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The Co-Production of a Shared Community Space in Al-Khodor, Karantina, in the Aftermath of the Beirut Port Blast

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Abstract: This paper explores urban recovery as a participatory bottom-up process that highlights the importance and social significance of spaces of shared memories in reconstituting the built as well as the sociocultural fabrics of a place. It examines the multiple modes of engaging local communities in the process of recovering and rehabilitating shared public spaces, including organizing workshops to identify a space of common social significance, co-designing and co-producing a spatial intervention, and maintaining the intervention over the long term. The paper focuses on Karantina, a neighborhood in Beirut that became the site of post-disaster recovery in the aftermath of the Beirut Port blast in August 2020, and the spatial intervention that the urban recovery team at the Beirut Urban Lab implemented in the sub-neighborhood of Al-Khodor. In doing so, the paper contributes experiences from recent work on participatory modes of engaging the local community groups in Al-Khodor. It highlights the importance of community participation in researching, designing, implementing, and maintaining spatial interventions in the near absence of an active government in a country such as Lebanon.

Keywords: participation; co-design; co-production; community engagement; community space; shared public space; urban recovery; post-disaster

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1. Introduction

Cities often endure processes of erasure that target spaces of social significance and collective memories. They face disruptions in the cultural and socioeconomic practices that are associated with these spaces after violent acts of rupture induced by anthropogenic or natural factors. These violent acts of rupture include natural and human-made disasters, occupation, conflict, unjust practices of development planning, and rapid economic decline. In sites with marginalized and vulnerable communities, spaces of social significance constitute a vital element of the everyday—a medium that accommodates people's rich daily practices—and an integral element of the social and cultural fabrics of the neighborhoods within the city. In post-disaster contexts, these spaces are often targeted and heavily damaged; hence, their rehabilitation and redevelopment are necessary for them to serve as catalysts for urban recovery. The aim of this urban recovery is not only to restore the cultural and social fabrics of the neighborhood but also to return places to their inhabitants [1,2] and reconnect people to places [3]. It is understood as people-centered, heritage-led, and place-specific [4,5] and serves as "an opportunity to investigate how the spatial, sociocultural, and imaginative dimensions of urban existence are included and translated" [4] (p. 8). Accordingly, approaching urban recovery within a bottom-up and participatory framework requires the adoption of participatory methods for local community engagement that can empower people and engage them in the production of their own meaningful spaces [5].

Given its extensive experience in the fields of post-war reconstruction and urban recovery, the Beirut Urban Lab defines urban recovery as a participatory and bottom-up process that aims to recover spaces of social significance and shared memories to reconstitute the built as well as the sociocultural fabrics of a place. Building on this definition, this paper explores the different participatory methods that can be used for the recovery of spaces in neighborhoods that were impacted by acts of rupture and erasure, for the benefit of the local communities. It builds on the previous experiences of the authors in devising interventions for post-disaster contexts using participatory methods. The example that is discussed in the paper had two objectives. The first objective was to expand on the experimentation of the authors with participatory methods in post-disaster contexts and examine how these methods can be utilized in the recovery of sites of trauma with marginalized communities. The second objective was to expand the scope of community participation in previous research projects to include the actual design, implementation, and management of meaningful community spaces for people. The paper thus sheds light on the importance of community engagement methods that can be adopted to co-design and co-produce meaningful community spaces in post-disaster contexts. Community spaces in the conventional sense are spaces that can accommodate local sociospatial practices and invoke collective memories in the minds of people, mainly within religious institutions, schools, and community centers. In Karantina, these spaces either were destroyed during the civil war—for example, the public school—or were extensively damaged by the Beirut Port blast—for example, the spaces on the grounds of the local church and local mosque. Few spaces sustained the sociospatial practices and helped retain the collective memories of the local community groups; they were limited to urban pockets and small streets within the residential sub-neighborhoods in Karantina. One of these spaces is along Mashghara Street in the Al-Khodor sub-neighborhood in Karantina, one of the most socially vulnerable neighborhoods in Beirut that was heavily destroyed by the Beirut Port blast on 4 August 2020. Therefore, this paper focuses on the rehabilitation of this street, which serves as one of the major community spaces in the Al-Khodor sub-neighborhood. The paper discusses the rehabilitation of the community space in Al-Khodor as part of a flexible process that responded to the dynamics on the ground, the lack of urban planning and design visions and strategies in Lebanon in the absence of an active government, overlapping conditions of vulnerability, a complex socioeconomic structure, and the financial crisis that has been escalating in Lebanon since 2019.

The paper begins by reflecting on the body of literature on participation in the design of community spaces, notions of co-design and co-production, and the importance of sustaining these community spaces through collaborative models that can respond to the complex dynamics of post-disaster contexts. It then examines the multiple modes of engaging local community groups in the process of recovering and rehabilitating the community space in the Al-Khodor sub-neighborhood in Karantina. This engagement utilized the citizen science approach to collecting in-depth socioeconomic data about the users, observing, and documenting their living conditions and sociospatial practices, and identifying a space of common social significance. It then relied on co-design workshops with local community groups to validate the selection of the site and plan the design, implementation, and maintenance of the community space over the long term. This paper explains the adopted tactics of engagement and participation to overcome the challenges that were encountered during the different phases of the project. This was a pilot project that was intended to inform a larger participatory framework[1] for the recovery of the neighborhood of Karantina across five transversal issues: (1) affordable housing and social inclusion; (2) spatial, economic, and social connectivity; (3) cultural and economic vitality; (4) inclusive and sustainable development; and (5) the overall quality of the urban environment [5]. The project was also an entry point for the urban recovery team at the Beirut Urban Lab to practice the co-design and co-production of public spaces and build trust with the local community groups. Gaining experience and building trust were important to inform the next steps in the design and implementation of a network of

open spaces in Karantina, one of the proposed action plans in the urban recovery strategy for post-blast Karantina by the Beirut Urban Lab.[2] The project was envisioned alongside other interventions in Karantina, including a first-of-its-kind community center that will be managed by a neighborhood committee.

2. Participatory Methods for Designing Public Spaces

Urban recovery seeks to maintain social cohesion by restoring public and shared spaces of social significance and collective memories [4]. Hence, participation is key to the bottom-up recovery of neighborhoods in post-disaster contexts, one that is perceived within a collaborative framework that engages the local community groups in different ways and throughout the whole recovery process.

The designs of public spaces in many countries were primarily driven by the imposition of technical standards for many years, with community groups having a limited or reactive role in this process. This limited or reactive role was criticized by many authors, including Jacobs [6] and Lefebvre [7]. Since then, several authors have emphasized the value of community participation in the production of public spaces and services, prioritizing the needs, desires, and expectations of local community groups [8]. The aim was to transfer part of the decision-making on the designs of public spaces to community groups [9,10] and bridge the gap between the relevant actors, including people, politicians, and planning and design professionals [11,12]. Described as "bottom-up planning", Moughtin et al. define participation in design as a new form of urban governance [13]. According to Remesar [14], involving local community groups in the production of public spaces is not only important but essential. This is because involvement plays a crucial role in the process of creating livable cities, particularly when community groups transition from a reactive role (complaining) to a proactive one (proposing suggestions and co-designing).

Participation can happen at multiple levels and in different forms: from using citizen science in the research phase to co-designing and co-producing public spaces that are informed by the outcomes of this research. Citizen science is one approach to community-based participatory research. It creates opportunities for active community involvement in research processes and interventions that can improve people's lives [15–18]. This approach is a way to co-produce knowledge within the social sciences, where community members are recruited, trained, and engaged in formulating and conducting research [16,19,20]. However, the bulk of participation in the production of public space happens at the design and implementation phases—often through notions of co-design and co-production. Co-design[3] is a well-established approach to creative design in several Western countries, especially in the activities of the public sector. It is often used in the fields of participatory, co-creation, and open design processes [24–27]. A report titled "Design for Prosperity and Growth" by the UK Design Council and the European Design Leadership Board defined co-design as "A community centred methodology that designers use to enable people who will be served by a design outcome to participate in designing solutions to their problems" [28]. In this case, co-design is intended to involve and empower people who may be disadvantaged or marginalized due to socioeconomic, cultural, or physical factors [29].

In a co-design process, the roles change: the people who will eventually benefit from the design process are given the position of "experts of their experience", and they play a primary role in the progress of knowledge, the generation of ideas, and the development of concepts [30]. The professional designer becomes a facilitator of this process by bringing together stakeholders and enabling users to participate, modify, experiment, create, produce, and update projects [31]. Simple visualizations and scenario techniques are used to involve people who do not have design skills [32,33] and to identify the interests of relevant stakeholders and ensure their participation [34]. However, according to Remesar [14], the creative process of co-designing public space is only one part of the co-production process. He argues that involving people from the neighborhood proactively, rather than reactively, in participatory processes results in a co-production process that includes co-

design, co-commissioning, co-delivery, and co-assessment (see [35]). Remesar [14] noted that community participation should extend beyond co-design to become more sustainable in the long term. It should include the operation, daily management, and maintenance of the community space after its implementation. Similarly, Melles et al. [36] state that co-production enables people to gain ownership of their environments. It creates stronger and more meaningful connections between people and the designed community spaces.

Participatory models are especially important in countries such as Lebanon, where the economic crisis has weakened public services and community engagement is precluded by government operations and formal urban planning processes that are driven by sectarian and political divisions. These conditions can make it difficult to reach consensus among community groups even on minor issues, let alone involve these groups in projects that can have a positive impact on their lives. As such, participatory approaches are needed in Lebanon since they offer a way to bring people together based on their common social needs, sociospatial practices, and shared economic networks and goals. This project built on the previous experiences of the authors in adopting, experimenting with, and promoting participatory models in different countries in the Arab world, especially in post-war and post-disaster contexts, to create a "network of urban recoverers". Their experiences in post-war reconstruction and urban recovery using participatory models included the reconstruction of Bent Jbeil in 2006 [37,38], the use of the citizen science method in Erbil, Iraq, in 2018 to recover rural heritage, and capacity-building workshops in 2019 to propose a strategic framework for Aleppo, Syria. Re-conceptualizing urban recovery as a holistic, participatory, and bottom-up process [4] was key for the authors to work with local community groups on strategies for urban recovery in the neighborhoods that were directly impacted by the Beirut Port blast on 4 August 2020 [5]. One of these examples is the participatory approach to the co-design and co-production of the spatial intervention in the Al-Khodor sub-neighborhood in Karantina.

3. Methodology

The methodology for the research and the spatial intervention was participatory and incorporated several approaches to fully engage the local community groups, from using the citizen science approach to collect the required data to co-designing and co-producing the spatial intervention. It was evidence-based as much as it was participatory. It combined quantitative and qualitative data from the research to guide the design and implementation process. The citizen scientists collected the quantitative data as part of a larger research project that the authors worked on from 2020 to 2022 to respond to the aftermath of the Beirut Port blast. They collected answers to semi-structured household and business questionnaires to acquire in-depth information on the socioeconomic conditions in Karantina. The questionnaires included sections on the socioeconomic profiles and living conditions of individuals and family members in Karantina (age, gender, nationality, education, employment, health condition, and tenure), the level of physical damage to buildings and infrastructures, aid and relief efforts after the port blast, public space and sociospatial practices, perceptions of neighborhood identity, quality, and belonging, social and political activities and engagement, and the visions of people for their sub-neighborhoods. The data from the questionnaires covered 545 households out of 579 and 83 businesses out of 140. It was then organized and filtered for the purpose of the project. Socioeconomic information was extracted from the answers to the questionnaires to form an understanding of the underlying social vulnerabilities in Karantina in general and in Al-Khodor in particular. This quantitative information was useful in prioritizing the sub-neighborhood that needed the most intervention, and it informed the selection of the street for this intervention. It was substantiated by qualitative data from interviews, informal conversations, and recorded field observations. In addition, the citizen scientists and the urban recovery team at the Beirut Urban Lab carried out a thorough documentation of the sociospatial practices in Karantina between January and February 2021. The sociospatial practices were recorded on different days of the week and at different times during the day. The main users of

the open spaces were also noted in the documentation process. The urban recovery team also interviewed some of the residents and business owners in Karantina to solicit their views on the main issues at the site of intervention, their individual perceptions, and their feedback on the progress of the work. The questionnaires and interviews were conducted in Arabic and translated into English. The names of the interviewees were replaced by their initials to avoid any identity disclosure.

4. Al-Khodor Sub-Neighborhood: A Site of Overlapping Vulnerabilities

Karantina has always been one of the most vulnerable neighborhoods in Beirut and was historically a major destination for low-income groups as well as Palestinian and Syrian refugees and migrant workers from Lebanon. Unfortunately, Karantina sustained significant damage due to its proximity to the Beirut Port blast in 2020, making it one of the most affected neighborhoods in Beirut. It covers an area of less than one square kilometer and has an approximate population of 2500 people. It has three main sub-neighborhoods with different socioeconomic profiles: Al-Saydeh sub-neighborhood, where mostly Christians reside, and Al-Senegal sub-neighborhood, which links Al-Saydeh to Al-Khodor sub-neighborhood. Al-Khodor sub-neighborhood is the densest residential cluster in Karantina, where the site of the spatial intervention is located (Figure 1). Since the Civil War (1975–1990), the conditions of the built environment, including shared public spaces, have deteriorated due to unresolved sociopolitical tensions. The post-war reconstruction efforts in Beirut following the end of the Civil War in 1990 did not account for the deteriorating condition of these spaces, exacerbated by the neglect of the local authorities due to limited professional capacities and inadequate maintenance plans.

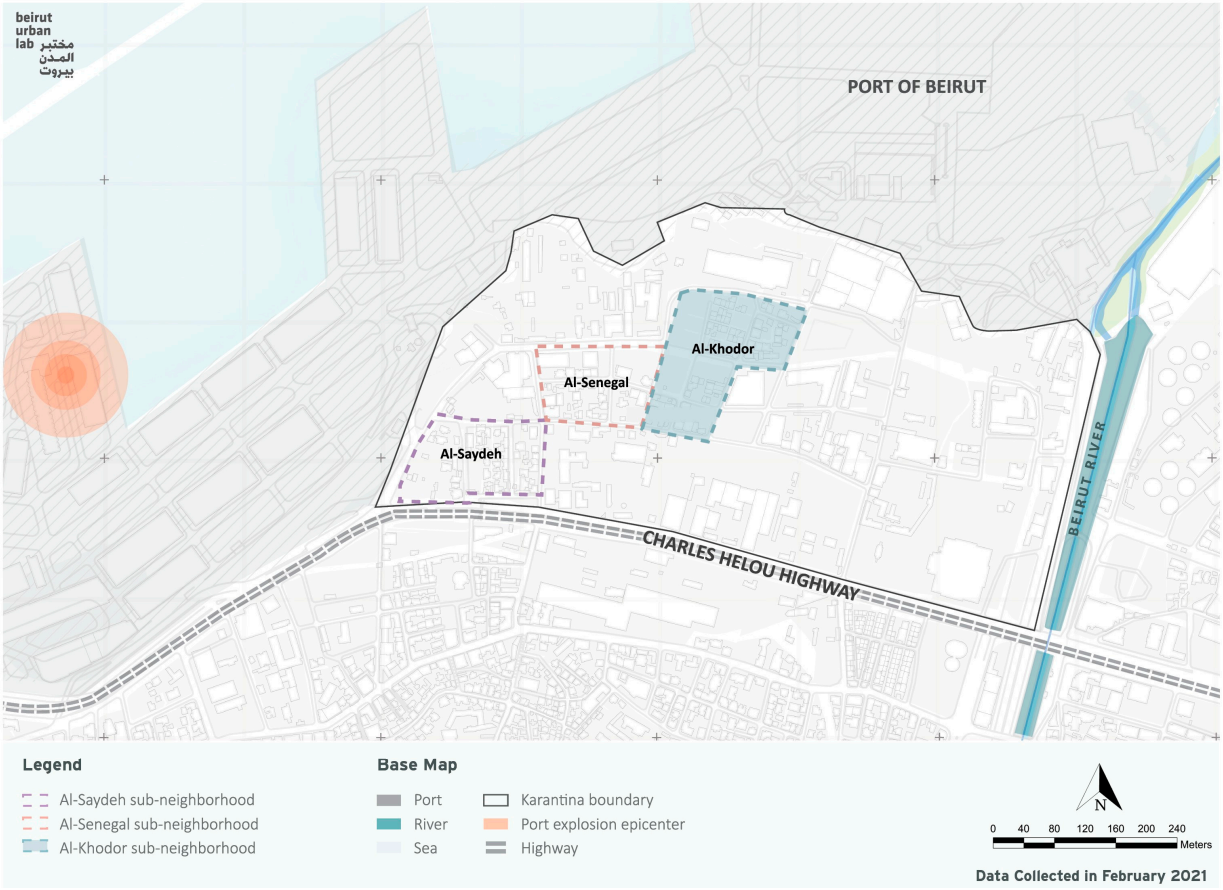


Figure 1. A map showing the location of Karantina with the three sub-neighborhoods. Source: The Beirut Urban Lab, 2022.

Crippled further by the 2020 Beirut Port blast, these spaces received the least attention from the government and non-governmental organizations (NGOs) that surveyed damages and distributed humanitarian aid.

Al-Khodor sub-neighborhood is in the center of Karantina. It is named after Al-Khodor Mosque, which is now separated from the rest of Karantina by the Charles Helou Highway. The history of Al-Khodor is closely linked to the local community group known as the "Arab tribes", later named "Arab al-Maslakh" after their work in trading livestock at the slaughterhouse (al-Maslakh) in Karantina. These tribes gradually moved to Karantina in the mid-19th century from other locations in Beirut and the Lebanese coast. Karantina is also known for hosting multiple waves of displaced people and migrant workers from the 1920s to the 1970s. This included Armenians, Kurds, Palestinians, Syrians, and Lebanese [39,40]. During the Lebanese Civil War (1975–1990), the residents of Al-Khodor witnessed one of the bloodiest massacres in the history of Karantina [41]. At the time, the militia group called the Lebanese Front cleared the informal settlements, and the surviving residents were displaced either to Jnah or Khaldeh on the outskirts of Beirut. After the Civil War ended in 1990, many of the original residents of Al-Khodor were either unable to return due to the militarization of local plots of land by the Lebanese Army, or they were unable to rebuild their houses because of urban planning restrictions and complex ownership patterns. The closure of the slaughterhouse in 2014 also caused a major loss in local job opportunities and severed sociocultural ties between people and a significantly meaningful place [5]. Al-Khodor sub-neighborhood was heavily damaged by the Beirut Port blast, noting the pre-existing conditions of the buildings and open spaces that had already deteriorated. Following the blast, several NGOs provided short-term humanitarian aid and rehabilitated a few single apartments. Their work, however significant, was not coordinated, especially with other actors on the ground, leading to unsatisfactory results. It also did not address the needed rehabilitation of the public spaces and important streets within Al-Khodor that accommodated daily sociospatial practices. Al-Khodor currently houses approximately 1500 people; most of these people are Sunni Muslims, divided almost equally between Lebanese and Syrian nationals. This is primarily due to the historical role of Karantina as a host neighborhood for refugees [5] (Figure 2).

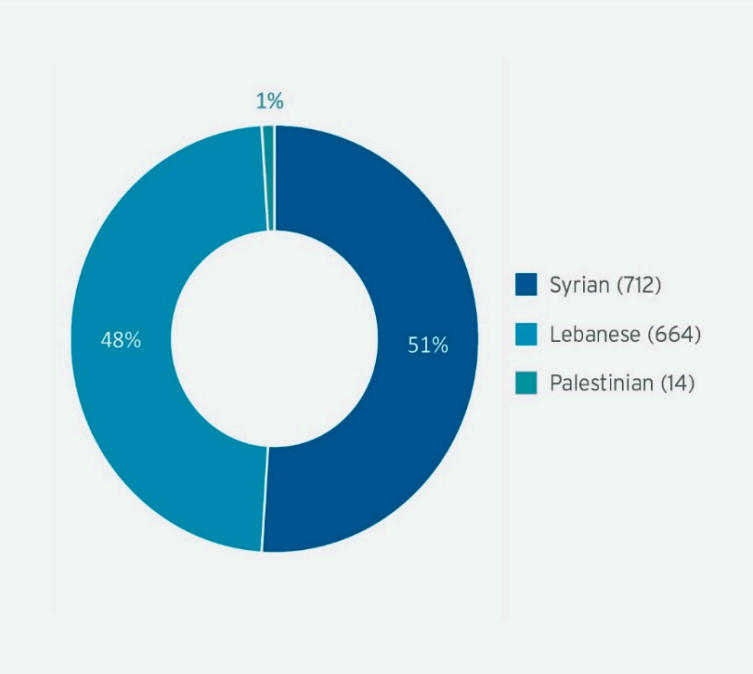


Figure 2. Distribution of nationalities in Al-Khodor. Source: The Beirut Urban Lab, 2021.

5. Community Engagement(s) in the Production of "Sahat Al-Elfe" (Arabic for "the Space of Affinity")

In a country such as Lebanon, where shared public spaces are scarce or inaccessible, vulnerable and marginalized communities tend to use the streets for their daily sociospatial practices. A variety of rich sociospatial, cultural, and economic practices are produced and nurtured over time in these streets [2]. In Karantina, a strong relationship is established between people and the streets. The streets are currently the main shared public spaces because of the multiple traumas that Karantina witnessed. They are sites for community reconciliation, where differences between people are mostly set aside. They are the embodiment of shared identity, cultural continuity, and collective memory [3]. In Al-Khodor sub-neighborhood, where familial and kinship ties are prevalent among the Lebanese communal tribal families and among Syrian community groups, social connections are nurtured in shared public spaces, especially in the streets. The main street in Al-Khodor provides a space for people to come together, share their experiences, and build relationships. It helps to create a sense of community and belonging that is essential to the well-being of people in Al-Khodor. One of the residents of Al-Khodor commented on the significance of streets as shared public spaces during an interview with one of the citizen scientists:

"We gather on the streets due to the lack of public spaces. We spend time on streets more than we do in our homes. The streets here are spaces for us to breathe, and they are places where we accumulated memories, good and bad ones" [42].

Another elderly resident of Al-Khodor mentioned that "I always put my chair outside to sit on in the afternoon to breathe some clean air. I have been doing this for years. I feel like I live in a village, not in the middle of the city" [43].

To build on the views of these residents, the urban recovery team at the Beirut Urban Lab implemented a participatory process that involved multiple modes of engagement through citizen science, co-design, and co-production.

5.1. Citizen Science: Towards an Evidence-Based Understanding of the Sub-Neighborhood

The urban recovery team at the Beirut Urban Lab utilized the citizen science approach to collect the needed data about the three sub-neighborhoods in Karnatina, including Al-Khodor. The citizen scientists collected socioeconomic data and documented the sociospatial practices of people. The urban recovery team analyzed the recorded observations of the citizen scientists and mapped the sociospatial practices in Karantina to inform the selection of the site for the spatial intervention in Al-Khodor. The practices were categorized into play and recreational practices, domestic and social practices, commercial and light creative industrial practices, and other practices that are associated with temporary working spaces. The urban recovery team also visualized the intensities of these practices using heat maps (Figures 3 and 4). The heat maps showed that concentrations of play, recreation, and domestic practices are prevalent within the residential sub-neighborhoods, with the largest concentrations in Al-Khodor. A diversity of practices and user groups was also noted. These practices were mostly in daily morning and evening gatherings (Sobheye, صبحية and Asrouniyeh, عصرونية) (Figure 5). They were visible along the main street in Al-Khodor, called Mashgharah Street, and in the inner alleyways. Men mostly gathered to smoke hookah and play cards on Mashgarah Street, while women preferred to sit in the inner alleyways for their daily chats. It was also noted that children gathered and played at the end of Mashghgara Street in the shade of the large trees. These trees created a safe space for children away from the heavy vehicular traffic. The spaces in front of local shops were active during the day, especially in front of local bakeries and internet and coffee shops. The mapped sociospatial practices in Al-Khodor reflected the strong social ties and village-like social networks between the residents, and the maps highlighted the main gathering spaces that are meaningful for the residents.



Figure 3. A series of maps that analyze the distribution of the different types of sociospatial practices in Karantina. Source: The Beirut Urban Lab, 2021.

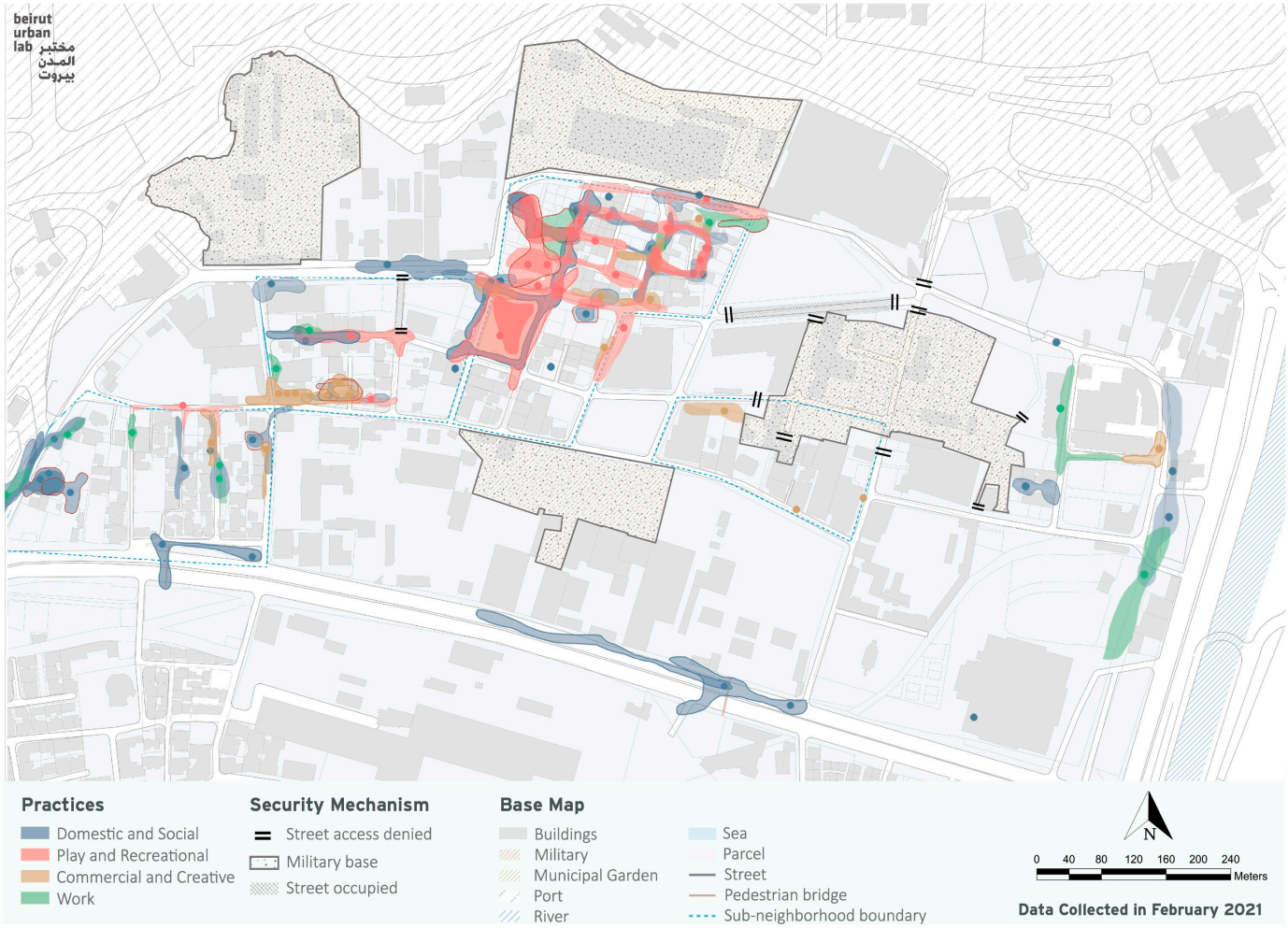


Figure 4. A heat map showing the existing sociospatial practices in Karantina. Source: The Beirut Urban Lab, 2021.



Figure 5. Pictures showing the different sociospatial practices in the Al-Khodor sub-neighborhood. Source: Batoul Yassine, 2021.

Everyday sociospatial practices are influenced by the physical, social, and environmental qualities of a neighborhood [44]. As the paper mentioned earlier, the citizen scientists documented the daily sociospatial activities of the residents on the streets, sidewalks, and vacant lots. The surveys and generated maps of the physical qualities of streets and sidewalks in Karantina by the urban recovery team at the Beirut Urban Lab concluded that they are inadequate. They do not provide the minimum services that are required in decent shared public spaces. The streets in Al-Khodor, including the main street called Mashghara

Street, are of the lowest quality in Karantina; they do not include proper sidewalks, streetlights, trash bins, or places for people to sit (Figures 6 and 7). The streets, where men, women, and children gather for their everyday practices, are dramatically underserved; they are not safe and are unwelcoming and unhealthy for the different user groups, especially for women, children, and elderly people. These conditions were further exacerbated by the port explosion, which severely damaged the storefronts, the asphalt, and the spaces in front of the shops where people used to gather. A resident of Al-Khodor stressed the urgency of the situation and mentioned during an interview: "We have nowhere else to go. This is our sanctuary, but, as you see, the street is unclean and unlit. I am afraid to walk with my daughter at night" [45]. Hence, Al-Khodor is the most deprived sub-neighborhood in Karantina in terms of both environmental quality and the provision of infrastructural services, and it was considered a priority for intervention.

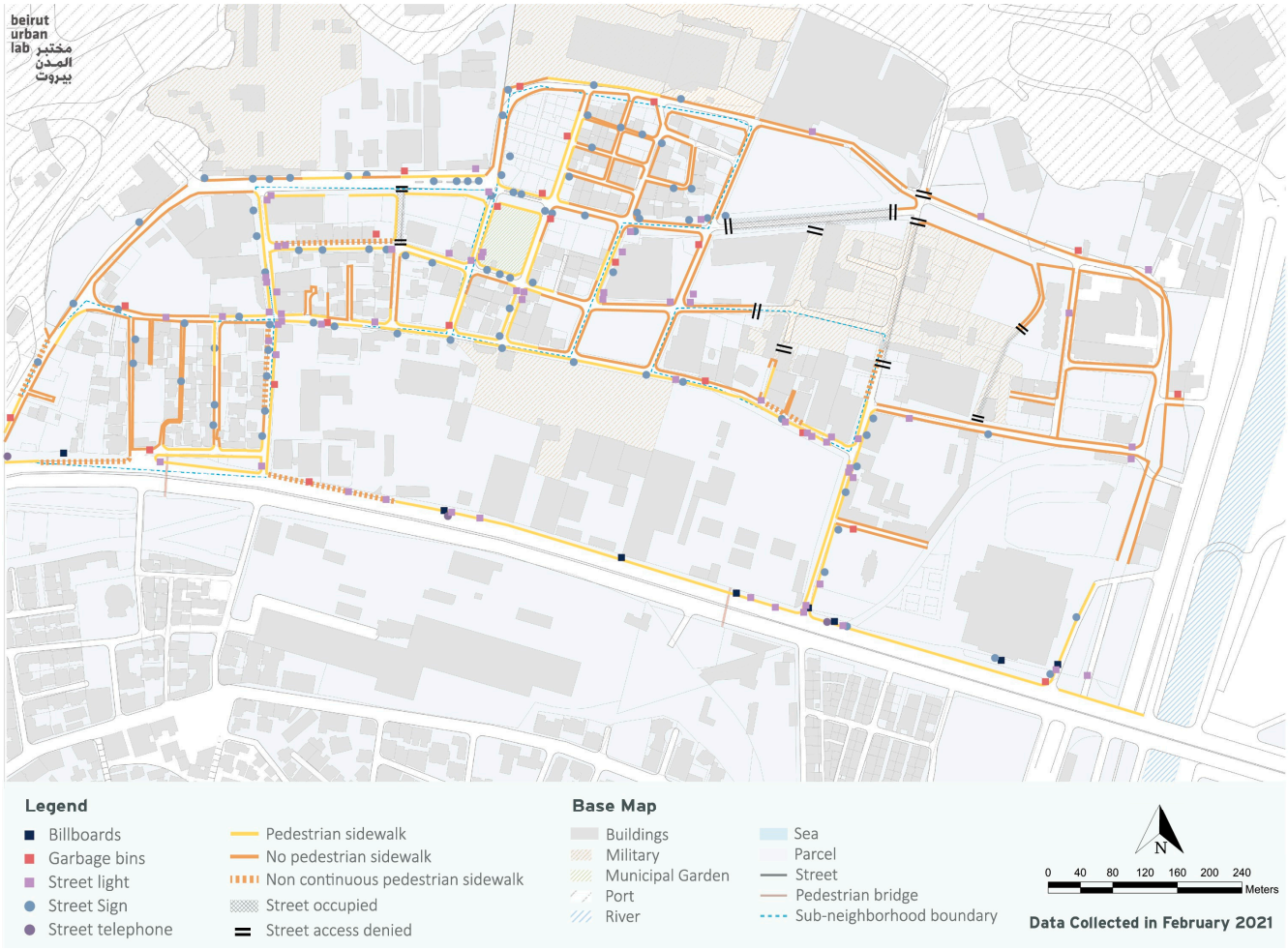


Figure 6. A map of the urban furniture and sidewalks in Karantina. Source: The Beirut Urban Lab, 2021.



Figure 7. Photos showing the dilapidated conditions of the streets and shared spaces in Al-Khodor sub-neighborhood. Source: Batoul Yassine, 2021.

5.2. Co-Design

The urban recovery team organized a series of co-design workshops in Al-Khodor to select the best type of spatial intervention and design it with people from the local community groups. In this process, the people from the local community groups—"experts of their experience", as Zamenopoulos and Alexiou [30] call them—led the design process. The team of designers[4], as Ramos [31] argues, became facilitators of this process; they encouraged the people from the local community groups to participate and helped them modify and communicate their ideas. In order to kick start the project, the first co-design workshop was organized on 2 June 2021, to collectively choose the most suitable street for the community space. The workshop was held in the heart of Al-Khodor, on Mashghara Street, which was considered the most active local street according to the observations of the citizen scientists and the mapping of sociospatial practices. The participants in the co-design workshop, including the trained citizen scientists, were asked to draw on paper their mental maps of Al-Khodor. The analysis of the mental maps showed consensus that Mashghara Street was the most significant space for people in Al-Khodor. The street was described as the "beating heart", the "center", and the "neighborhood square". During the co-design workshop, the participants emphasized the profound social importance of Mashghara Street, referring to it as "the space of affinity" (ساحة الألفة). They expressed how the street held many important memories, for example, of children playing. It accommodated important events throughout its history, including wedding celebrations and funeral walking processions. It was also used to escape attacks during the Civil War. Furthermore, the workshop participants mentioned that the street is also a crucial element of their everyday lives. They identified important social nodes on the street and referred to them as "gathering spaces", or "مساحات تجمع" in Arabic. They depicted them on their mental maps with tables, chairs, and people engaged in activities such as playing cards and smoking hookah. The identification of these social nodes was crucial for the design team to develop their work and incorporate adequate urban furniture. The participants also highlighted key landmarks on Mashghara Street, including Café Abu Rabie, Dukkan Amsha, Dukkan Daw, and a large Eucalyptus tree that provides ample shade for people to gather (Figure 8). They were then asked to draw or describe in words how they envision the intervention on the street. They stressed the need for a safe, inclusive, and well-serviced community space that nurtures their shared identity and enhances their sociospatial practices (Figure 9).



Figure 8. Mental maps created by the participants during the first co-design workshop. Source: Batoul Yassine, 2021.



Figure 9. The first co-design workshop, organized in the format of a consultation session to select the site of the spatial intervention. Source: Yehya Al Said, 2021.

The team of designers attempted to translate the visions of the workshop participants into maps. They assessed the existing conditions of Mashghara Street and proposed a preliminary design that includes a proper sidewalk, urban furniture, and streetlights that enhance the quality of the social spaces on the street. The designers carefully considered the gathering spaces that the participants identified during the first workshop and developed their designs in line with the participants' visions. One of the main challenges was to apply high standards of inclusivity in the design, standards that are absent in the Lebanese Building Law and urban planning regulations. Therefore, the urban recovery team at the Beirut Urban Lab worked closely with Dr. Etab Shuyab from the American University of

Beirut to develop inclusive design standards and spatial prototypes to include in the spatial intervention and share with other actors in Karantina such as the UNDP, UN-Habitat, and the International Labor Organization. During a second co-design workshop that was held on 7 June 2021, also on Mashghara Street, the team of designers shared the preliminary design with the people from the local community using simple visual representations and models (Figure 10). This helped people understand the design on a smaller scale. The residents and business owners also provided additional input on the proposed streetlights, the sidewalk, and the locations of the urban furniture, the bollards, and trash bins. With some help from the team of designers, they were able to draw their ideas on the maps. The team of designers then incorporated the feedback and proposed ideas into the final design. A third and final co-design workshop was held on 25 June 2021, to review the final design with the public (Figure 11). The team of designers worked closely with the people to ensure that their ideas and needs were represented in the final design, making it a collaborative effort. A large-scale model was also displayed at the co-design workshop to showcase the details of the design. The model included the buildings and shop frontages, the proposed sidewalk, and other elements of the community spaces. The model allowed the residents and business owners to gain a better understanding of the design and visualize the layout of the social spaces and the placement of the urban furniture. It helped the team of designers communicate the design in a tangible and accessible way, and it facilitated the engagement and participation of people. During the co-design workshop, a young man expressed enthusiasm for the project and stated:



Figure 10. Design revisions during the second co-design workshop. Source: Yehya Al Said, 2021.



Figure 11. The final review of the design during the third co-design workshop. Source: Yehya Al Said, 2021.

"This is a great project. It is the first time we are engaged in such a project that will enhance the area. Ever since we were children, we have been wishing for a sidewalk here in the area. Now, with this project we will have a clean and safe one" [46].

Celebrating critical milestones in community gatherings—including fundraising milestones—was important to build trust and enable people to gain ownership of the proposed community space and the design and implementation process. The first celebration also engaged children in friendly games. It was scheduled on the first anniversary for the Beirut Port blast on 3 August 2021. It was called تجمعنا الالفة and was organized jointly with the funding agencies. The citizen scientists, as well as participants from previous workshops, played an instrumental role in organizing the celebration and facilitating the wide public dissemination of the proposed design for the community space. The implementation of the community space officially began in December 2021 after the urban recovery team secured the necessary permits from the Municipality of Beirut. At the time, funding the design and implementation of the community space in Al-Khodor was a priority. University College London funded the design work, while ACTED, an NGO in Lebanon, and the Norwegian Refugee Council funded the implementation.

5.3. Co-Production: Co-Supervising, Co-Delivering, and Managing the Space

Building on the participatory approach, the urban recovery team was keen to engage the local community groups in all stages of the production of the space, including the implementation process. Firstly, the urban recovery team relied on the help of the trained citizen scientists, two of whom received additional training in on-site supervision. They were equipped with the necessary skills to read engineering and construction details and were instrumental in resolving any disagreements between the residents of Al-Khodor during the implementation process. The citizen scientists also kept the urban recovery team informed about the progress of the project and acted as liaisons between the urban recovery team, the team of designers, and the contractor. The engagement of the citizen scientists as site supervisors aimed to further enhance their skills and prepare them for potential job opportunities in the local construction sector. Hasan Al-Aswad, one of the citizen scientists who took the lead on the site supervision, shared his thoughts during one of the team conversations:

"This is a new experience for me because it's my first time working in public spaces. I learned something new; how to solve problems that take place in the project implementation phase and to communicate with the contractor and the Beirut Urban Lab, and to help them solve these problems that took place on site. My main profession is a tiler. I gained a new experience in planning and implementation. I never had exposure to such things" [47].

The co-production of Sahat Al-Elfe was not limited to engaging the local community groups in the design but extended to them co-delivering the final intervention. This included involvement in the execution process, both through skilled and unskilled labor. The contractor was required to hire a certain percentage of workers from the Al-Khodor sub-neighborhood. People from the local community groups contributed to various tasks such as cleaning the site before and after the construction phase, safeguarding the construction equipment at night, laying tiles on sidewalks, planting trees, and plastering and painting the exteriors of buildings. The selection of the workers who were involved in the implementation was a significant challenge. To ensure equitable participation and prevent potential tensions within the different community groups, the urban recovery team and the contractor made sure to select people from different families and across different nationalities (Figure 12).



Figure 12. Residents from Al-Khodor contributing to the implementation of the spatial intervention. Source: Hasan Al-Aswad, 2021–2022.

When the construction of the community space was completed, it was noted in conversations with the residents that the whole streetscape had changed significantly. The street had a new sidewalk with solar streetlights, bollards, trash bins, tree grates, citrus trees, and freshly laid asphalt. The social features of the community space were furnished with flexible, multi-purpose modules that were made from recycled RGOP materials and could serve as seating, tables, or even planters (Figure 13). Additionally, to enhance the overall appearance of the street, canopies were added to shop frontages, and building facades were renovated, including the necessary plastering and painting. A resident of Al-Khodor mentioned this in a conversation after the completion of the intervention: "The street is cleaner and more improved. The sidewalks have provided better cleanliness to the shops, more room for people to walk without being hit by a car, especially for the kids and the elderly. The work done here is really appreciated" [48].



Figure 13. People interacting in the gathering spaces after the completion of the spatial intervention in Al-Khodor. Source: Hasan Al-Aswad, 2022.

A participatory framework must be flexible to adapt and react to the multiple and often unexpected challenges on site. The different community groups did not always agree on the elements of the project, and this required the urban recovery team to be actively engaged in ongoing conversations to resolve any disagreements. Citizen scientists were also important in these conversations. Many disagreements between the local community groups on the different elements of the project during the implementation phase led to adjustments in the design to ensure its successful completion. The urban recovery team also had to address individual concerns that, in many instances, delayed the full implementation, such as the right material selection, the height of thresholds on building and shop entrances, the paint color, and the installation of canopies. For example, a shop owner was not convinced by the design choice to use interlocking tiles to maintain the integrity and continuity of the sidewalk. Instead, he preferred to use ceramic tiles, which, he argued, are easier to clean and would allow him to better move his coffee expresso machines. Despite these challenges,

it was important to ensure that issues were resolved in negotiation with the community groups, that they were fully involved in the details of the progress of the project, and that they were asked for help when needed. The main objective was to maintain a positive relationship with the community groups by building trust so they could ultimately gain ownership of the project and sustain it over the long term. This is crucial, especially with the near absence of active public authorities that should be responsible for the maintenance of public spaces. A year after the project was completed, the local community groups assumed a proactive role in maintaining the community space. They took initiatives to water the trees, check the batteries of the solar lights, and empty the trash bins when they were full.

6. Conclusions

The urban recovery of sites that were impacted by acts of erasure and rupture due to disasters, where conditions of vulnerability are exacerbated by government failure and overlapping crises, involves restoring spaces of social significance and collective memory. These spaces accommodate and enhance the everyday practices of marginalized and vulnerable people. Building on the Beirut Urban Lab's definition of urban recovery as a people-centered and place-specific process, involving local community groups through engagement in research, design, and overall decision-making processes on projects that impact their lives is important. Therefore, participatory models of engagement for restoring meaningful spaces for marginalized and vulnerable communities can serve as catalysts for urban recovery, one that goes beyond restoring the physical to recovering the sociocultural fabrics of a post-disaster site. This was clearly illustrated in the example of Sahat Al-Elfe.

The example showed that participation in the production of public spaces that are meaningful for local community groups can happen in different forms and at different phases of the intervention. The example of Sahat Al-Elfe showed that the co-production of public spaces can extend beyond Brandsen's [35] definition of co-production, which includes co-design, co-delivery, and co-assessment, to engage local community groups in the actual creation process. This includes the implementation process and the long-term maintenance of the space. The intervention was not seen in isolation. It was made more sustainable by pairing it with other participatory projects in Karantina, including the first-of-its-kind Nafas Community Center[5], which will be managed by a neighborhood committee. The community center will be in the heart of Karantina to equally serve the three sub-neighborhoods. It will facilitate the long-term maintenance of Sahat Al-Elfe, along with other public and shared spaces in Karantina, in addition to addressing some of the other socioeconomic needs of the local community groups. The intervention also served as a pilot that informed the design and implementation of a larger network of open spaces across Karantina. Sustaining and maintaining these open spaces of social significance are ways to safeguard the collective memories of people. Hence, it is crucial to restore these spaces within an urban recovery framework that is conceived as a holistic process of reconfiguration and responds to all aspects of social vulnerabilities and injustices [4].

While participatory models of engagement proved to be successful in several Western countries, their implementation can be challenging in the near absence of an active government in a country such as Lebanon. In the case of the intervention in Al-Khodor, the involvement of the Municipality of Beirut was crucial, and without it, the project would not have been possible. However, bureaucracy and the absence of a clear urban planning framework complicated the permitting process to implement the intervention. It took over seven months to obtain the necessary construction permits, which required several meetings and negotiations with the municipality to expedite the process. The main aim was to keep the municipality involved and restore trust with the people in Karantina.

The permitting process was complicated due to unresolved urban planning issues. For example, three plots of land along Mashghara Street were not properly subdivided, and, as a result, it was not possible to identify the portions within the public domain as public property. Accordingly, the design had to be adjusted, and the intervention was

implemented on only one side of the sidewalk. This required several meetings with the local community to explain the situation and justify the changes.

These delays also impacted the funding arrangements. The funding period from ACTED expired in December 2021. Accordingly, some of the funds that were allocated to the implementation of the intervention needed to be redirected towards painting facades before the expiration date. This meant that certain elements of the intervention had to be postponed until additional funding was secured. Fortunately, the Norwegian Refugee Council provided the necessary support to complete the remaining elements of the intervention, including the benches and canopies.

Given these challenges and the lessons learned, the urban recovery team at the Beirut Urban Lab, including the authors of this paper, advocates for a participatory and collaborative model that engages public authorities and creates a balance between bottom-up and top-down models. This participatory and collaborative model should be flexible, open to changes, and open to involving new stakeholders to overcome challenges.

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Notes

1 More information about the project is available in this link: https://beiruturbanlab.com/en/Details/889/an-urban-recovery-strategy-for-post-blast-karantina (accessed on 10 May 2023).

2 "Design and Implement an open space network that connects, upgrades, and expands on the existing spaces in Karantina" is Action Plan 13 in the Action Plans report in the Urban Recovery Strategy for Post-blast Karantina. The report can be accessed in this link: https://beiruturbanlab.com/en/Details/889/an-urban-recovery-strategy-for-post-blast-karantina (accessed on 10 May 2023).

3 The roots of co-design can be traced back to the 1960s when it emerged as part of the human and social rights movements in the United Sates of American and community actions in England against large redevelopments and rehousing programs [21]. Another main root of co-design was in the context of technology development, referred to as 'cooperative design', 'collective resource approach', and 'socio-technical design' [22]. During the late 1990s, private companies and public bodies sought to develop innovations in their services and products through citizen/user involvement, co-creation, and design thinking. Prahalad and Ramaswamy are credited with introducing the term 'co-creation', which describes the approach where "informed, networked, empowered, and active consumers are increasingly co-creating value with the firm [23] (p. 5). The prefix 'co-' was used as an abbreviation of 'com' to denote the focus on 'design with users' rather than 'design for users' or 'design by users'.

4 The design process was supported technically by district D, known for its expertise in designing urban tactical community interventions. Dr. Etab Shuyab also contributed inclusive design standards to the project, to maximize accessibility for all the users of the spatial intervention.

5 The Nafas Community Center is a collaborative project between the Beirut Urban Lab and Design for Communities. The center will be operated by an NGO and a neighborhood committee to ensure that the needs of the local communities are met. It will include a soup kitchen that will provide daily meals, workshops, and other meeting areas. The workshops will offer multiple capacity building and training programs for the different communities to support and empower them to learn new skills that will expose them to new job opportunities.

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