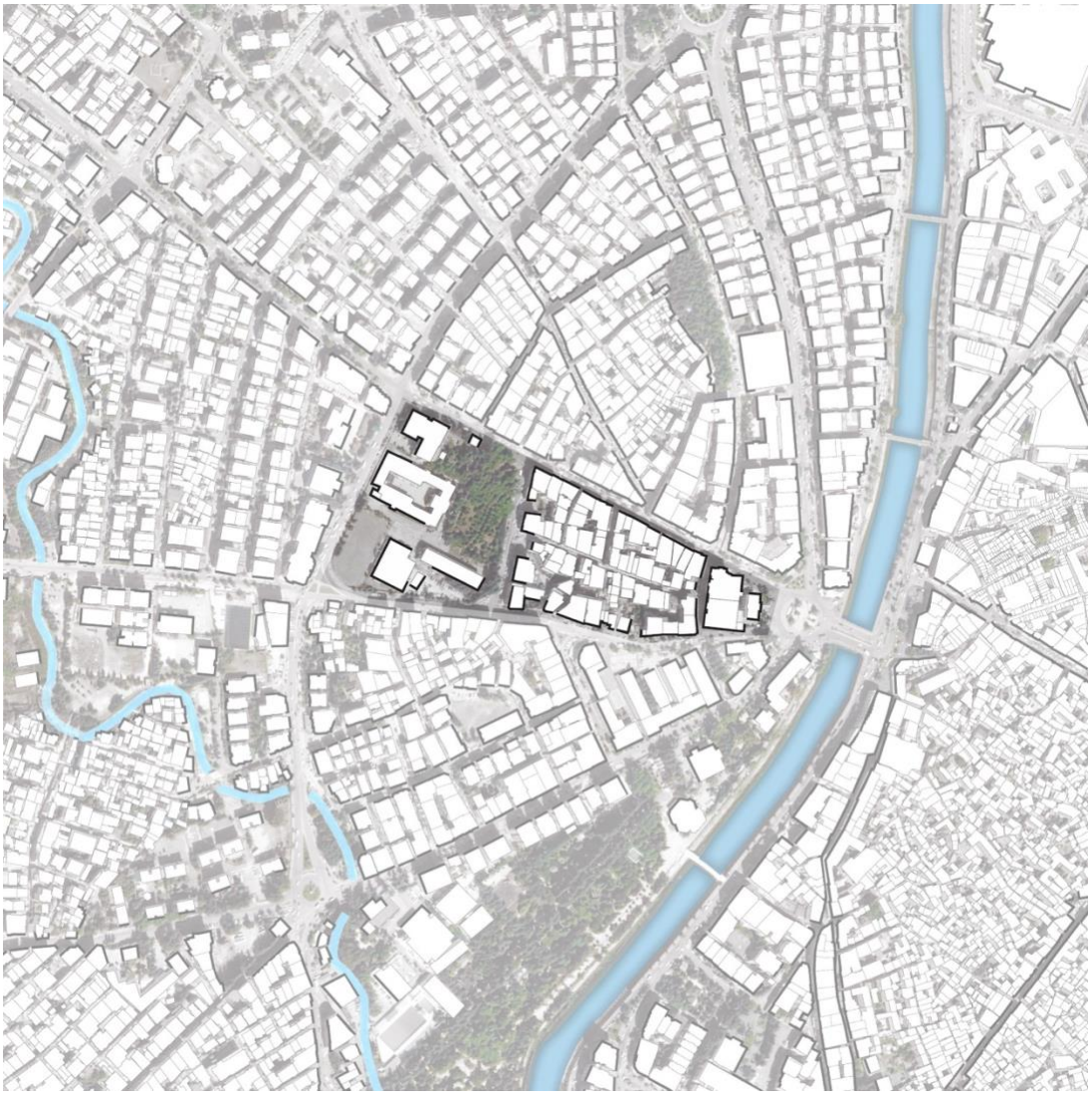


Figure 6. Selected Site. Source Google Earth. Diagram by Author.

Figure 7. Antakya Center Before and After. Source: Google Earth. Diagram by Author.

Chapter 8: Design Proposal & Phasing

The design solution proposes an alternative approach to the conventional recovery and reconstruction efforts following the earthquake. It is proposing a multi phased solution that changes program and design strategies through time. The proposal has two main objectives. The first one is about the timeline and the different phases that make up the process. This diagram shows how usually the solutions for recovery and reconstruction is applied. There are short term solutions which involve emergency sheltering and taking refuge right after a disaster. Next the survivors are relocated in temporary housing dwellings until permanent reconstruction is completed in long term period which can take years to realize. The second objective deals with how the process is managed. More importantly, how to create opportunities for a more bottom-up process.

These phases involve in analyzing the pre-disaster conditions, and redeveloping the site through recovery, reclamation, reconstruction and reconnection.

Phase 0: Existing

Phase 0 is an analysis of the site's pre-disaster conditions. As mentioned before, it is located at center of the city with a mix of programmatic use and building types. The proposal in later phases predicts that the city hall and the high school complex will be reconstructed keep their functions. That is why the design focuses more on the transformation of the mixed-use apartment area as well as utilize the grove area early in the phases for emergency shelters.

Figure 8. Phase 0 Diagram by Author.

Phase 1: Recover

This phase involves the period right after the earthquake. The strategy here is to use the grove are as emergency shelter space for the survivors and start the

communication and collaboration between the different stakeholders, to engage the community.

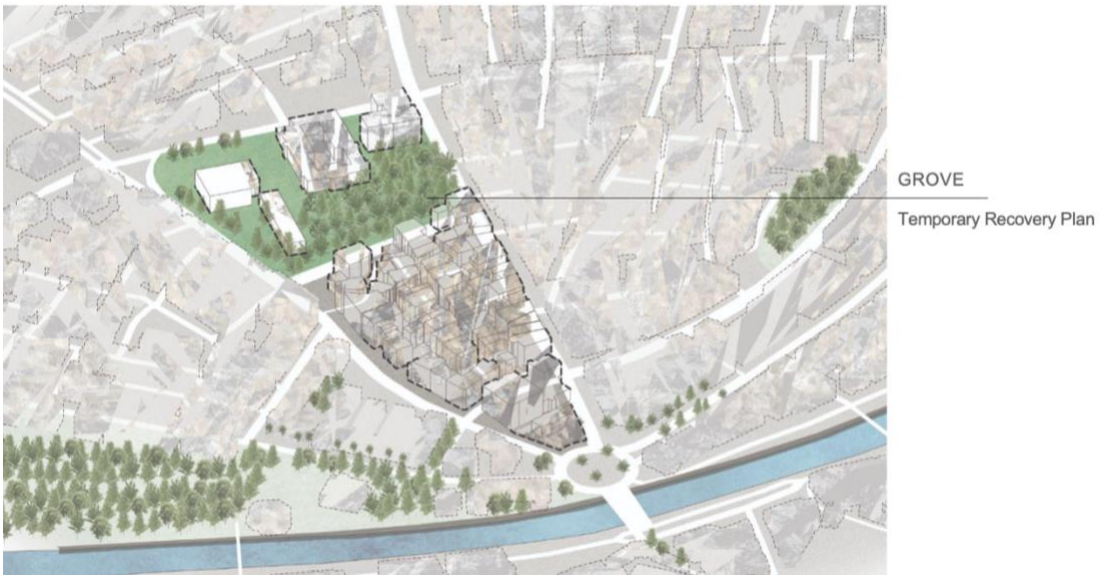


Figure 9. Phase 1 Diagram by Author.

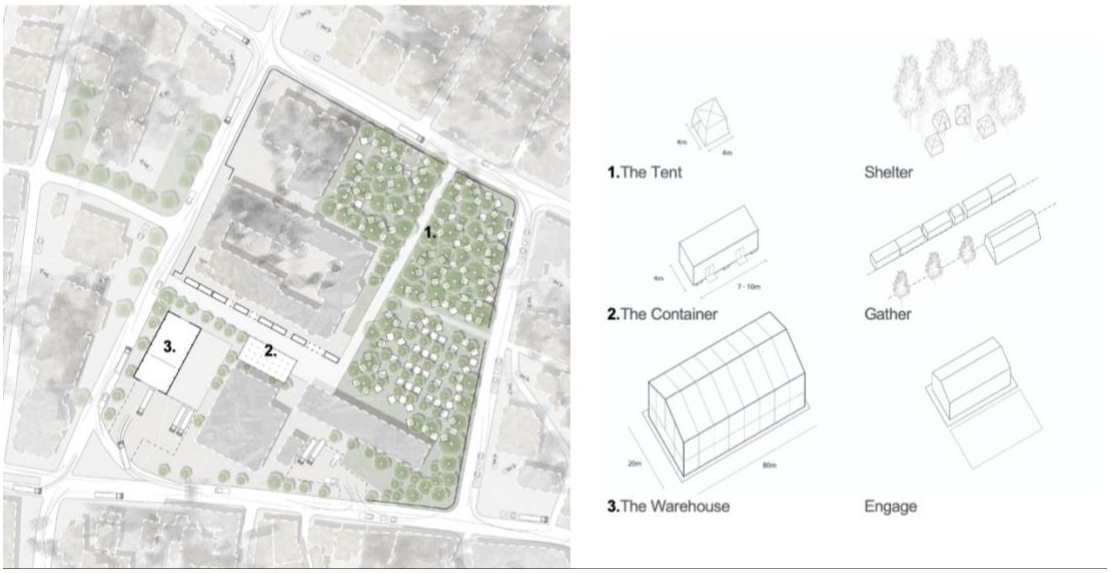


Figure 10. Temporary Recovery Plan by Author.

The grove, the existing paths and the vacant land in this part of the site is transformed for a temporary recovery plan following the earthquake. The grove itself

is used to accommodate tents for shelter. The path below the high school is for container units providing basic amenities for the community. The warehouse on the bottom left corner is for logistics and storage. It also acts as a center for the different organizations to communicate and collaborate with the community.

Phase 2: Reclaim

Phase two involves implementing design strategies when the site is starting to be cleared from the debris to lay the foundation of upcoming building blocks. This includes the formation of a main pedestrian street in the middle of the site, as well as main courtyards that will shape the blocks in the later phases through planting of trees. There is an opportunity here to for the community to take action and involve in the planning process.

Figure 11. Phase 1 Diagram by Author.

This phase is also introducing the first building type, which is a community center or “The Hub”. The Hub is a courtyard building that accommodates cultural and social programs for the people of Antakya beyond the residents of the site.

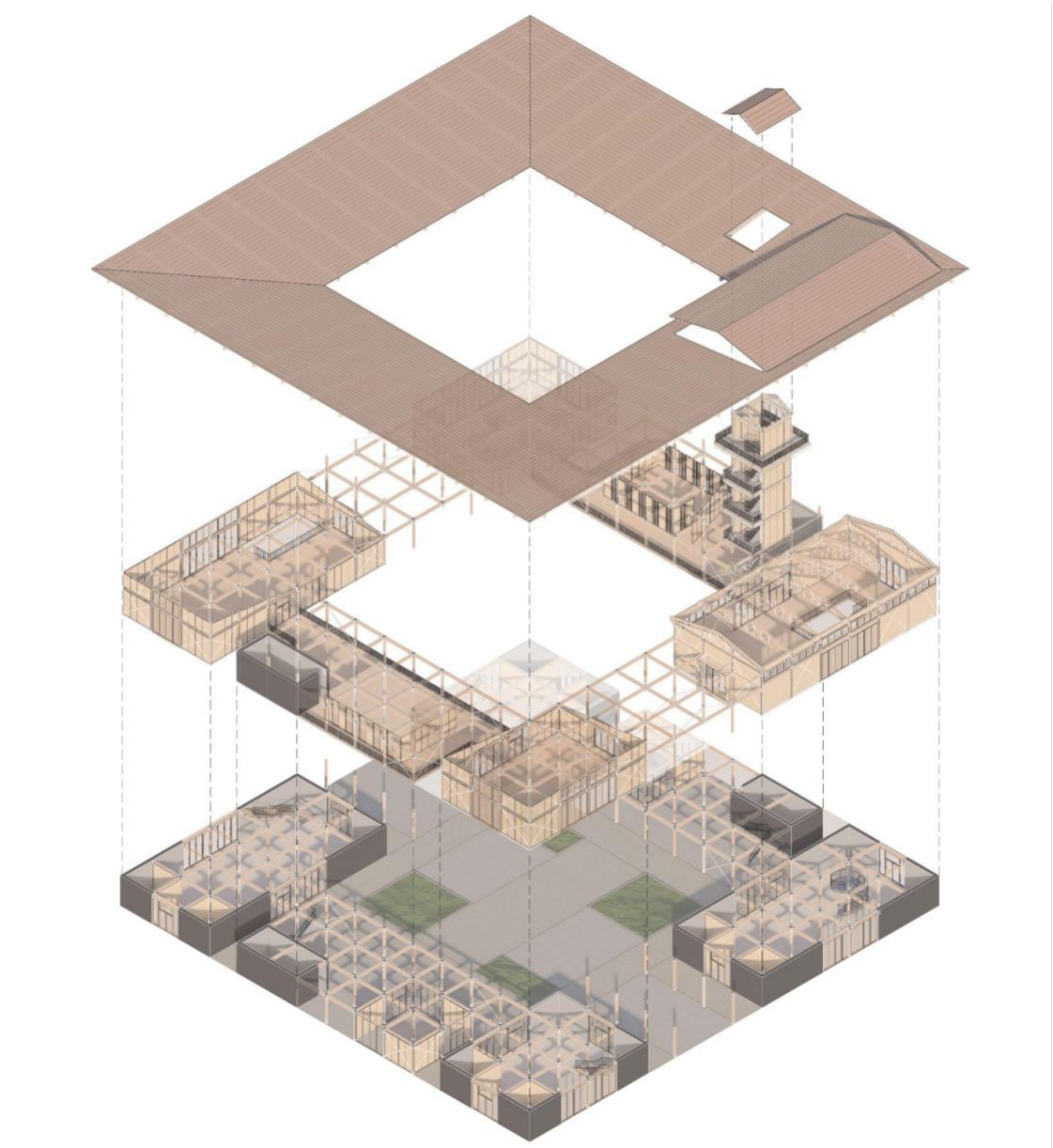


Figure 12. The Hub Axon Diagram by Author.

It is a square structure based on a grid system, with craft studios and a museum, recreational spaces such as the courtyard and teahouses.

Figure 13. The Hub Ground Floor Plan by Author.

Figure 14. The Hub Second Floor Plan by Author.

Figure 15. The Hub Courtyard Perspective by Author.

Phase 3: Reconstruct

The reconstruction phase introduces the second building type which is called "The Block". The Block functions a mixed-use building, for commercial, institutional use on the ground and housing on top floors.

Figure 16. Phase 3 Diagram by Author.

It is based on a modular structure, that is repeated around a main courtyard. Circulation runs between the courtyard and units similarly to a loggia. For vertical circulation, the central module is used, dividing the large block to a smaller scale. Additionally, rooftop gardens are located for growing crops as well as creating variety in the façade expression and massing of the whole.

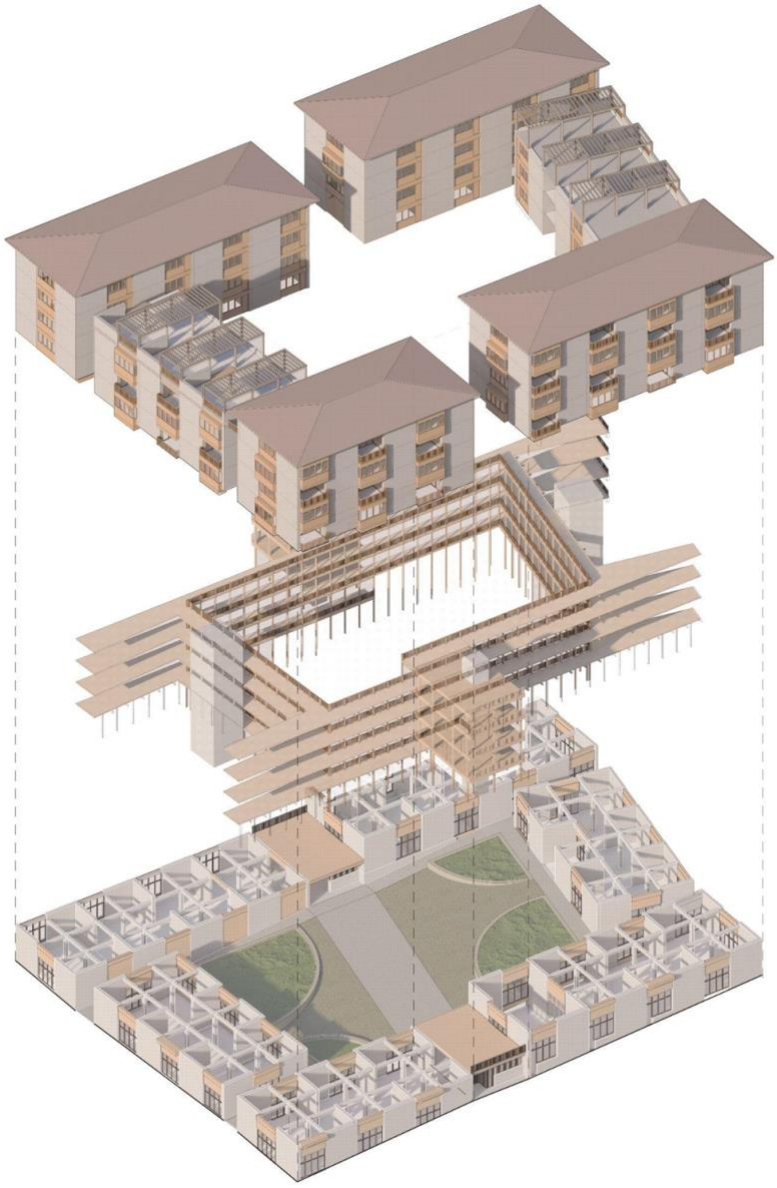


Figure 17. The Block Axon Diagram by Author.

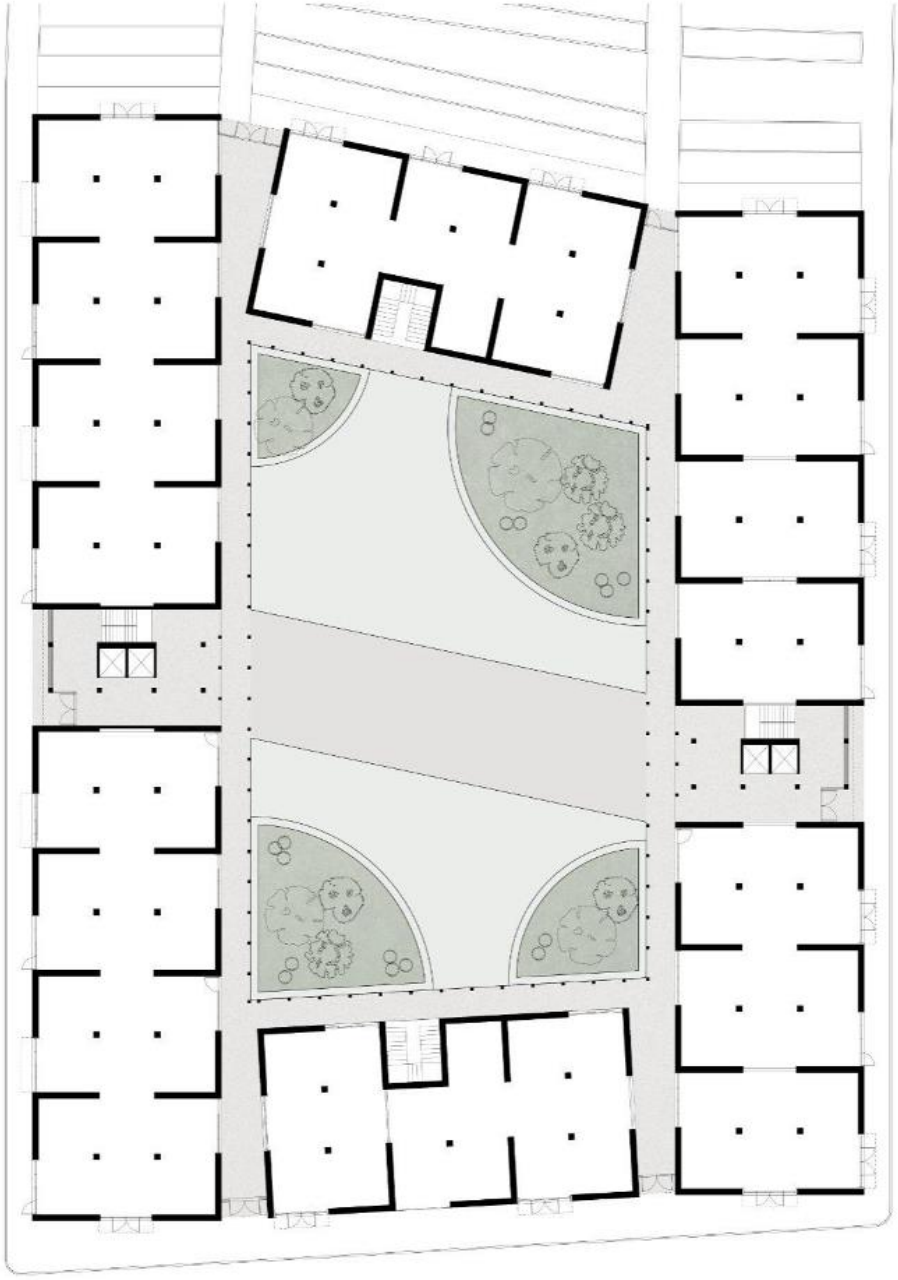


Figure 18. The Block Ground Floor Plan by Author.

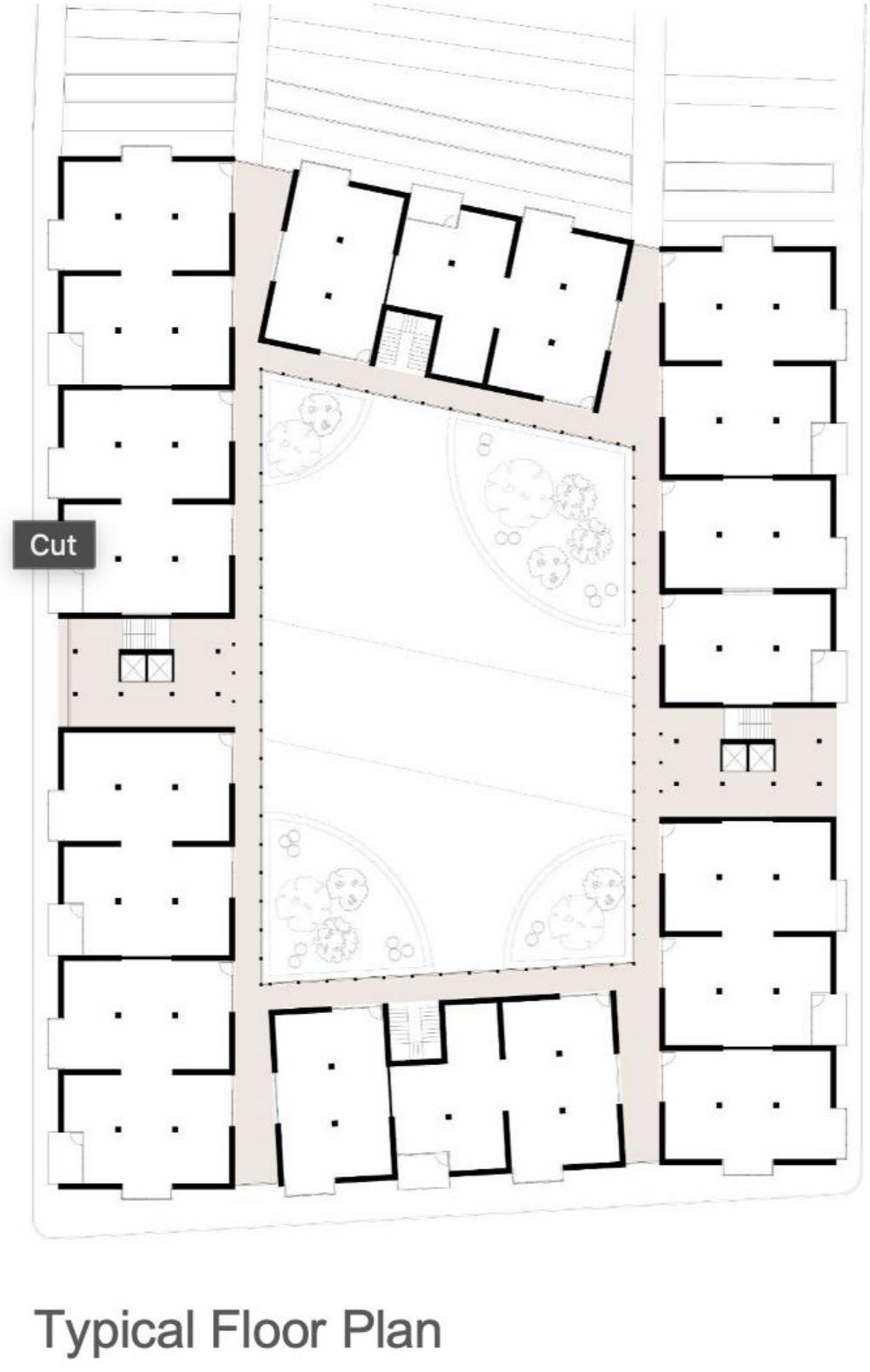


Figure 19. The Block Typical Floor Plan by Author.

Figure 20. The Block Perspective by Author.

Phase 4: Reconnect

Phase four is imagining the site fully developed with all the blocks and the community center. The buildings define the central street connecting the the grove, into the central courtyard down to the city hall building. This central pedestrian path ends with a public plaza connecting the site to the larger city context.

Figure 21. Phase 4 Diagram by Author.

Figure 22. Site Plan by Author.

Phase four is imagining the site fully developed with all the blocks and the community center. The buildings define the central street connecting the grove, into the central courtyard down to the city hall building. This central pedestrian path ends with a public plaza connecting the site to the larger city context.

Figure 23. Main Street Perspective by Author.

Chapter 9: Conclusion

Overall, the design proposes a multi-phase development plan based on a specific site. It suggests an alternative to typical disaster relief projects by prioritizing community involvement in the process as well as creating spaces for the wellness of the people of Antakya. It is aiming to restore place, culture and social life while creating a resilient and robust future for the city and community. Additionally, the thesis introduces opportunities for education and collaboration for the community to minimize risk and prepare for possible disasters.

The thesis can be taken further by developing each phase in more detail in terms of feasibility as well as supporting the design proposal by studying and incorporating seismic design principles and construction techniques into the building designs. The thesis approaches disaster recovery and management in a holistic way to clarify the transition from beginning short-term to long term disaster relief practices. Furthermore, it promotes bottom-up management practices by involving the community in the development process as a concept.

Figure 24. The Hub Museum Perspective by Author.

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