Participatory design and diversity: addressing vulnerabilities through social infrastructure in a Lebanese town hosting displaced people

Andrea Rigon, Bartlett Development Planning Unit, UCL
Joana Dabaj, CatalyticAction
Hanna Baumann, Institute for Global Prosperity, UCL

Introduction

The number of forced migrants is at a global record high. Whether they have been displaced internally or across a national border, they mostly settle in urban areas. Where they represent a significant number, they can quickly chafournge urban dynamics, from labour and housing markets to infrastructures and services. Moreover, refugees often settle in the poorest cities or parts of cities where rent and other living costs are lower. This means they live side-by-side with the most vulnerable and poorest local populations. This may generate tensions that build upon a number of other axes of difference, including religion, ethnicity, nationality, age and gender. These tensions can be exacerbated if international aid is directed at displaced people, such as refugees, while vulnerable host communities are not supported to a similar degree (see, for instance, Aukot, 2003). Hence, an approach that is sensitive to different groups' various needs and the socio-spatial impact of identities is crucial.

This chapter reflects on the potential of a participatory methodology developed and tested in Bar Elias, a Lebanese town which received a large influx of Syrian refugees. The chapter shows how participatory design can create spaces that address the needs of vulnerable groups from all backgrounds, and how the process of co-designing physical infrastructures can transform social relations and build a human infrastructure able to negotiate and activate change processes. With the increasing protracted nature of displacement situations, humanitarian actors are rethinking the humanitarian-development nexus in the attempt to shift from short-term emergency support to long-term development planning. In this context, humanitarian interventions benefiting both host and refugee communities have the potential to change narratives of refugees as a burden because their presence can help transform cities with new infrastructures for all, and address the concerns of a number of marginal groups. In part to avoid aid-induced tensions, the Lebanon Crisis Response Plan endorsed by the Lebanese government and funded by international donors targets Syrian refugees and vulnerable members of the host Lebanese community equally (LCRP, 2019, p. 10). However, as identities play a key role in the use of these infrastructures, it is essential that they are planned, designed and implemented in a manner that is sensitive to issues of diversity and thereby ensures the benefits are enjoyed by the most vulnerable residents. This is the challenge addressed by the participatory infrastructural design project discussed.

Urban displacement

Global forced displacement reached a new high in 2018 with nearly 71 million people, 26 million of whom are displaced outside the borders of their country (UNHCR, 2019). The duration of displacement is also increasing, with protracted refugee situations across the globe now lasting an

estimated average of 26 years (UNHCR, 2017) while eighty percent of refugees are in a protracted situation (UNHCR, 2018). Sixty percent of refugees and an even higher percentage of internally displaced people live in urban areas (UNHCR, 2017). Most refugees move to neighbouring developing countries and many of these live in urban areas, often in the poorest cities, towns and neighbourhoods, living side by side with the most vulnerable host populations. While the change of displacement setting from refugee camps to cities is part of a longer shift in the nature of displacement, UNHCR has only developed its thinking on urban refuge in the last decade (UNHCR, 2009). This chapter contributes to the ongoing discussion on best ways of promoting urban hosting and refugee integration. Cities are expanding their services to the displaced and, in partnership with humanitarian agencies, creating policies and programmes targeting the needs of all residents (Saliba, 2018). This means a reorientation of humanitarian practice to grapple with the humanitarian-development nexus as well as closer and more strategic work with municipalities to develop area-based approaches to improve urban infrastructures. However, such approaches consider the overall development of a geographical area and thus risk to make invisible the specific needs of the most marginalised residents, whether refugees or hosts. This is where a diversity lens becomes important, as we discuss below.

Human and social infrastructures
The role of infrastructures in urban wellbeing is widely discussed in academic and policy literature, including in literature on urban displacement, albeit often from a mere technical perspective (Haysom, 2013; World Bank, 2017). Infrastructures have the capacity to address vulnerabilities or to create new ones. In fact, the construction of new infrastructures is a major driver of urban displacement across the global South (Farha, 2011). At the same time, mass displacement requires new ways of thinking about, and designing, infrastructures in hosting countries. In this paper, we start from the basic meaning of infrastructures as the underlying foundations of a society. They play a role in shaping how people "relate to the city and to each other," transforming social relations (Rodgers & O'Neill, 2012, p. 404). This is even more important for infrastructures that enable social activities, such as education and public space. Their design and accessibility may help create cohesion and justice – or foster exclusion and "infrastructural violence", the latter generated by structural patterns of exclusions of specific individuals and groups consolidated, reproduced and reinforced through infrastructures (Rodgers & O'Neill, 2012). The distribution and functioning of infrastructures thus play a key role in producing spatial justice or injustice (Soja, 2009).

Infrastructural interventions can create local employment, build local skills, and improve living conditions of both host and refugee communities. If fairly distributed, these economic benefits can contribute to social cohesion as local residents perceive a material benefit from the refugee presence. However, in their approach to infrastructures, most humanitarian agencies ignores important aspects of the design and implementation processes. Residents are a vital part of dynamic and functioning urban infrastructure systems, and yet they are seldom involved in decisions about them in the global South.

Another relevant dimension of infrastructures regards the important role of building a "human infrastructure",[1] made of social relations and people's capacities that can facilitate collective decision making. Our use of human infrastructure refers to social relations but also to a capacity to engage with 'the other', to the tools enabling people to collectively analyse problems and respond to them. Such human infrastructure becomes all the more important in contexts characterised by conflict built on different dimensions of identity.

Diversity and intersectionality
We all have multiple simultaneous identities, such as gender, class, race and ethnicity, citizenship status (legal status), age, ability, and sexuality. Some of these identities are individual and other collective, and they are fluid, and in constant change (Bauman, 2000; Hall 1992). A fundamental way

---

[1]This here is not to be confused with what economists call human infrastructure, but closer to Simone's understanding (2004).

to understand how these identities shape different experiences, needs and aspirations is the concept of *intersectionality*, that is, how the combination of multiple dimensions of identity creates unique experiences, especially of oppression or discrimination. Different aspects of individual and collective social identities play a crucial role in social processes, shaping life chances. The relationships between these different identities are intertwined with power. There are consolidated hierarchies and power relations amongst these identities, which makes them relational – this includes relations between men and women, black and white people, etc. These unequal relations between identities contribute to inequalities and marginalisation processes. These identities and the relationships between them change in different contexts and over time, which means they are *socially constructed,* and thus they can be socially deconstructed. Therefore, addressing these inequalities requires a relational, contextual and intersectional approach focused on transforming power relations that are at the core of social identities, making the recognition of diversity a political process. These were the considerations that underpinned the way our co-design process in Bar Elias was conceived, and which were directly addressed with participants throughout.

Different approaches to participatory methodologies
Our methodology combines different participatory approaches. They share a number of elements, but we present them separately for analytical clarity. Each approach is often understood in slightly different ways within different disciplines and there are complex epistemological and methodological debates underpinning them. We focus only on the aspects of these methodologies that are relevant to our work.

In the 1980s, the failure of large-scale, state-driven, and top-down approaches – which ignored the priorities and needs of the poor – accelerated a debate on participatory development with the idea of 'putting the last first' in the planning of development interventions (Chambers, 1983). The key idea was to learn from the poor, who are the experts regarding their complex social reality, in order to design more appropriate programmes. Within humanitarian assistance, participatory approaches were also conceived to rethink the role of beneficiaries from passive recipients of aid to active agents in charge of shaping their future.

An important and problematic issue relating to participatory approaches is their often-idealised view of harmonious 'natural' communities, a view which suffers from a lack of understanding of power structures (Guijt & Shah, 1998). Participation is the outcome of a political process influenced by participants' inequalities in terms of access to resources and power (Mayoux, 1995, p. 245). A number of criticisms have been raised about how participatory methodologies have unwittingly built upon pre-existing power structures, often reinforcing them (Mosse, 2005) to the advantage of the 'learning elites' (Wilson, 2006). These learning elites are formed by local people who have learnt how to manage the discourse of participation and its language, and are able to exploit these skills to gain (or maintain) privileged access to development resources. However, under some conditions, participatory processes can also have an emancipatory potential which may "enable those excluded […] to exercise agency through the institutions, spaces and strategies they make and shape for themselves" (Cornwall, 2002, p. 78). It is in this context that a diversity lens became a central concern of this team in the attempt to shape participatory methodologies capable of dealing with local power imbalances.

Participatory Action Research seeks to transform power relations by challenging conventional processes of knowledge production (Gaventa & Cornwall, 2008). It is a process used by people who try to collectively address issues within their communities and organisations. Cycles of research, action and reflection are deployed to engage with issues that are significant for those who participate in the process and become co-researchers. Such approaches challenge positivism and acknowledge the importance of the perspectives of the co-researchers in understanding their reality and acting (Reason & Bradbury, 2008). The outcomes of such research are therefore strongly shaped by the selection of participants.

Participatory design or co-design builds on key elements of participatory action research. Throughout the research process, participants iteratively construct the emerging design which constitutes the research results, while at the same time producing more findings through participants' co-interpretation and use of these results. The process uses participants' tacit knowledge to explore invisible issues. In the urban context, participatory design builds on the assumption of the social production of space and thus mobilises social relations to rethink space production. Another important aspect is participatory design "as community building" (Frediani, French, & Ferrera, 2011): establishing new relationships, mutual understanding, and collective knowledge. In the process, participatory design builds capacities of residents to work together to analyse their social reality, imagine a different scenario, and plan for it. However, a number of questions remain open around what capacity, whose capacity, and capacity for what, processes of participatory design can build. To avoid the process of participatory design reinforcing specific voices and further building the capacity of locally dominant individuals and groups, we argue for a diversity lens to ensure the involvement of diverse groups.

Citizen science is based on the belief that collaborative research creates more meaningful outcomes, both for the academy and the communities involved. This involves training a group of residents to become coresearchers. As in participatory action research, their involvement is not limited to data collection, but they help frame the questions and analyse the results (Heckler et al, 2018). As a multi-disciplinary team with a long experience in participatory approaches in very different contexts and type of projects, we have developed the methodological approach discussed in this chapter which synthesises elements from these approaches.

Research methodology
The participatory spatial intervention in Bar Elias sought to test novel ways in which refugees and host communities could work together to design infrastructural interventions that would address the vulnerabilities of all residents. The process started on the ground in August 2018 with the recruitment of seven citizen scientists amongst the town's residents and concluded in August 2019 with the monitoring of the use of the completed physical interventions. We used the process itself and the information collected in the preparation of a design brief as data for this paper. As this process was set up as a research project about the intervention, we complemented the data with interviews with citizen scientists and workshop participants at various stages of the process, and interviews conducted by citizen scientists with residents. We also collected regular observations and short street interviews with users of the interventions built by the project. It is important to highlight that this intervention is based on the long-term community-led work in the town of CatalyticAction, a not-for-profit design studio which has built relationships of trust prior to the short project discussed here. It also forms part of a wider academic engagement with the town; the citizen scientists are now working with other researchers. The intervention was funded by the British Academy project "Public services and vulnerability in the Lebanese context of large-scale displacement", which is funded by the Grand Challenge Research Fund, part of the UK Overseas Development Aid.

<insert figure 1>

The town of Bar Elias
Lebanon is the country hosting the highest number of refugees per capita worldwide – every fourth resident is a refugee. Bar Elias is a town located halfway between Beirut and Damascus, respectively Lebanon's and Syria's capitals, and part of the Beqaa valley where most of the 1.5 million Syrian refugees in Lebanon are settled. The municipality of Bar Elias has welcomed displaced Syrians since the start of the Syrian Civil War in 2011, given the town's close proximity to the Syrian border, existing social and family networks, and its majority Sunni religious affiliation. However, this influx has put pressure on public services and Bar Elias has witnessed rapid transformations in response to the needs of the different communities living there, estimated to be 70,000 Lebanese, 7,000 Palestinian Refugees, and between 31,000 and 45,000 displaced Syrians (Ullrich, 2018). Humanitarian agencies consider Bar Elias one of the most vulnerable localities in Lebanon and to be

under 'high pressure' due to the high ratio of refugees to hosts (Inter-Agency Coordination Lebanon, 2015).

The majority of refugee households in the Beqaa area live in non-permanent or non-residential shelters (UNICEF, UNHCR, WFP, 2020). Over 100 informal tented settlements, where Syrians face substandard housing conditions with limited space, have proliferated on agricultural fields and empty lots around Bar Elias (UNHCR, 2016). Despite the dire living conditions of many refugees in Lebanon, the fact that infrastructural services have been insufficient in Lebanon since the end of the civil war in 1990 (Verdeil, 2018), government statements and residents' opinions reflect the sense that infrastructural services are overstretched due to the presence of displaced Syrians (Ministry of Environment, 2014; ARK, 2017). While tensions between hosts and refugees appear to be comparatively low in Bar Elias – partially explained by the long history of existing relationships and cross-border exchange and migration – there is nonetheless competition over resources and conflict over the rapid change in the town (Ullrich, 2018). The participatory design process sought to engage all groups living in Bar Elias in order to address the needs of the most vulnerable in a manner sensitive to these tensions.

Making a physical intervention
Following an open call disseminated through local networks and institutions, 18 candidates for citizen scientist positions were shortlisted. Seven were recruited and trained to work as citizen scientists: 3 Palestinians (1 female, 2 male), 2 Syrians (1 female, 1 male) and 2 Lebanese (1 female, 1 male). After a one-week workshop with citizens scientists and local and international students to reflect on public spaces in Bar Elias, the site for the participatory spatial intervention was identified: the entrance road to the town, which was the only place used by all three communities. This road is characterised by the presence of many businesses, services, including health centres, and wide footpaths, making it an important social hub, actively used at different times.

The key activity to shape the intervention was a participatory design workshop, delivered as an intensive 6-day process. In discussion with the team, citizen scientists helped identify 12 other people to ensure the creation of a group representing the diversity of Bar Elias residents across a number of dimensions, including nationality, gender, age and socio-economic status. The twelve participants ranged in age from 19 to 65: 2 Palestinians (both female), 4 Syrian (2 female, 2 male), and 6 Lebanese (3 female, 3 male).

The workshop took place in a community centre located adjacent to the intervention site. The participants were introduced to participatory design and spatial interventions through the discussion of a wide range of examples from around the world. Each example showed how an intervention responded to particular needs, allowed for different activities to take place, created a specific impact in its context and worked differently for different individuals and groups. Participants reflected on how the principles underpinning some of the examples might work in Bar Elias. In particular, the group considered the potential impact of any such change on different individuals and groups and on the relationships between them. The participants were then divided into three groups, each assigned a different research method (space use observation, participatory mapping and semi-structured interviews) to initiate the study of the intervention site and residents' vulnerabilities at various scales. After a stint of data collection, each group met to reflect on how best to reach a diversity of research participants, particularly in terms of gender, age, nationality, ability but also occupation and relationship with the road (e.g. passers-by, shop owners). Workshop participants considered how different methods shape the type of data collected and how each method was suited to understanding specific aspects. Reflections involved thinking about the complementarity and the possibility of triangulating data collected with different methods, and identifying the knowledge gaps that still existed.

<insert image 1>

Through a joint analysis, the identified vulnerabilities were aggregated and organised around three core areas: socio-economic vulnerabilities; lack of safe and public spaces for all; pollution and health vulnerabilities. Each group was tasked with exploring one of these areas by developing a problem tree, which identified the causes and the effects of these vulnerabilities. These were discussed by all participants to identify interconnections and consider how people are differently affected by infrastructural deficits, based on their identities and existing vulnerabilities.

Participants were then asked to build a vision of the town by imagining their perfect day in Bar Elias with family and friends through the use of different formats, including poetry and drawing. From individual visions, each group developed a shared vision, careful to respect individual differences. An individual and collective process of visioning in a safe space can stimulate marginalised groups' aspirations, which are often lowered by their situation.

The next step was the formulation of solutions to address the causes of the vulnerabilities previously identified and exploring the effects of these solutions through 'solution trees' paralleling the 'problem trees'. Participants were also encouraged to think about who would and would not benefit from the solutions proposed. The process was devised so that the solutions also contribute towards the achievement of the wider vision.

To see how solutions could be translated into practice in a specific space and reflect on the design process, workshop participants visited a participatory designed playground and a park next to the intervention site which had fallen into disrepair. The visits entailed discussions on the role of participatory design and helped participants to think through the connections between the physical spaces and the social processes that shaped them, and which they in turn enabled.

Each participant was given a satellite map and pictures of all the sections of the intervention site, and invited to draw their proposed interventions first individually, and then in groups. Each group developed and presented a design brief – a detailed analysis and set of guidelines about the interventions proposed. In an internal exhibition, participants were asked to review other groups' work, ask questions, and write down their comments to jointly discuss afterwards. The aim of the open discussion was to prepare a joint design brief with some proposed interventions, which had to be explicit about which individuals and groups were likely to benefit or not.

The proposed interventions included improved safety mechanisms such as traffic lights, pedestrian crossings and access ramps, as well as resting areas through the construction of street shading, benches, bus and taxi stop shelters, and drinking water points. There were also proposals for beautification, greening and signage that would build a sense of shared local identity and responsibility. Making the road more child-friendly with colours and games on the sidewalks was also proposed. Wider programmatic proposals included the activation of the derelict park with a playground, and structured activities that would allow it to serve as an inter-communal meeting space. Other proposed activities were awareness-raising campaigns and educational outreach to communities living in different contexts of Bar Elias, tackling issues that affected everyone such as pollution.

Although each group started considering a different type of vulnerability, many of the interventions suggested were similar, indicating that an intervention can tackle more than one type of vulnerability. Another important point was made regarding the different impacts of an intervention on different individuals and groups. Following the internal discussion and development of a joint design brief, the latter was presented to the public in an interactive exhibition on the main road. During this exhibition, after Friday prayers (one of the busiest times) passers-by and participants' friends and families provided feedback. The written and oral comments from dozens of respondents, including the mayor, were collectively analysed by workshop participants and incorporated into a final design brief.

Citizen scientists had further training on intersectionality which was complemented by a role play in which they were asked to assume a different identity and consider how 'their' position along various axes of difference would impact their capabilities and choices. This enabled a discussion on how the

intersection of different identities shapes the life chances and agency of people in the context of Bar Elias, and allowed the citizen scientists to recognise and explain to others the complexities of diversity throughout the phases of the interventions and its monitoring. Citizen scientists were also involved in a mapping exercise of all businesses along the road and of the specific uses of each part of the sidewalks.

The final design brief and this additional information were then used by CatalyticAction, to prepare a preliminary design of the physical interventions which was presented to participants and the public for another round of feedback. This was also presented to the mayor and the public works department of Bar Elias. After reviewing their feedback, CatalyticAction developed a detailed technical design, obtained permits from the municipality and started the procurement process.

With the help of citizen scientists, local subcontractors were hired for the skilled work required in building the interventions: a Palestinian concrete foreman, a Syrian welder, a Lebanese Carpenter and a Syrian gardener. Fifteen Syrian and Palestinian general construction labourers resident in Bar Elias as well as seven women (2 Palestinians, 3 Syrians, and 2 Lebanese) were hired in the building works. Moreover, local community members participated in activities around the revitalisation of the park, the painting of benches and murals. Recycled materials were collected across schools across Lebanon and then used in the construction of shade structures.

The final intervention included public spaces for gathering – most prominently, a large circular seating area built on a wide pavement next to the polyclinic, where patients often wait for their appointments but which previously lacked shade and benches. To create sufficient shade and some rain protection, a rectangular metal screen covers the seating area and contains Arabic phrases about the values and hopes for Bar Elias that emerged during the participatory design workshop. The area contains play features for children and the benches are also covered in colourful mosaics made from discarded tiles by two local artists. Seating was added along the sidewalk together with smaller shades. Four further benches were added next to Taxi stands on both sides of the road and trees were planted along the sidewalks, creating much-needed shade for pedestrians and shopkeepers.

The sidewalk along the Bar Elias entrance road is up to 60cm high in some places, leading to many pedestrians walking on the road, exposing themselves to speeding cars. In order to facilitate better access, ramps were built onto the sidewalks. Speed bumps were installed on the road to discourage speeding. Floor games were painted along the sidewalks, adding colours and playfulness. Street signs were added to locate important areas and spotlights installed overlooking the main seating area and a public garden, making it safer at night.

A park that had fallen into disrepair was part of a collective clean-up session. A local gardener was employed, new trees were planted and wooden benches installed, as well as a rehabilitated entrance and paved path. During the implementation, different community activities took place, collecting and reusing plastics to make shade structures, painting the wooden benches and a mural that encourages cycling in the city. On a busy night of Ramadan, the project was inaugurated in an interactive performance attended by children and their parents.

Refugees and residents as agents of urban transformation
Researching power relations
Researching power relations and their relationship with vulnerabilities and infrastructure is a challenging task, even more so in a sectarian country, with a history of civil war across religious and political divides. Examining and discussing these issues can be problematic as these identities are socially constructed and eliciting discussion of these divisions contributes to validating them (Brubaker, 2006). Therefore, it is better to observe how they emerge empirically in social interaction, without starting from preconceived ideas of the relevance of specific identities over others. A diversity-sensitive participatory design intervention as a research methodology to identify and study

power relations offers a privileged observation point to explore these relations through practice and to face the related challenges.

For example, one resident of Bar Elias refused to have an access ramp built on the pavement in front of his building. Despite municipal approval and the fact the intervention was on public space, the municipality could not challenge the power this man asserted. An infrastructure like the planned set of disability ramps loses a lot of its utility if the accessible path is interrupted by a missing ramp. Therefore, the power of one man can undermine a collective effort.

Another important issue raised by many users of the public spaces was how more powerful groups could shape the interventions for their own benefit. In particular, the concern was that motorbikes would use the ramps to drive on the footpaths to escape traffic, show off, or park, furthering the risks to other users. This sparked a reflection on appropriation and the need for education and awareness to ensure these public interventions would have a positive impact.

We also found that there was much less hostility towards Syrians compared to what is generally assumed in policy literature – but we found that the dynamics of spatial segregation had severely limited interactions between hosts and Syrians, thus reducing reciprocal trust. Because of this, the presence of a diverse group of trained local citizen scientists was fundamental to working through local tensions and mediating conflict when it was needed.

Transforming social relations through the process of co-design
There are two intertwined ways through which the intervention transformed social relations: through the impact of the physical intervention, and through the social process of co-design itself. Many efforts were made to create an environment where all felt able to participate. Each workshop participant had at least a connection with someone else in the group which helped them to feel safe. The seven citizen scientists working in the groups had strong relationships with the five facilitators, enabling an open communication channel to voice any concern and discuss tensions. The design workshop and the overall process created a disruptive space of freedom for participants as well as a process of personal transformation in which, for the first time, Lebanese, Syrians, Palestinians of different age groups, genders, education level, and class were able to work together as equals. Elderly people said they felt young again because they were directly addressed by younger participants without the formality of the strong age hierarchy present in society that can isolate them. At the same time, less educated group members felt their voice was heard by more educated residents.

The group also became aware of unequal gender relations in their attempt to gather data. For example, one woman who was very eager to talk, was stopped from being interviewed by her husband. The next day, the group saw her in a shop and interviewed her. Gender equality was advanced through insurgent practice. The municipality had explicitly said that they would not accept any project directly aiming at changing gender relations. Some women would not normally have been permitted to take part in such a process, but the involvement of two well-recognised universities allowed the work to be framed as educational, helping legitimise their participation to their fathers or husbands. This enabled them to engage in social interactions with residents of the city they would not normally have met or spoken to, including carrying out small-group or paired research activities with people from another gender and nationality. A woman revealed that for the first time, she felt she was not just a mother, but her voice was considered to carry the same weight as those of other participants: "What I learned is that women can have an active role in this. Women's place is not just at home. I can give an onion and can have an active role in municipality-level issues. I learnt about collaborating with other people. I had a lot of fun doing it and met a lot of strangers from other countries."

The project also hired women in the construction process, disrupting a sector dominated by men. The empowerment also came because the two architects who facilitated most of the process were two Lebanese women who publicly negotiated with the male mayor and other male directors at the municipality, as well as managing and paying male contractors on site. In the design workshop, out of five facilitators, three were women and they were the only ones speaking Arabic, the language of the

workshop. Their association with an international university and organisation gave these women the opportunity to lead the process but they had to gain the trust of many actors through the quality of their work. As any process that challenges existing power relations, there were backlashes. For example, the participation in the process led to tensions in one participant's marital relations. Moreover, there were requests, which the team politely rejected, for the citizen scientists' remuneration to be made through their fathers or, at least, for the amount paid to be revealed to a male guardian.

For some Syrians, the process allowed them to become part of the town by contributing to shaping it, and to some extent exercising agency and urban citizenship. This created a feeling of inclusion but it was also a means for them to reciprocate for the hospitality they had received.

Participants realised that interventions for the most vulnerable can also significantly benefit less vulnerable groups, thus being win-win solutions. One of the ways to deal with internal conflict or different priorities between different groups and individuals was to explicitly focus on the most vulnerable, as everyone agreed it was important the intervention benefit those individuals first. This led the group to identify wheelchair users were begging or selling small items. As the high pavements were not accessible to them, they did so while navigating the road between parked cars and other moving vehicles, exposing themselves to danger. This led the participants to develop the idea of access ramps.

During the design consultations, the group reflected about how, despite the intervention being thought primarily for people with disabilities, a number of other groups found it extremely useful. As footpaths were very high, the ramps allowed elderly people, caregivers with prams, and street vendors pushing trolleys to benefit, reducing their vulnerability to speeding cars.

Finally, the project also had a pedagogical impact on the municipality. The presentation of the proposed design was accompanied by a video documenting the participatory process. While municipality members were initially sceptical, they felt involved, the results ultimately pleased them, and they realised the intervention also had support from local residents. Thus, the municipality showed an openness to replicating a similar approach in the future, albeit only with external support.

Transforming social relations through the physical intervention
The physical intervention converted a public space into a social place, breaking barriers across nationality, gender and age. As this road was the only public space used by people from all nationalities in a town with strong spatial segregation, the intervention attempted to expand the uses of the space and the length of time that people utilised this space. The shading extended the hours of potential use during the hot months. The play elements incentivised parents to stay longer and entertained children while parents were shopping. Moreover, the social interaction between children from different nationalities encourages parents to talk to each other, building new relationships. Play is also extremely important for children's development, yet many refugee children do not have access to education and live in crowded environments where play space is limited. Mainstreaming play into urban public spaces, including streets, is a way of creating play opportunities for the most disadvantaged children in a way compatible with parents' errands and schedules.

These interventions contribute to changing the narrative from refugees constituting burdens to refugees as residents who are helping transform Bar Elias from a small town into a city. The demographic increase created the critical mass for the town to become a city – however, what locals considered 'neglect' meant it did not look like a city, despite the changing size already sparking a process of change, with more banks, medical institutions and shops opening. However, in the words of one citizen scientist, there were clear demands for enhancing city-like qualities: "We need an entrance road that shows that we are a city. And we need those improvements because we are the same as any other city". A Lebanese participant complained and compared Bar Elias to the nearby town of Anjar: "Bar Elias is 1000 years old but is neglected. Anjar is only 40 years old, it was nothing 40 years ago, but now the people of Anjar are united to improve the city." Local residents expressed

their hope that the intervention would give Bar Elias an entrance to be proud of. They knew that the intervention was planned jointly with Syrians and was only possible through international aid aimed at forced migrants; thus they were aware of the core contribution of Syrians in positively transforming the city. The aesthetic of the interventions along the main entrance was therefore very important to foster pride in the city and reverse the narrative of neglect. This was done in such a way to build an identity based on the town's history of emigration, immigration, exchanges, and welcoming of the strangers through the use of signage, phrases integrated into shading, murals, other design elements, and mosaics made by local artists.

Unexpectedly, the intervention catalysed complementary actions from other actors, which amplified the impact and the scale of the intervention, which had limited funding. The municipality sent their machinery to support the construction process and provided workers to clear the rubble in the dilapidated park, as well as water containers to water the new plants and trees. It drilled a water well in the park for irrigation and agreed to take responsibility for maintaining the garden. The staff of the local polyclinic were so happy with the new benches that they expanded the intervention themselves by adding more benches and planters, while the hospital manager met our team and offered support. An NGO contacted CatalyticAction to work together on designing a playground in the park. Moreover, shortly after the project's inauguration, the municipality decided to build a large entrance arch at the beginning of the road, further enhancing the welcoming and identity-enforcing elements of the intervention.

In October 2019, Lebanon faced a wave of unprecedented protests that rapidly spread across the country. Triggered by a proposed bill to tax internet calls, they rapidly grew to demand a radical change in the political system. The infrastructure created through this participatory intervention became the focal point for the protests in Bar Elias, with a tent hosting protest-related events. This means that the intervention was successful in transforming the entrance road into an active social place and meeting space, the landmark of the city. The participatory process had built the infrastructure that enabled the revolution in Bar Elias.

The process of creating the intervention built a human infrastructure made up of residents of the city from different identities who are able to participate in and initiate city-making processes that take into account and analyse the diversity of residents' needs and aspirations. This is a network of people and capacities that operates for the city beyond sectarian divisions and other dimensions of segregation. A workshop participant said: "Before, I was enclosed, I only knew people from Syria and my neighbourhood. During the workshop, I opened up to a lot of people: Syrians, Lebanese and Palestinians, and when I pass through the street, we say hi to each other. So it brought us together." Another commented: "I enjoy that there is still communication and that I am part of something that I can help with but that will also help me." Another said: "It increased my sense of awareness. I met people who are older than me, I met people who are younger than me and all of them taught me stuff I didn't know before." The network of participants was formalised through a WhatsApp group and by posting on Facebook. These social media channels have been a way for participants to remain in touch, especially the elderly with young people with whom they would not normally stay in touch. Participants in the initial participatory workshop remained involved in the wider process by keeping in touch with citizen scientists who continued to shape the following steps of the intervention. This was particularly useful as workshop participants informed other residents of the intervention's development, preventing misinformation and concerns from spreading. Many expressed their desire to continue being involved in decision making about their town and described a number of ways in which they used the skills learned for other activities, including in student groups, in a newly-initiated political initiative for the municipal elections, or to mobilise neighbours to develop an unused space near their home.

Conclusion
The experience of Bar Elias shows that combining action-research, citizen science, participatory design and a diversity lens not only contributes to the design of infrastructures that respond to residents' needs but that it can transform social relations and build a human infrastructure able to

negotiate and activate important change processes, while diffusing social tensions. Such an approach is especially important in unequal and conflictual settings, where a relational, contextual and intersectional approach can reveal the complexities of power relations and inequalities. It can create an urban citizenship, a "participatory citizenship" born out of the "community building" element of participatory design. Such citizenship is able to reduce social tensions and build new solidarities between different groups while constructively engaging with authorities. This was the case in Lebanon, where this new urban participatory citizenship transcended the limits of traditional state citizenship in a context where the state is unable to respond to the needs of citizens while at the same time denying rights to a wide range of residents, constraining their agency through uncertain legal status. The exercise of this urban participatory citizenship enhances the agency of all residents by breaking invisible social and spatial borders that segregate society across a number of social identities.

The methodology utilised in Bar Elias offers tools for other settings where social tensions exist, including urban neighbourhoods affected by internal displacement. In particular, it helps address the complexity of the humanitarian-development nexus by combining an immediate response to current vulnerabilities with a significant step towards the long-term vision of the town as articulated by both locals and newcomers.

REFERENCES

ARK. (2017). Narrative Report: Regular Perception Surveys on Social Tensions throughout Lebanon: Wave I. https://data2.unhcr.org/en/documents/download/60272 (last accessed 3 March 2020)

Aukot, Ekuru (2003). "It Is Better to Be a Refugee Than a Turkana in Kakuma": Revisiting the Relationship between Hosts and Refugees in Kenya. *Refuge: Canada's Journal on Refugees*, 21(3), 73-83.

Baber, H. E. (2007). Adaptive Preference. *Social Theory and Practice, 33*(1), 105-126.

Bauman, Zygmunt. (2000). *Liquid modernity*. Cambridge: Polity Press.

Brubaker, Roger (2006). *Nationalist politics and everyday ethnicity in a Transylvanian town*. Princeton, NJ; Woodstock: Princeton University Press.

Chambers, Robert (1983). *Rural development: putting the last first*. London: Longman.

Cornwall, Andrea (2002). Making spaces, changing places: situating participation in development. *IDS Working Paper 170*.

Farha, Leilani (2011). *Forced Evictions: Global Crisis, Global Solutions. Nairobi: UN-HABITAT.*

Frediani, Alexandre Apsan, French, Matthew A., & Ferrera, Isis N. (2011). *Change by design: building communities through participatory design* (U. C. Press Ed.). New Zealand: Urban Culture Press.

Gaventa, John, & Cornwall, Andrea (2008). Power and Knowledge. In P. Reason & H. Bradbury (Eds.), *The SAGE Handbook of Action Research* (2nd ed., pp. 172-189): SAGE.

Guijt, Irene, & Kaul Shah, Meera (1998). *The Myth of Community: gender issues in participatory development*. London: Intermediate Technology Publications.

Hall, Stuart (1992). 'The Question of Cultural Identity', in Hall, Held, and McGrew (eds), *Modernity and it Futures.* Oxford: Polity Press/Open University/Blackwell. pp. 273–326.

Haysom, Simone (2013). Sanctuary in the city? Urban displacement and vulnerability. Overseas Development Institute, *Humanitarian Policy Group Report* 33. London.

Hecker, Susanne, Haklay, Muki, Bowser, Anne, Makuch, Zen, Vogel, Johannes, & Bonn, Aletta (2018). Citizen Science: Innovation in Open Science, Society and Policy. London: UCL Press.

Inter-Agency Coordination Lebanon. (2015). 251 Most Vulnerable Localities In Lebanon (Map) https://data2.unhcr.org/en/documents/download/45715 (last accessed 3 March 2020).

Mayoux, Linda (1995). Beyond Naivety: Women, Gender Inequality and Participatory Development. *Development and Change, 26*(2), 235-258.

Ministry of Environment. (2014). Lebanon Environmental Assessment of the Syrian Conflict & Priority Interventions. http://www.undp.org/content/dam/lebanon/docs/Energy%20and%20Environment/Publications/EASC-WEB.pdf (last accessed 3 March 2020).

Mosse, David (2005). *Cultivating development: an ethnography of aid policy and practice*. London: Pluto.

Reason, Peter, & Bradbury, Hilary (2008). Introduction. In Reason, Peter & Bradbury, Hilary (Eds.), *The SAGE Handbook of Action Research,* (2nd ed., pp. 1-10). SAGE Publications Ltd.

Rodgers, Dennis, & O'Neill, Bruce (2012). Infrastructural violence: Introduction to the special issue. *Ethnography, 13*(4), 401-412.

Saliba, Samer (2018). *Urban Refuge: How Cities Are Building Inclusive Communities.* https://www.rescue-uk.org/sites/default/files/document/1814/urban-refuge-report.pdf (last accessed 27 July 2020).

Simone, AbdouMaliq. "People as Infrastructure: Intersecting Fragments in Johannesburg.," *Public Culture* 16, no. 3 (2004): 407-29.

Soja, Edward (2009). The city and spatial justice. *Spatial Justice http://www.jssj.org, 1* (September).

Ullrich, Leila (2018). Below the Surface: Results of a WhatsApp Survey of Syrian Refugees and Host Communities in Lebanon. UNDP. https://reliefweb.int/report/lebanon/below-surface-results-whatsapp-survey-syrian-refugees-and-host-communities-lebanon (last accessed 3 March 2020).

UNICEF, UNHCR, WFP. (2020). Vulnerability Assessment of Syrian Refugees in Lebanon 2019. https://reliefweb.int/sites/reliefweb.int/files/resources/73118.pdf (last accessed 3 March 2020).

UNHCR. (2009). *UNHCR policy on refugee protection and solutions in urban areas*: UNHCR.

UNHCR. (2017). *Global trends: forced displacement in 2017*: UNHCR.

UNHCR. (2016). Dataset: Informal Settlements of Syrian Refugeees in Lebanon, 29 February 2016. https://data.humdata.org/dataset/syrian-refugeees-informal-settlements-in-lebanon (last accessed 3 March 2020).

UNHCR. (2018). *Global Trends: Forced Displacement in 2018*: UNHCR.

Verdeil, Eric (2018) Infrastructure Crisis in Beirut and the Struggle to (Not) Reform the Lebanese State, *Arab Studies Journal,* 16(1): 84-112. https://halshs.archives-ouvertes.fr/halshs-01854027

Wilson, Gordon (2006). Beyond the Technocrat? The Professional Expert in Development Practice. *Development and Change, 37*(3), 501-523.

World Bank. (2017). Refuge in the Middle East: Bringing an Urban Lens to the Forced Displacement Challenge http://documents.worldbank.org/curated/en/922371511267498593/Cities-of-refuge-in-the-Middle-East-bringing-an-urban-lens-to-the-forced-displacement-challenge (last accessed 3 March 2020).