Legitimization of the Inclusion of Cultural Practices in the Planning of Water and Sanitation Services for Displaced Persons

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Abstract: During large and rapid influxes of displaced persons, hosting communities may face challenges in accommodating incoming populations. This study seeks to assess the institutional response to international displacement in developed urban contexts through exploring how stakeholders (de)legitimized (i.e., either withheld or attributed legitimacy to) the inclusion of cultural practices in the planning of water and sanitation for displaced persons. This study is enabled by 28 semi-structured interviews of individuals involved in the accommodation of displaced persons in Germany conducted in 2016. The interview content was qualitatively analyzed to identify the types of decisions made, legitimacy types used to (de)legitimize those decisions, and information used to assess cultural practices. Results indicate that the institutional response to international displacement was most commonly reactive rather than proactive. However, the interviewees demonstrated a willingness to adapt, primarily using their experiences (comprehensibility legitimacy) and moral considerations (procedural legitimacy). Recommendations to stakeholders arising from this study include: (1) improve access to information about displaced persons' practices and needs in water and sanitation, (2) collect more information by communicating with displaced persons, (3) promote collaborations between involved organizations, (4) monitor organizational changes during the response, and (5) enhance discussions about integration through the built environment.

Keywords: refugee; displaced person; institutions; culture; water and sanitation services; legitimacy

1. Introduction

The provision of accommodation for asylum seekers and refugees can pose challenges for governments and other associated organizations due to unanticipated needs. Displaced persons may have practices associated with the built environment different from those of the hosting community that could lead to differing needs for services provided. For instance, water and sanitation needs—of interest to this study—may vary due to practices such as the types of toilets used (e.g., sitting versus squatting), cooking habits (e.g., if grease is poured down the drain), or daily water usage trends driven by daily routines [1]. As such, decision makers can either try to repress these practices (e.g., using signs informing about the local use of facilities), or adapt to cultural or personal needs (e.g., renovations of existing accommodations [2]). Anderson (2016) highlighted this circumstance, stating that governments and organizations are "imposing shelter(s)" to large displaced populations, while those displaced populations are "carrying shelter(s) with themselves" [3]. Anderson (2016) [3] explained that governments, by deciding the types of accommodations provided to displaced persons,

do not account for displaced persons' individual identities. Differences in practices and needs between hosting communities and displaced persons thus poses a dilemma for urban planners and other decision makers in choosing between imposing a norm on displaced persons and adapting local norms to better align with those displaced. Additionally, displaced persons' cultural practices and needs might conflict given their multiple backgrounds, adding to this dilemma. This challenge is exacerbated during periods of large influxes of displaced persons as organizations responsible for providing housing must plan and design accommodations under extreme time constraints.

In 2015, instability in the Middle East triggered the largest displacement of persons seeking asylum since the Second World War [4]. That year, the European Union received over 1.2 million asylum applications. Asylum seekers applying in the European Union were primarily Syrian (29% of total applications), Afghani (14%) and Iraqi (10%) [5]. A majority of asylum seekers entered the European Union through Greece after having crossed the Mediterranean Sea [6]. In 2015, Germany received 476,649 asylum applications [7], over a third of the asylum applications received by the European Union [4,5]. That year, Germany received more than two times the number of new asylum seekers than in 2014, with a pronounced peak of asylum applications in October and November 2015 [7]. Of the applications received by Germany in 2015, 112,693 (24%) were received in October and November [7]. This peak follows Chancellor Angela Merkel's decision to open German borders to asylum seekers that she made public in September 2015 [8]. This large influx of asylum seekers to Germany continued into 2016 with 745,545 asylum applications received that year, and reduced in 2017 with only 222,683 asylum applications received [9]. This sudden and large population influx placed stress on the urban housing system and infrastructure services. For instance, several political figures stated that this high influx was unexpected and that Germany was not prepared for it. Colonel Weiser said in 2016: "the impression arose that Germany has no plan as to what to do with the refugees [10]."

This study seeks to assess the project of providing water and sanitation services for displaced persons arising from this influx of displaced persons in 2015 and in the first half of 2016 in four German cities. This project includes: (1) the coverage of water and sanitation facilities in accommodations (e.g., by providing showers, toilets), (2) the provision of services inside accommodations to help the usage of those facilities, and (3) modifications in the citywide water and wastewater systems to serve accommodations for displaced persons. The displacement phases assessed in this study are transactional and protracted as displaced persons were expected to stay in the hosting country for several years and potentially integrate in Germany. Stakeholders in this study include government agencies, architects, utilities, nonprofits, and other associated companies. The accommodations discussed in this paper are buildings that were either constructed, renovated, or used with no renovations prior to residents' arrival, in the context of emergency resulting from the sudden and large international displacement in 2015. Their purpose is the accommodation of displaced persons only. The capacity of those accommodations spans 30 to 1100 residents, and include: large dormitories (e.g., in sport halls) with communal kitchens and bathrooms, private rooms with communal kitchens and bathrooms, and private apartments.

Qualitative analyses of the interviews are used to explore the decision-making process pertaining to the provision of water and sanitation services when planning the construction or renovation of accommodations and any necessary system-wide infrastructure modifications (physical, operational, or managerial), both before—in anticipation of—and after the arrival of displaced persons. Answers sought included: Which types of legitimacy were used by stakeholders to (de)legitimize (i.e., either withhold or attribute legitimacy to) the inclusion of cultural practices in the planning of water and sanitation services for displaced persons? Which sources of information did stakeholders use to make decisions during this process, and what specific decisions were made? Is there a difference in the legitimization of the inclusion of cultural practices for displaced persons' accommodations perceived as long- versus short-term? By answering those questions, the objective of this study is to understand how decisions were made in this context of large and sudden international influx, and to

issue recommendations to future stakeholders facing similar situations based on the identification of the challenges and successes of the studied decision-making process.

1.1. Point of Departure

1.1.1. The Water and Sanitation Services Challenge

Interactions with water and sanitation services within the household vary worldwide. For instance, an individual's water consumption habits can be related to cultural backgrounds or access and individuals in areas lacking water may be more likely to conserve water. Cooking and dishwashing habits differ, as well as what individuals place in the drain—e.g., grease poured in the drain versus disposed of in the trash. Similarly, sanitation habits are diverse across populations. These interactions with the sanitation system differ by individual, dependent on factors such as beliefs, religion, wealth, the costs of available facilities, language spoken, and gender with potential needs for female-friendly toilets [11]. For example, select religions follow specific cleansing rituals (e.g., in rural Benin [12]). Furthermore, the types of facilities, defined in this study as a single infrastructure component, such as, showers, toilets, and sinks, differ across cultures. The diverse types of toilet facilities and use are striking examples—sit-down or squat toilets (used by about two thirds of people around the world in 2015 [13]), water-based or dry flushing systems, and bidets or toilet paper [13], to name a few. Internationally displaced persons, when arriving in Germany, may have diverse cultural practices and expectations about such water and sanitation services. Accommodations provided by the German government follow, for the most part, German norms (e.g., sit-down toilets), which may differ from displaced persons' cultural practices and expectations. During the investigation for this study, the German government did not provide any guidelines about the types of water and sanitation facilities and services that should be provided in accommodations (e.g., should there be both sit-down and squatting toilets?). Additionally, seven out of the 16 German states did not provide minimum requirements for the design of accommodations in terms of water and sanitation facilities. The states that did, only provided guidelines for the number of users per facility and a few basic design criteria [14]. For example, a state's requirements for water and sanitation services within an accommodation were the following (translated from a report provided by a state agency interviewed in July 2016):

"• Sanitary facilities, such as toilets and showers, are to be protected from visibility.

• If the housing facility does not provide individual sanitary facilities for each room, communal sanitary facilities must be provided. These must be in close proximity to the living quarters as well as separated by gender and lockable. There must be at least:

a. One sink per five (maximum seven) inhabitants,
b. One shower per 10 (maximum 15) inhabitants,
c. One toilet per 10 female inhabitants, and
d. One toilet and one urinal per 15 male inhabitants.

• Sinks with cold and hot water with the possibility of being switched off [in communal kitchens]."

The lack of guidelines can be challenging for decision makers, as they have to make choices about water and sanitation for displaced persons based on their own perception of the situation rather than concrete guidelines. To help decision-makers with this challenge, a German nonprofit recommended interventions in "awareness-raising and education on hygiene; adapting and converting existing facilities; [or] building new accommodation and sanitary facilities" [13]. Additionally, due to the potential differences in water use habits between German people and displaced persons, utilities can have difficulties anticipating the water and sanitation demands at accommodations for displaced persons, and thus planning modifications of the systems serving those accommodations. Adding to the complexity of this decision-making process, customers can perceive the level of water services provided differently from utility managers. With this in mind, due to the multiplicity of related habits

and beliefs, there can be major discrepancies between displaced persons' and the hosting country's expectations. While the majority of the displaced persons were Syrian, many came from different nations, different cultures, different linguistic groups, and different socioeconomic backgrounds, all of which may drive different water use practices. Studying the decision-making pertaining to water and sanitation facilities for displaced persons can be an indicator of the institutional response to such diverse cultural practices and needs. Understanding the institutional response to such a disruptor can help decision-makers in high-income countries identify institutional change mechanisms that would lead stakeholders to adopt change initiatives during large international population influxes. Additionally, this study can help achieve Sustainable Goal 6 [15] by contributing to the needed research about the progress made in terms of the provision of water and sanitation services [16].

1.1.2. Research Gap: Emergency Housing for Displaced Persons in High-Income Countries

Existing research related to emergency housing primarily focuses on refugee camps and disaster-related displacements. First, camps of internally and internationally displaced persons are studied in low-income countries with a focus on the physical and mental health of those residing in the countries (e.g., the effects of inefficient water and sanitation services [17]), with only limited assessment of the built environment. Additionally, camps in low-income countries were studied to understand their social and cultural complexity (e.g., from an urban anthropology [18]; political standpoint [19]), and their water supply systems and associated challenges (e.g., in Uganda [20]). However, camps in low-income countries can be as large as cities, while the accommodations assessed in this study are single buildings dispersed in existing cities. Other research topics include disaster-related internal displacements in high-income countries, which typically pairs emergency responses with sustainable recoveries (e.g., to enhance sustainable disaster recovery [21,22]). The approach of pairing emergency response and recovery differs from the situation in Europe as the studied emergency response (in Germany) is geographically distinct from the recovery, located in the countries of origin of displaced persons.

Presently, there is a gap in knowledge regarding housing for internationally displaced persons in high-income countries and the impact of this rapid population influx with limited front-end planning on emergency housing accommodations. Specifically, existing knowledge about the considerations of cultural practices during the planning of construction and renovation work in accommodations for displaced persons is limited. This study aims to contribute to filling this gap in knowledge by providing an understanding of the planning of water and sanitation services for displaced persons during periods of large influx.

1.1.3. Institutional Power through the Built Environment

The existing literature highlights the influence of the built environment on the identity of individuals using it, and how the decisions made regarding the built environment relate to power. In this study, we define power as the ability to influence the behavior of others [23]. Historically, organizations have made decisions about the built environment to obtain and maintain power [24]. For instance, one way of doing so is to restrict locations where select individuals can or cannot travel to or live in (e.g., the apartheid in South Africa [25], restrictive covenants in the United States [26,27]). Large organizations—e.g., state or local governments—can use the built environment more subtly or even unintentionally to obtain and maintain power. For instance, naming the built environment (e.g., streets, schools) has an effect on the way individuals will experience and attribute meaning to the built environment. Replacing street names by numbers was a way for totalitarian states to prevent groups from associating popular myths to those streets [24].

Power is not always centered and a top-down process. Power, as highlighted by Foucault (1980), also operates through knowledge [28]. Power can be constructing the norm, or the taken-for-granted [23]. Exercising power is securing "particular forms of conduct . . . through which people freely fashion their own sense of self" [29]. Constructing the norm for an institution shapes

the decisions made by organizations constitutive of this institution since "organizations are under normative pressure to ensure that their goals are congruent with wider societal values" [30]. Decisions pertaining to the built environment play a crucial role in the construction of institutional norms [29]. One can, through spatial relationships, define what (or who) is abnormal, and what (or who) is normal. For example, displaced persons can be associated with mobility in a country that "values roots, place and order over mobility and fluidity", and therefore viewed as disruptive or abnormal [31].

The built environment can be used to marginalize or homogenize groups of individuals. An example of this is the notion of "aboriginality" in Australia that was partially constructed by categorizing the built environment frequented by Aborigines as homogeneous and different from the rest of the city (e.g., by creating negatively racialized neighborhoods [32], by mapping [33]). Similarly and in the US, Van Auken et al. have shown that the decisions made by organizations of power about watersheds used by vulnerable communities can participate in their marginalization [34]. Jackson and Penrose argued that there is a strong relationship between the built environment and the making of nations by homogenizing identities. "The space that a country occupies becomes a context for legitimizing and enforcing dominant ideas about 'race' and about the relationship between 'race' and nation." They additionally highlighted the need for more studies about the legitimization of both hegemonic power and the forms of resistance to it [35].

Existing research about the way institutions use—willingly or not—the built environment to exercise power is primarily focused in literature on cities as a whole (e.g., literature referenced in the previous paragraph [24,32,35]), or the workplace (e.g., using the notion of space [36,37]). This focus differs from that explored in this study, which assesses an individual's residence and household behaviors (e.g., cooking, sleeping, showering). This lack of assessment of individuals' residences may be due to the fact that most housing is not provided by governmental agencies, but rented or owned by individuals themselves. Thus, the built environments where individuals live are private in most cases, and there is no direct power confrontation between governmental institutions and individuals about those built environments. For instance, when exploring the interactions between cooking habits and cities' built environments, De Certeau assesses housing as a "private territory that must be protected from indiscreet glances" [38]. However, it should be noted that institutions might still affect those built environments. For instance, sitting toilets are considered as the norm in Germany and it might be hard to rent apartments equipped with squatting toilets. The applicability of this study differs in that the housing situations assessed are provided by the government, and are not private, allowing organizations of power control in the design of facilities and their use by displaced persons. This study is an opportunity to assess institutional responses to migration through the built environment within the home—i.e., the accommodation—rather than at a city level. Additionally, this study presented a unique opportunity to capture ephemeral data as it was conducted during periods at which institutions' equilibrium was suddenly and unexpectedly stressed by the international displacements. During this period of stress, individual stakeholders had to make "satisficing rather than optimized decisions" [39] due to the emergency situation.

1.2. Legitimacy Theory

According to Suchman, "legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" [40]. Using this definition, how institutions exercise power through and legitimize the decisions made regarding the built environment provided to displaced persons is explored. The way the decisions made by organizations are (de)legitimized by individuals constitutive of these organizations plays a role in the efficiency of those decisions and in the making of future similar decisions: "legitimacy and social norms and values constrain the actions taken by individual organizations" [41]. For instance, institutional strategies in civil engineering (e.g., management cultures, personal motivation actions) affect the effectiveness of the decisions made in construction companies [42,43]. The legitimization of the decisions made during times of controversy and emergency

situations is particularly crucial since decisions perceived as "the right thing to do" are more likely to be effective and long-lasting. During this study's investigations in Germany, legitimacy was therefore crucial in the accommodation of displaced persons since the changes in migration policies advocated by Angela Merkel were controversial; they were highly saluted, as well as greatly criticized by German people (e.g., through protests [44–46]).

Legitimacy has been extensively researched in organization studies [47]. According to Suddaby et al. (2017), "both the importance and the conceptual ambiguity of legitimacy have rather increased than decreased in recent years, making legitimacy a central and widely used but often confusing concept in management research" [48]. To reduce this conceptual ambiguity, in this study, we chose to use Suchman's widely accepted typology with three primary forms of legitimacy and nine subtypes of legitimacy [40]. The definitions of those types and subtypes are provided in Table 1.

Table 1. Legitimacy types and subtypes, as defined by Suchman [40].

Legitimacy Type	Definition
Pragmatic legitimacy	Assesses the possible benefits brought by the legitimized organization to the interviewees or a broader group of persons. Pragmatic legitimacy can rest on interactions between organizations and their audience, but also on "broader political, economic or social interdependencies".
Subtype: Exchange legitimacy	Supports an "organizational policy based on that policy's expected value to a particular set of constituents." For this study, this "particular set of constituents" was defined as individuals using legitimacy (e.g., interviewees) themselves or persons in direct contact with them (e.g., their coworker).
Subtype: Influence legitimacy	Supports an organization because individuals "see it as being responsive to their largest interest" (e.g., to the interviewee's city's interest).
Subtype: Dispositional legitimacy	Used when individuals "react as though organizations were individuals," and legitimize organizations' actions by attributing dispositional characteristics (e.g., organizations are passionate, altruistic).
Moral legitimacy	Assesses the benefits of an action to societal welfare to determine whether this action is the "right thing to do" (i.e., what will benefit societal welfare) based on a socially constructed value system.
Subtype: Consequential legitimacy	Judges organizations based on their accomplishments.
Subtype: Structural legitimacy	Judges organizations based on their structural characteristics. For example, individuals can legitimize an organization's actions because this organization has experience.
Subtype: Personal legitimacy	"Rests on the charisma of individual organizations leaders."
Cognitive legitimacy	Considers "what is understandable" rather than "what is desirable" and is based on taken-for-granted cultural and personal accounts.
Subtype: Comprehensibility legitimacy	Corresponds to individuals using their daily experiences and larger belief systems to legitimize a decision or action by understanding it.
Subtype: Taken-for-grantedness legitimacy	Is used to automatically legitimize actions when an alternative is unthinkable to individuals using this legitimacy subtype.

2. Materials and Methods

Twenty-eight semi-structured interviews with stakeholders involved in the provision of housing for displaced persons were performed in four major German cities during the summer of 2016. Accommodations discussed spanned both centralized accommodations and private apartments. This data collection process was chosen to "provide complex textual descriptions of how people experience a given research issue" by collecting personal histories, perspectives, and experiences [49]. Two investigators prepared and conducted most interviews, enhancing "the creative potential of the study [and] the convergence of observations from [them] enhances confidence in the findings" [50]. The two investigators have two different cultural backgrounds, French and American, further enhancing this creative potential. The topics covered during interviews include: the position and daily responsibilities of the interviewee, challenges related to water and sanitation services that

they encountered, and their position regarding the decisions made during the emergency process. Appendix B provides a template of the questions asked during interviews. Investigators were trained by conducting practice interviews (e.g., a practice interview was conducted with a civil engineer). The research team used those practice interviews to iteratively refine the questions template: questions leading to valuable discussions were added while questions confusing the interviewees were deleted. Similarly, the questions template was refined during the time of investigations. For instance, politically-related questions (see Appendix A—section "Overall Refugee Crisis") were always asked at the end of each interview rather than at the beginning as the research team found it efficient in establishing a trusting relationship with the interviewees. When needed, a German interpreter was present to help with cultural and language barriers. Interviews were recorded (with permission), translated to English as needed, and transcribed.

The interviewees were selected using criteria for good informant selection for ethnographic interviews [51]. They were contacted using a snowball sampling method to locate knowledgeable but difficult to identify individuals [52] (i.e., their contact was not publically available, or they were not responsive to traditional emails and phone calls). The interviewees who were selected were all involved in the accommodation of displaced persons during the Refugee Crisis in Germany at the end of 2015 and beginning of 2016 and had been in their position for more than six months at the moment of the interview. Fourteen interviewees were working in City A, eight in City B, two in City C, and four in City D. The total populations of those cities spanned 500,000 to 3.7 million in 2016, and the number of asylum applications received in 2015 in those cities spanned 4,230 to 54,324 (for the largest city). These numbers of asylum applications are an indicator that, in 2015, the influx of displaced persons in need for housing represented a considerable increase in population for the studied cities. Those cities were chosen as they were receivers of some of the largest influxes of displaced persons in 2015 in Germany. Additionally, despite the political spectrum the cities spanned, they all responded to this emergency by opening, building, and renovating accommodations for displaced persons.

The interviewees were working in multiple types of organizations, were aged approximately 25 to 60 years old, and their roles were diverse (see Table 2). Three interviewees were women and 25 were men. In this study, "utilities" refer to water and sanitation utilities. The four architects interviewed (Table 2) were designing accommodations for displaced persons during the summer of 2016. One architect was commissioned by a private client to design modular housing, one was commissioned by the city to perform feasibility studies for temporary housing, and the two other architects were commissioned by the city to design the renovation of an office building. Two interviewees were the CEOs of construction companies: one company was in the process of constructing, in 2016, two accommodations for displaced persons with a capacity of 500 residents, and the other company was involved in advising the city's utility about population dynamics. One interviewee was working in a communication company to handle the communication strategies of the city's utility. One interviewee working in a real estate company was commissioned by the city to develop portfolios for displaced persons' accommodation locations. The four interviewees working in government agencies (Table 2) were responsible for making final decisions about such portfolios. Five interviewees working in nonprofits were working in displaced persons' accommodations that were opened either in 2015 or 2016. Three of them were managers, and two of them were social workers. The two other interviewees working in nonprofits were responsible for monitoring the management strategies of several of those accommodations. Finally, the nine interviewees working in utilities (Table 2) were engineers responsible for the planning of water and wastewater systems. They were involved, either part- or full-time, in the connection of displaced persons' accommodations to those systems. Such a diversity in interviewees provides a holistic understanding of the institutional response and ensures that results did not reflect a single community's norms.

Table 2. Interviewee summary.

Responsibility	Organization				
	Architecture Company	Construction, Communication and Real Estate Company	Nonprofit	Government Agency	Utility
Displaced persons accommodation management			5		
Design of accommodations for displaced persons	4				
Advising role and urban planning		2	2	4	
Design of water and wastewater systems					9
Construction and renovation work		2			

The interview content was coded for excerpts legitimizing or delegitimizing decisions and actions made by stakeholders to provide water and sanitation services to displaced persons. Excerpts coded for legitimization are the parts of the interview content that either legitimize decisions to include displaced persons' cultural practices, or that withhold legitimacy to decisions that do not include this aspect. On the polar opposite, excerpts coded for delegitimization are the parts of the interview content that either legitimize decisions to *not* include displaced persons' cultural practices, or that withhold legitimacy to decisions that *include* this aspect. Each excerpt corresponds to one main idea discussed by the interviewees. For instance, when the interviewees were giving examples to illustrate their ideas, those examples were coded in the same excerpt as the ideas illustrated. If two identical ideas were discussed in distinct sections of the interview, then only one occurrence of this idea was coded. Thus, the frequency of excerpts coded helped the researchers identify trends in the interview content. Interviews were coded to capture their "primary content and essence" [53] using Dedoose, a cross platform software for qualitative data analysis [54]. Codes for this analysis were defined using a coding dictionary [55] iteratively developed by the research team and verified through inter-coder reliability checks to ensure replicability of the analysis [56]. Codes corresponding to the legitimacy types used were developed using the aforementioned Suchman definitions [40]. For example, a centralized accommodation manager was legitimizing his decision to close down a single-toilet room to create punitive consequences for residents' misuse of the facility. Some residents were squatting on toilets designed for sitting because they used squatting toilets in their countries of origin. In describing his decision, he said, " . . . that's not the nicest way, but apparently it worked, so we still closed it". This excerpt was coded to pragmatic legitimacy since the interviewee was focusing on the perceived positive effect of the action of closing down the toilet on the entire centralized accommodation. Namely, this excerpt was coded to exchange legitimacy because the action benefits the centralized accommodation managers, whose work was made easier. Ratios corresponding to the number of excerpts legitimizing a decision over the number of excerpts delegitimizing it were calculated as a potential indicator of how legitimate those decisions were perceived. For instance, the fact that the ratio of delegitimizing over legitimizing excerpts was high for the interviewees working in utilities helped researchers identify a need for a focus on the delegitimization process used by these interviewees during the qualitative analysis.

Excerpts (de)legitimizing the inclusion of cultural practices in the project of providing water and sanitation services to displaced persons were selected for a secondary analysis. Those excerpts were topically coded to identify the types of information used by the interviewees to assess the situation, and the decisions (de)legitimized. Additionally, interviews were categorized based on the time scale at

which the interviewees anticipated the accommodations discussed to be used by displaced persons (e.g., long- versus short-term). It should be noted that the interviewees discussed accommodations they were personally working on (e.g., architects discussed accommodations they were designing, utility engineers discussed accommodations they were asked to connect to the water network). This categorization was made possible by the following question asked during interviews: "Do you think that the accommodation(s) you are working on will be used on the short- or long-term by refugees?" This categorization is thus not dependent on the actual time scale of accommodations but rather on the interviewees' perceptions. Once the coding was performed, the results were presented and analyzed using excerpt and interviewee frequencies, as well as quotes from the interviews (e.g., approach inspired by [57]).

Ethical Clearance was obtained for this study. The Institutional Review Board of The University of Texas at Austin has recognized the exempt status based on CFR 46.101(b)(2). The University of Washington Human Subjects Division (HSD) has determined that this research qualifies for exempt status in accordance with the federal regulations under 45 CFR 46.101,21 CFR 56.104.

3. Results

3.1. The Use of Legitimacy (General Results)

Seventy-five excerpts coded for a (de)legitimization of the inclusion of cultural practices in the project of providing water and sanitation services to displaced persons are included in this discussion. Of those 75 excerpts, 48 were coded for a legitimization of this inclusion while 27 were coded for its delegitimization. Figure 1 shows the legitimacy subtypes used by the interviewees to (de)legitimize this project, finding that the interviewees primarily legitimized this project with influence, procedural, and comprehensibility legitimacy, and primarily delegitimized this project with comprehensibility legitimacy.

Figure 1. Frequency of legitimacy subtypes used to (de)legitimize the project of including cultural practices in the provision of water and sanitation.

3.2. The Use of Comprehensibility Legitimacy by the Utility Interviewees and Influence Legitimacy by the Remaining Interviewees

The trends identified in the previous section are related to the type of organization the interviewees were working for during this study investigation. Table 3 shows the distribution of excerpts coded

for the (de)legitimization of this project per organization type. Table 3 indicates that the interviewees working in water and sanitation utilities used legitimacy distinctly from the remaining interviewees: they primarily delegitimized the inclusion of cultural practices, mainly with comprehensibility legitimacy, while the remaining interviewees primarily legitimized this inclusion, mainly with influence legitimacy. Figure 2 shows this difference in the use of legitimacy.
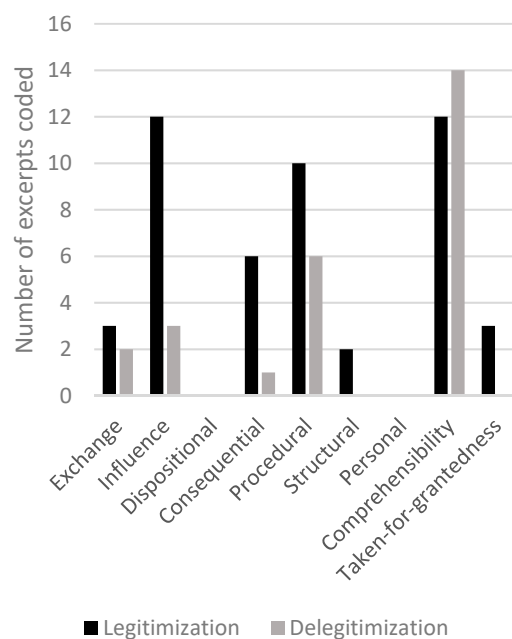
Table 3. Organization and the frequency of legitimacy subtypes used to (de)legitimize the inclusion of cultural practices in the planning of water and sanitation services.

Legitimacy Subtype	Organization					
	Architecture Company	Construction, Communication and Real Estate Company	Nonprofit	Government Agency	Utility	Total
Pragmatic (total)	3 (0)	4 (0)	6 (3)	0 (0)	2 (3)	15 (5)
Exchange	0 (0)	0 (0)	2 (2)	0 (0)	1 (0)	3 (2)
Influence	3 (0)	4 (0)	4 (1)	0 (0)	1 (2)	12 (3)
Dispositional	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Moral (total)	3 (1)	4 (1)	4 (2)	2 (0)	5 (3)	18 (8)
Consequential	3 (1)	1 (0)	1 (0)	0 (0)	1 (0)	6 (1)
Procedural	0 (0)	2 (1)	3 (2)	2 (0)	3 (3)	10 (6)
Structural	0 (0)	1 (0)	0 (0)	0 (0)	1 (0)	2 (0)
Personal	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Cognitive (total)	2 (0)	3 (0)	3 (2)	2 (1)	5 (11)	15 (14)
Comprehensibility	1 (0)	2 (0)	3 (2)	2 (1)	4 (11)	12 (14)
Taken-for-grantedness	1 (0)	1 (0)	0 (0)	0 (0)	1 (0)	3 (0)
Total	8 (1)	11 (1)	13 (7)	4 (1)	12 (17)	48 (27)
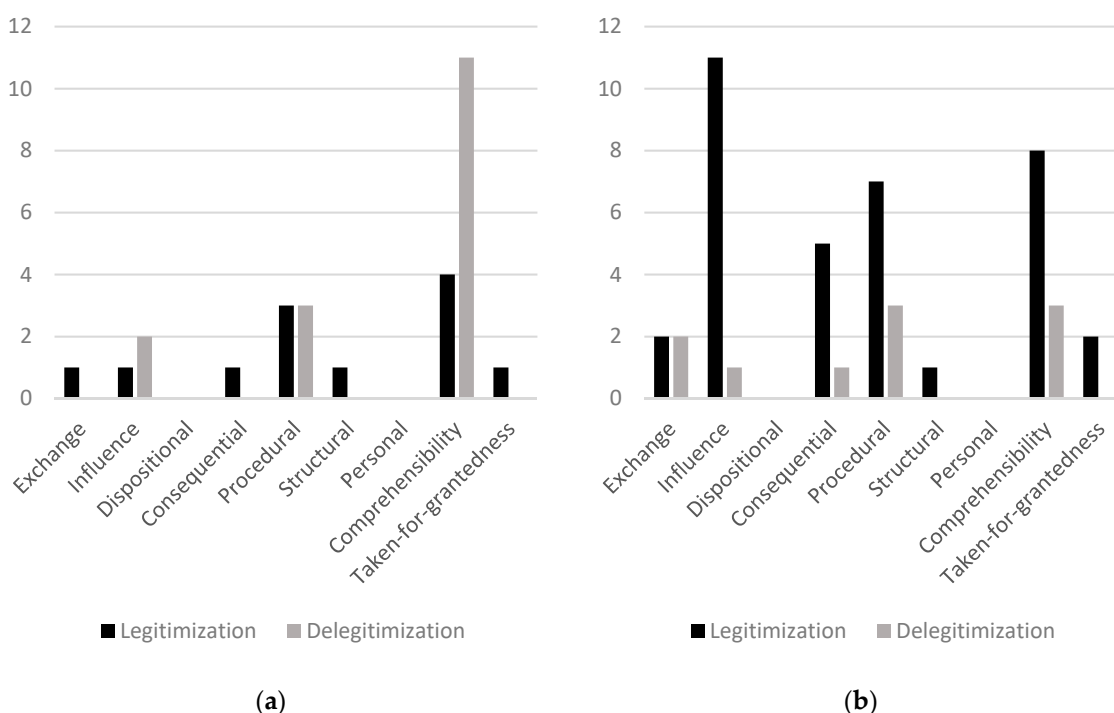
Figure 2. Frequency of legitimacy subtypes used to (de)legitimize the project of providing water and sanitation to displaced persons by: (**a**) the utility interviewees, and (**b**) all the remaining interviewees.

The use of comprehensibility legitimacy by the interviewees working in utilities to delegitimize the inclusion of cultural practices was addressed by four engineers that stated that they depended on previous experience. As they had not accommodated displaced persons before, they preferred to use

existing, familiar methods that assumed water consumption trends did not differ significantly from that of locals. As stated by an interviewee from a utility: "Cultural aspects . . . well . . . we wouldn't really have the experience, because say there are a lot of people from one area that leave suddenly, I mean, we always choose the numbers we have from experience as basis for our calculation, the way we know it."

On the other hand, the noticed use of influence legitimacy for the inclusion of cultural practices in accommodations was primarily from eight interviewees working on the renovation, construction or management of centralized accommodations who legitimized the adaptation of centralized accommodations based on observed human–infrastructure interactions that differed from the intended, local use (e.g., providing more robust toilets and sinks). The interviewees anticipated that this adaptation of centralized accommodations would benefit the organizations responsible for managing and providing accommodations by preventing them from spending money and effort. For example, an interviewee indicated " . . . [displaced persons] handled the facilities a lot rougher than we expected. And that makes it expensive, of course. If you have to install safety valves like in a prison, then maybe it makes more sense installing showers and toilets in the rooms."

3.3. The Use of Procedural and Comprehensibility Legitimacies to Legitimize the Inclusion of Cultural Practices

Figures 1 and 2, and Table 3 show that procedural and comprehensibility legitimacies were the subtypes of legitimacy that were most frequently used after influence legitimacy to legitimize the inclusion of cultural practices by the interviewees, independently from whether they were working in utilities.

The frequent use of procedural legitimacy was mainly from seven interviewees from all five types of organizations studied (see Table 2). They were describing the process of modifying systems in place (i.e., involved organizations' structures, collaboration between them, and decision-making processes) in the context of the unprecedented situation of rapid displacement studied in this paper. They all seemed to take part in this process, which they perceived as critical, by trying to "do their best". For instance, an interviewee working in a company responsible for a city's utility communication indicated a need to adapt customer services to displaced persons: "the problem is that all [these utilities close their] direct shops, direct links to consumers to save money. So now we have to think about should we go back into those kind of shop system, is that the right way?" A utility engineer pointed out a need for hygienic rules in centralized accommodations: "one person put their mouth right onto the tap, another held their container underneath. We had to set up certain hygienic rules that they weren't aware of." The manager of a centralized accommodation explained how her team was adapting to displaced person's needs: "we try sometimes to talk to the [displaced persons] and to ask them what they need and we do our best to do it." Finally, an interviewee working in a government agency discussed collaborations: "we learned together with the social workers and managed to get that problem under control quite quickly. Now we know which groups of refugees we have to inform about how to use our bathrooms." It should be noted that in all those excerpts, a collaboration or communication between multiple types of organizations (e.g., between government agencies and social workers in the previous excerpt) is critical for the efficiency of the process of modifying systems in place.

The frequent use of comprehensibility legitimacy to legitimize the inclusion of cultural practices was from nine interviewees from all five types of organizations studied (see Table 2) who used their experience about migration and about the refugee crisis obtained between the beginning of the peak of displacement (October 2015) and the time of the interview (summer 2016). For instance, the interviewees working in accommodations explained that they used the knowledge that they acquired during the months preceding the interviews to make decisions about the inclusion of cultural practices (for related quotes, see the fourth paragraph of Section 3.4). Similarly, an interviewee working in a government task force responsible for developing a portfolio of accommodations discussed how a new accommodation standard was created using their experience of the crisis: "we developed the Gemeinschaftsunterkunft Plus [Communal Shelter Plus]—a new standard. Because we noticed that

there was a difference with how people treated the private and public areas in the building. In their own room—no matter how small, they were really careful to keep everything nice and taken care of. But as soon as they went out into the hallway and out of their private area, it's ... There was a level of vandalism there that we hadn't expected at all."

3.4. Types of Information Used to Assess Cultural Practices during Decision-Making

As mentioned in the methods section, a secondary analysis was used to evaluate the types of information used by the interviewees to assess displaced persons' cultural practices and needs when making decisions. Results of this analysis are shown in Table 4. In this table, "indirect observations" are information obtained by the interviewees by communicating with individuals who claimed they had observed such practices or through word of mouth. "Direct observations" are information that the interviewees collected by communicating with displaced persons or by noticing changes made to the built environment by displaced persons. The total frequency of excerpts coded during this secondary analysis for each type of organization (last line of Table 4) is representative of the frequency of the interviewees working in those organizations (Table 2)—meaning that high excerpt frequencies correspond to high interviewee frequencies and vice versa, except for government agencies that correspond to the lowest excerpt frequency. The interviewees working in government agencies did not mention displaced persons' cultural practices as frequently as other interviewees because they primarily discussed decisions about the locations of accommodations in cities. They perceived such decision-making independent from displaced persons' cultural practices within accommodations. During the analysis, it became apparent that the type of information used by the interviewees is related to the type of organization employing the interviewee.

Table 4. Organization and frequency of information type used to (de)legitimize inclusion of cultural practices in the planning of water and sanitation services at the building and system scale.

Information Used to Assess Cultural Practices	Organization				
	Architecture Company	Construction, Communication and Real Estate Company	Nonprofit	Government Agency	Utility
Assumptions (total)	14	9	7	5	20
Assumption about habits, tastes and capabilities	0	3	5	5	14
Indirect observations of practices in housing (e.g., through word of mouth)	14	0	2	0	6
Previous experience with other groups from foreign countries	0	6	0	0	0
Direct observations of the built environment or communication with displaced persons (total)	2	0	22	3	7
Direct displaced persons testimonies/complaints	2	0	9	0	0
Direct observations of practices in housing	0	0	13	3	5
Plumbing issues in or around accommodations	0	0	0	0	2
German standards	3	1	0	0	12
Other (e.g., language differences, "feeling")	0	0	2	0	1
Total	18	10	31	8	40

Notably, interviewed architects primarily used indirect observations of practices in housing (14 out of 19 excerpts coded, see Table 4). Three interviewed architects based their decisions concerning the design of water and sanitation services in accommodations on conversations that they had with stakeholders about the way displaced persons use those facilities in existing accommodations. For instance, an architect indicated: "at first we wanted to plan normal sitting toilets, and then we found out that in another refugee housing facility . . . the normal toilets were like pushed up and they really destroyed those toilets, because they . . . need those standing toilets. They stand on the normal [toilets]." Additionally, another architect claimed that using those observations was mandatory for effective decision-making: "they bought these loos where you flush [and use] paper, which is not the standard way to do that in some countries. Maybe look first how people are doing that . . . If you need to clean, after you've gone to the loo with water, and you don't give people the possibility to do so, then . . . everybody brings in a bucket and cleans up after, that's not [good]."

The interviewees working in construction, communication and real estate companies primarily used their previous experience about the accommodation of other groups from foreign countries (six out of 10, see Table 4). For instance, Germany's population of immigrants from Turkey has continuously grown since Germany's bilateral agreement with Turkey for the recruitment of guest workers in 1961 [58]. Two interviewees perceived the influx of displaced persons as additional demands for services (e.g., accommodations, water and wastewater services) placed on cities, and used their knowledge of such previous population influxes to make decisions. For instance, an interviewee working in a company that was helping utilities with their communication with citizens said: "refugees are a new consumer group, it's a growing consumer group. How we need to communicate. In our business, and this is important for them, we call it "ethno-marketing". Which is a topic you can say, in Germany you have not just refugees but you have Turkish, and people from Yugoslavia, seen here as we should have big experience already here in ethno-marketing, we don't have."

Direct observations of the accommodation modifications by displaced persons was used as a primary source of information (see Table 4) by the interviewees working in nonprofits to assess possible issues and differing needs related to cultural practices that were not met. This might be due to the fact that most of these interviewees worked inside the accommodations and were in direct contact with displaced persons. For example, nonprofits primarily used direct observations of damaged showers and toilets to justify the decisions made. A social worker in a collective accommodation said: "I knew [we should put signs] because I worked in a different shelter before. In the beginning we could see . . . footprints on the toilets because they were using [the toilets differently]. But they don't tell us." Figure 3 provides another example of adaptions that occurred within the centralized accommodations when displaced persons' cultural practices misaligned with those of the local facilities. Empty water bottles were frequently found in the bathroom after use for cleansing, as opposed to using toilet paper.

Figure 3. Empty water bottles that were previously used for cleansing.

The interviewees working in government agencies and utilities primarily mentioned assumptions about displaced persons' habits, tastes and capabilities during their decision-making (Table 4). Assumptions made include: displaced persons' religion and associated practices, water and sanitation facilities available in countries of origin (e.g., type of toilet, communal versus private showers), daily water consumption, cooking habits, and habits when using toilets. All four interviewees from government agencies made such assumptions, using their knowledge of select countries of origins of displaced persons. For instance, an interviewee referred to squatting toilets as "toilets like [displaced persons] have in their country" in opposition to sitting toilets. Similarly, five interviewees working in utilities used such assumptions. "The people who came to us have a different way of eating. They fry, deep-fry a lot and here … in [City A], we make sure that the discharge into the wastewater stays within a certain limit, oils and fats for example" "And we have for Africa in total not more than 20 liters per day. Here in Germany we have 120 L per day. And in America, you have 200 L/day." "But there are other standards, for example for Muslims, with foot basins. And there are basins for the feet. For Muslims, they wash their feet before praying."

It should be noted, however, that the interviewees working in utilities, even when mentioning such assumptions, primarily refused to use those assumptions to make their final decisions about services provided to displaced persons. Table 4 shows the high use of German standards as source of information by those interviewees (12 out of 40 excerpts coded). This trend is related to the high use of comprehensibility by the utility interviewees to delegitimize the inclusion of cultural practices discussed in Section 3.2. Five interviewees working in utilities prioritized the use of German standards for their final decisions. They all acknowledged that assumptions discussed might be inaccurate, and that they were not worried about the impact of displaced persons' water demand trends on their cities' network. "It's not even been a year, so there probably aren't any values available yet to see how much was consumed at the various properties [for displaced persons]. But I don't think there's a difference. The thing is we have no water shortage in Germany." "We have not knowledge yet in order to draw conclusions … I can't imagine that there would be extreme changes for us." "The network's too big for that—for us to notice peaks at all." "We have assumed the highest amount. The German standard, German calculation." An interviewee also highlighted that water consumptions greatly varies based on the type of housing persons live in: "But you also can't compare where they come from. We can't say Syrians use 100 liters Moroccans use 200 liters and Americans, I think at the moment use 265 liters … No, you can't say that because the consumption behavior of a person in a family home is different to when you live in a container." "We have to provide highly qualified drinking water all the time." On the other hand, the interviewees working in nonprofits and government agencies did not use German standards when (de)legitimizing the inclusion of cultural practices, demonstrating a willingness to adapt standards to displaced persons' practices (Table 4).

3.5. Types of Decisions Made

Tables 5 and 6 provide a list of the types of decisions made by the interviewees that were identified during the secondary analysis as most frequently made by the interviewees when respectively legitimizing and delegitimizing the inclusion of cultural practices in water and sanitation services provided to displaced persons. Select quotes that are representative of the interviewees' perspectives about the decisions made are shown in each table. On the one hand, Table 5 shows that providing education to displaced persons to properly use water and sanitation facilities provided to them was the primary type of decision made when legitimizing the inclusion of cultural practices. For instance, multiple educational (Figure 4) and ephemeral (e.g., written by hand on a sheet of paper) signs posted near water and sanitation facilities may be found. On the other hand, Table 6 shows that the type of decision primarily made when delegitimizing the inclusion of cultural practices was to purposely not adapt the water and wastewater systems and perform calculations using German standards. This is closely related to the fact that the interviewees working in utilities refused to use assumptions about cultural practices when making decisions (see previous paragraph, Section 3.4.).

Figure 4. Entrance of a lavatory room with signs posted by a centralized accommodation manager after noticing that select displaced persons were using sinks as showers.

Table 5. Frequency of the types of decisions made by the interviewees while legitimizing the inclusion of cultural practices.

Decision Type	Number of Excerpts	Select Representative Quotes from Interviews
Provide education for proper use of water and sanitation facilities (e.g., putting signs)	21	"And we gave those people information . . . also in Arabic script. How to, for example . . . Substances that shouldn't be disposed of in the toilets, like oils and fats. You should really just put wastewater, human waste or wastewater from the kitchen in there. Normal. We gave them these informational material and managed to get it under control quite well." (A utility engineer) "Just show them. Or put up signs and say "this is OK, this isn't OK. "And of course then they learn." (A government agency interviewee) "We sometimes did house meetings, where we invited all the house. Where we tell them what is not good and maybe they could think about it and do it this way or whatever. Then this didn't work at all, also because it's always like "It's not me, it's the other guys" or whatever" (A nonprofit interviewee)
Adapt water and sanitation systems to cultural practices	8	"The planners only know hotels, schools, private house, a commercial building, Kindergarten, hospital. Asylum seekers . . . mmmmm. How do I calculate that? We really have problems with that, because they make everything much too big . . . And that's the problem that just leads to stagnation, bacteria . . . and in the end we said OK, we'll calculate it as a hotel or as a school. And you always have to know why. A school has a completely different simultaneity to a hotel." (A utility engineer)
Adapt the design of accommodations: improve privacy in facilities to respond to displaced persons' needs or complaints	5	"[Providing private kitchens and bathrooms is] much better because the bathrooms and the kitchens are the main cause of problems between the people here." (An accommodation manager) "I want to have a solution that most women can go complete with their clothes to the shower and change their clothes there then go out with it." (A male accommodation manager)
Adapt the design of accommodations: provide resistant sinks, showers and toilets	5	"We needed to implement standards for these sanitary areas that usually only exist in prisons. Because otherwise they would be broken very quickly." (A construction company interviewee)
Adapt the design of accommodations: separate men-women facilities	4	"Of course, we are in the common shelter we have prayer rooms and of course separate women and men sanitary facilities." (A planner working in a government agency)
Provide other services in accommodations (e.g., providing bottled water to replace the hose in toilets)	3	"And [displaced persons] use the water. Because the papers they are not used to that. They prefer the water . . . They come to us, we give them also, like every week we give to the people here papers, all that they need for the bathroom, for showering . . . " (An accommodation social worker)
Total	**51**	

Table 6. Frequency of the types of decisions legitimized by the interviewees while delegitimizing the inclusion of cultural practices.

Decision Type	Number of Excerpts	Select Representative Quotes from Interviews
Purposely not adapt the water and wastewater systems and perform calculations using German standards	13	See quotes from the utility interviewees discussing their use of German standards in the last paragraph of Section 3.4
Provide sit-down toilets to match local norms	5	"[We provide sit-down toilets because] now they are in Europe and if they are outside the shelter they have to use the European toilets, there are no other types. If they are renting a flat you only a European toilet." (A government agency interviewee)
Purposely not adapt the design of accommodations: improve privacy in facilities to fit the German habits	3	"It's not the cultural background, it's how they come. There are families coming, but most people that came or are coming are young men, actually. Single young men. And so we try to make different apartments for these different groups . . . . And yeah, every flat, of course, has its own bathroom, and its own cooking possibility. So it's more privacy." (A government agency interviewee)
Not provide education for proper use of water and sanitation facilities and solve misuse of facilities with constraining facility modifications	3	"[A social worker] screwed [the toilet] shut. Because there was pee all over the floor every day . . . I mean that's not the nicest way, but apparently it worked." (A social worker explaining that a toilet was screwed shut to avoid abusive use of a toilet) "We also have big problems with the washbasins. They leave the tap running. They don't turn it off. Because they don't care. They don't need to. So then we started putting in timers." (A utility engineer)
Total	**26**	

3.6. Short- versus Long-Term Accommodations

During the coding of the interview content, a trend became apparent in the (de)legitimization of the inclusion of cultural practices for accommodations perceived by the interviewees as short- versus long-term. Thirteen of the interviewees included in this discussion described the accommodations that they were working on as designed for long-term use by displaced persons. For example, architects working on the design of apartments for refugees who were granted asylum defined the accommodations they were designing as long-term as they anticipated that, corresponding to refugees' legal status, these individuals would remain in Germany for several years. Similarly, seven interviewees described the accommodations they were working on as short-term, and six interviewees described those accommodations as either time scales, meaning that it could possibly be short- or long-term. Finally, two interviewees acknowledged that they did not know whether the accommodation they were working on would be used for short- or long-term. The ratios of delegitimizing to legitimizing excerpts are 0.73 for long-term accommodations, 0.25 for short-term accommodations, and 0.57 for both. Those ratios indicate that the inclusion of cultural practices in the planning of water and sanitation services was mostly legitimized by the interviewees describing the accommodations they were working for as short-term. This inclusion of cultural practices was slightly delegitimized by the interviewees describing accommodations they were working on as possibly either short or long-term, while it was highly delegitimized by the interviewees describing them as long-term. The decisions made to include cultural practices in the planning of accommodations were legitimized more frequently for the short-term accommodation of displaced persons than for long-term (0.25 vs. 0.73). This observation ties to the interviewees' perceptions of integration. Eleven interviewees discussing long-term accommodations delegitimized the inclusion of cultural practices due to the belief that adhering to local cultural norms was beneficial for the "integration" of displaced persons who were anticipated to remain in Germany.

Tables A1 and A2 in the Appendix A provide a summary of the decisions that respectively intentionally included and excluded cultural practices when planning water and sanitation services, and the corresponding information and legitimacy types associated with the decisions. Notably, those

tables indicate that the education of displaced persons for proper use of facilities was legitimized differently from design practices. The education of displaced persons was mainly legitimized with several subtypes of moral legitimacy—indicating that it's "the right thing to do"—for accommodations described as long- and possibly either long- or short-term, while education was legitimized with influence and cognitive legitimacy for accommodations described as short-term (Table A1). This indicates that the interviewees viewed the education of displaced persons for proper use of facilities as beneficial in the short-term for reasons such as solving possible issues related to misuse of facilities, but as the "right thing to do" in the long-term to help displaced persons integrate with German culture. For instance, an interviewee stated: " . . . if refugees were guided with care and taught how to use the flats and how everything works, then I would see no problems for the future." This is further supported by the fact that the inclusion of cultural practices in the design of facilities for long-term accommodations was entirely delegitimized using moral legitimacy. As stated by two interviewees, providing designs following the "high German housing standards" would help displaced persons integrate, and "if we offer apartments like we traditionally do in Germany; you have one, two, three bedrooms, you have a bathroom, you have a kitchen, this has an effect on integration because it makes the people feel how we live in central Europe." It should be noted that the motivation expressed here by the interviewees for the provision of education for the proper use of facilities is very distinct from motivations of stakeholders to provide such education in low income countries. Those stakeholders primarily focus on the minimization of sanitary issues and the spreading of diseases (e.g., by targeting user behavior [59]).

Contrary to providing educational material to displaced persons, the adaptation of designs to cultural practices was primarily legitimized with cognitive and influence legitimacy for long- and possibly either short- or long- term accommodations, while it was mainly legitimized with consequential legitimacy for short-term accommodations (Table A1). Four interviewees working on such accommodations stated that adaptations "made sense" based on their understanding of the situation, and that those adaptations were needed for a smooth management of the accommodations. Additionally, three interviewees responsible for designing emergency accommodations focused on the needs of displaced persons for their well-being. For example, an interviewee designing an inflatable dome used as a temporary centralized accommodation stated that "it should play a role, what kind of people are coming . . . what do they need?" The choice of the type of toilets installed in accommodations is an extreme example since sit-down toilets, as opposed to squatting toilets or mixed-use toilets, were chosen by all the six interviewees who were responsible for this choice (Table A2). This decision was legitimized using exchange, influence, or cognitive legitimacy, indicating lack of moral consideration when choosing sit-down toilets (Table A2). This decision was supported by: (1) the anticipated benefits of this decision on institutions responsible for the provision of accommodation to displaced persons (e.g., the German government, the interviewees themselves); and (2) stating that an alternative (e.g., squatting toilets) is "unthinkable". An interviewee was asked whether a nonprofit discussed the type of toilets chosen. He replied: "no, no, no, no, no. This was not a discussion because there is no time for that. There is a situation that is totally chaotic, and we need to solve this situation with the available means . . . "

4. Discussion

4.1. A Reactive Response but a Willingness to Adapt

Notably, the presented decisions made by the interviewees while (de)legitimizing the inclusion of the cultural practices of displaced persons in the project of providing water and sanitation services to displaced persons represent a primarily reactive response to the large and sudden influx of displaced persons in Germany. Half of the excerpts coded as legitimizing the inclusion of cultural practices in the planning process correspond to a willingness to teach displaced persons to use facilities provided to them that align with local norms, or provide other services in accommodations, such as providing

bottled water as opposed to toilet paper. The interviewees thus primarily legitimized accommodations that did not take cultural practices of displaced persons into account before arrival, and reactively adapted water and sanitation services and facilities—at both the building and system scales—upon arrival. On the one hand, interviews with individuals working in water and sanitations utilities indicate that this reactive response was largely an intentional wait-and-see attitude for them to avoid incorrect assumptions or unnecessary modifications. This claim is supported by their primary use of German standards and comprehensibility legitimacy to delegitimize the inclusion of cultural practices when making decisions—indicating that they relied on their previous experiences, which are limited in terms of emergency housing for displaced persons. On the other hand, interviews with individuals working in other organizations than water and sanitation utilities indicate that their response was mostly unintentionally reactive. This is supported by their primary use of influence legitimacy to legitimize the inclusion of cultural practices, indicating that their decision-making is mainly driven by a willingness to adapt water and sanitation services (e.g., using educational signs) to displaced persons to minimize issues in accommodations.

The types of information used by the interviewees to assess cultural practices further support the reactive nature of cultural inclusion that differs from the local norm (Table 4). The interviewees tended to use the information directly available to them without seeking additional sources. The nonprofit interviewees primarily worked in direct contact with displaced persons, and thus a majority of information they used were direct observations. The other interviewees who were not working in direct contact with displaced persons primarily made assumptions based on existing knowledge (e.g., through word-of-mouth). Moreover, no trends were identified (see Tables A1 and A2 in the Appendix A for detailed results) between the type of information used and the intended time frame of the projects (short- vs. long- term), indicating that this reactive response is likely independent of intended time period of use for the accommodation. This reactive response is understandable for short-term accommodations given the emergency situation as stakeholders had to make "satisficing" rather than optimal decisions [39], mainly to prevent displaced persons from being homeless (as indicated by seven interviewees). For long-term accommodations, this reactive response can indicate that the interviewees perceived the long-term accommodation of displaced persons during the high influx of those displaced as an emergency situation, even when working on accommodations that would be used on the long-term by displaced persons.

However, despite this reactive reaction to the influx of displaced persons, results indicate that the interviewees showed a willingness to adapt the systems in place. Such a willingness is highlighted by the frequent use of procedural and comprehensibility legitimacy to legitimize the inclusion of cultural practices discussed in Section 3.3. Excerpts coded for procedural legitimacy show that the interviewees perceived that making efforts to adapt systems in place to the influx of displaced persons was "the right thing to do", and that they often felt responsible for trying their best to be part of such an adaptation (e.g., by adapting their decision-making process and their daily schedules). Excerpts coded for comprehensibility legitimacy further support this observed willingness to adapt, since a majority of those excerpts correspond to a constant use of the experience that the interviewees obtained during their work in connection with the accommodation of displaced persons to improve their decision-making.

4.2. The Use of the Power of the Built Environment

The integration of displaced persons was a key consideration of the decision-making process pertaining to the provision of water and sanitation services described by the interviewees. When asked about the decisions made related to cultural practices when designing water and sanitation related built environments in accommodations, a majority (17 out of 28) of the interviewees linked those decisions to the integration of displaced persons in Germany. This result indicates that the interviewees perceived the power that the built environment has on individuals using it. The interviewees primarily perceived that providing "German" (or "European") toilets, showers, and other water and sanitation

related built environment components, and helping displaced persons learn how to use them "the German way" would change displaced persons' identity to fit the characteristics of German identities.

However, the results presented in Section 3.6 reveal that the interviewees perceive the power of the physical characteristics of the built environment and the power of educational materials differently. For long-term projects, the interviewees' decisions regarding education of displaced persons and other social services related to water and sanitation was more morally rooted; that is to say, it was based on an assessment of what is "the right thing to do." However, when concerning physical alterations to the centralized accommodations to incorporate cultural practices, the interviewees focused on what "makes sense" and is beneficial to organizations responsible for providing accommodations. Stakeholders interviewed seem to perceive their power on displaced persons when deciding about education for the use of the built environment provided, but not their power when deciding about the built environment itself. Thus, the interviewees perceived the power of education about the way individuals use the built environment more than the power of the built environment itself.

Overall, the interviewees perceived the influence of the built environment and its use on displaced persons' identities, but the interview content also indicates that the interviewees were not anticipating German cultural practices to evolve with the arrival of displaced persons. The German cultural practices primarily discussed in interviews include: (1) sitting toilets, referred to as "normal toilets", "German toilets", or "European toilets" by the interviewees; (2) a willingness to conserve water (e.g., by reducing the shower time), even in areas with abundance of water; and (3) the provision of high water quality to the population. Water and sanitation-related German cultural practices were primarily described by the interviewees as static and not evolving in the near future. Thirteen interviewees described those cultural practices as static, while only four interviewees perceived those practices as evolving. For example, an interviewee described German willingness to save water by stating: "that's the philosophy in Germany, that water should be saved and so we save, no matter what it costs". Thus, the results show that displaced persons were expected to adopt German water and sanitation-related cultural practices without making those German cultural practices evolve. With this in mind, one can refer back to the introduction section entitled "Institutional power". In this section, several examples of identity homogenization (e.g., the definition of race) and marginalization through the built environment were provided. The results indicate that institutions of power do not seem to try to marginalize displaced persons, but to homogenize them with the German population, or by "Germanizing" them—optionally, through education about the use of the built environment, and mandatorily, through the built environment itself.

4.3. Recommendations

Section 4.1. indicates that unprecedented, sudden and large population influxes with multiple cultural backgrounds can be associated with: (1) mostly (intentional and unintentional) reactive responses by stakeholders to provide water and sanitation services in accommodations, and (2) a strong willingness demonstrated by stakeholders to adapt systems in place. The results of this study have enabled the researchers to identify recommendations to stakeholders for an effective adaptation of systems in place during such extreme population displacement events.

4.3.1. Improve Access to Information about Displaced Persons' Practices and Needs Related to Water and Sanitation

Results presented in Section 3.4 indicate that sources of information about displaced persons' practices and needs used by the interviewees were mostly readily available to them. This shows that the interviewees primarily did not have the ability, willingness or time to access potentially more accurate and objective sources of information. An interviewee highlighted the criticality of access to information about accommodations for displaced persons when making decisions, saluting the creation of tailored regulations accompanied by explanations by the government. "What has become better is the ways ... last year we had zero regulations for refugees, now we have new circulation with some

explanations. For example, what happens in the sports halls, what are those Tempohomes [modular centralized accommodations], the federal building code? The federal building code was changed twice, which is a lot." Following this example, we recommend that government agencies constantly try to adapt their regulations and guidelines to accurately reflect the situation in accommodations for displaced persons (e.g., with reports [60]). Additionally, no interviewee indicated that they used publically available guidelines other than provided by the government (discussed in Section 1.1.1). We thus recommend organizations involved in the accommodation of displaced persons to help individual decision-makers access additional publically available guidelines, such as those provided by nonprofits (e.g., Sphere [61]) to complement those provided by the government. Doing so could raise awareness in subjects that were not mentioned as critical by the interviewees in their decision-making processes (e.g., menstrual hygiene, access to services for disabled persons, working with children [61]). However, it should be noted that such existing standards for displaced persons do not yet address the situation studied here: those standards primarily address the situations in refugee camps while this study addresses the accommodation of displaced persons in developed urban contexts. We thus believe that there is a lack of such global standards in developed urban context, such as in some high income countries. Doing so would help attempts to bring universal water and sanitation services to all people, and thus would help achieve Sustainable Development Goal 6 [15].

4.3.2. Enhance the Acquisition of Data about Displaced Persons' Practices by Communicating with Them (e.g., Using Interpreters and Surveys), and by Monitoring Their Practices in Accommodations (e.g., Using Water Metering)

In addition to a need for better access to information described in the previous paragraph, this study highlights a lack of data about displaced persons' practices in accommodations. Based on the results of this study, we recommend stakeholders to acquire such data using two methods. First, data can be acquired by communicating with displaced persons—shown in Section 3.4 as lacking during the decision-making process—for instance by deploying surveys amongst accommodations' residents, or by employing more interpreters for an open dialogue with displaced persons. Second, data can be acquired by accurately monitoring their practices in accommodations. For instance, water meters can be used to measure water consumption at the accommodation level since water use patterns were shown as lacking in Sections 3.4 and 3.5. For instance, an interviewee working in a communication company contracted to help a water and sanitation utility highlighted the need for more dialogue with displaced persons. "The challenge is that you need more dialogue with them . . . Because those ethno groups are used to have kind of dialogue, which is linked to their cultural heritage. They discuss everything with family or relatives, so you need something similar on the company side, like special desk where native-speaking people help them. It doesn't matter if it's Arabian or Turkish or whatever, but you need this direct dialogue."

4.3.3. Promote Collaborations between Distinct Involved Organizations

The interviewees indicated that a communication and collaboration between involved organizations that usually do not communicate or collaborate with each other is key to an efficient adaptation of systems in place (see excerpts coded for procedural legitimacy in Section 3.3). An interviewee working in a government agency discussed the criticality of such collaborations: "if Saturday at 11:30 at night, somebody says, "I need this sports hall to be opened," and then the firemen have to come. And if we were to give the permit for a Tempohome or something, the firemen know they must forget the rest of their work, they must look at this first. So the working together comes better and better and we feel like more secure."

4.3.4. Monitor Changes that Occur in Organizations for an Easier Adaptation in the Future

The high use of procedural and comprehensibility legitimacies by the interviewees to (de)legitimize the inclusion of displaced persons' cultural practices (Section 3.3) indicates that the

interviewees mainly used their own perceptions of the situation to make decisions. When using procedural legitimacy, the interviewees assessed what the "right thing to do" was based on socially constructed values. When using comprehensibility legitimacy, the interviewees based their decisions on their own experiences. The types of information used by the interviewees (Section 3.4) further support this observation, given the frequent use of assumptions and observations of displaced persons' practices. This decision-making process indicates that individuals made decisions independently from any other involved stakeholders. The decision-making process described here is typical of an emergency response. However, we recommend that individuals, when using their own perceptions to make decisions, keep track of (and potentially share with their co-workers) their decision-making process to help involved organizations repeat successes and avoid mistakes they could have made in such processes.

4.3.5. Promote Discussions amongst Decision-Makers about the Definition of Integration, and about Optimal Built Environment Configurations for Efficient Integration of Displaced Persons

As shown in the results and Section 4.2, the integration of displaced persons was the main consideration made by interviewed stakeholders to make decisions pertaining to the built environment provided to displaced persons, for both short- and long-term projects. However, the results also indicate that choices made about the built environment for integration were not morally constructed (using pragmatic and cultural-cognitive rather than moral legitimacy). Discussions about integration and the optimal built environment configurations would thus enable stakeholders to make decisions based on moral considerations, and to be more aware of their own power through the built environment. Those discussions could also enhance proactivity: decision-makers who thought about integration and optimal built environment configurations prior to an emergency accommodation situation are more likely to make fast and proactive decisions. Such discussions would also help stakeholders reach a consistent definition of integration, which currently has multiple definitions depending on the communities (e.g., countries, disciplines) using this word. For example, one could view as "cultural capitulation" behaviors that could be viewed as "integration" or "assimilation" by others (e.g., Nicolaides and Zarsadiaz [62]). One interviewee noticed this inconsistency in Germany: "what does it mean; integration? . . . some people think integration is to let people as they are, more like the model in the US . . . And other people in Germany say, 'No, this is not our style in Europe and if you want to live here forever, for instance, you have to take care about our civil code and the idea of how we want to live.'" Amongst the 28 interviewees, only two tried to define integration when mentioning this word. Additionally, there is no consistency amongst the interviewees in their perception of optimal built environment configurations for the integration of displaced persons. For instance, four interviewees perceived centralized accommodations as best for integration, while six interviewees preferred private apartments. Similarly, four interviewees indicated that the locations of accommodations are optimal when spread across every neighborhood of the city, while four interviewees preferred when accommodations are provided only in select neighborhoods (e.g., in neighborhoods with a large population of students or immigrants to ease community acceptance). Discussions amongst stakeholders could thus enable the making of more consistent, and thus effective, decisions about accommodations during large influxes of internationally displaced persons.

4.4. Study Limitations

Limitations to this study include the fact that, although a coding dictionary was developed, intercoder reliability checks were performed, and investigators were from different cultural backgrounds, the analysis performed might be biased by some taken-for-granted accounts that researchers share and did not identify while developing the coding dictionary. Another limitation is that the institutional response studied here might depend on unaccounted for factors. For instance, the political circumstances in which interviews were conducted might have affected interviewees' perspectives, such as the upcoming state elections or select incidents related to displaced persons

drawing media attention at the end of 2015 (e.g., the Cologne incident [63]). Additionally, displaced persons were not interviewed as the goal of this study is the assessment of the institutional response of the hosting country. However, given the results of this study, we believe that collecting displaced persons' insights could be extremely valuable in complementing this research, and should be addressed in future work. Finally, the results of this study may not be applicable to all high-income countries, as institutional responses greatly depend on the cultural aspects of the countries [64].

5. Conclusions

Rapid migration is a worldwide phenomenon that has increased in recent years [4] due to more frequent disasters [65] and political instabilities [66]. During periods of large and rapid influx of internationally displaced persons, the hosting country can face multiple challenges (e.g., lack of available housing) while trying to accommodate the incoming populations. One of those challenges are decisions pertaining to the inclusion of cultural practices. Displaced persons may have unanticipated (or anticipated) needs related to differing cultural norms. Decision makers can choose to either repress or accommodate such needs through the services provided. This study was a unique opportunity to capture the institutional response to sudden and unexpected population dynamics in a high-income country such as Germany. For this study, a specific focus on water and sanitation was chosen because associated cultural practices worldwide are diverse. Twenty-eight interviews underwent qualitative analysis to identify the types of: (1) decisions made by the stakeholders regarding the provision of water and sanitation services; (2) legitimacy used to legitimize those decisions; and (3) information used to assess displaced persons' cultural practices.

The results of this study indicate that the institutional response described in this paper was representative of a reactive rather than proactive response. On the one hand, the interviewees working in water and sanitation utilities willingly adopted a reactive response as they refused to make assumptions when lacking knowledge. On the other hand, the other interviewees' reactive response was unintentional and was driven by a willingness to minimize issues in accommodations. Results indicate that, despite this reactive reaction, the interviewees were willing to adapt systems in place (i.e., involved organizations' structures, collaboration between them, and decision-making processes) primarily using their own experiences and information readily available to them. Additionally, the results of this study indicate that the interviewees perceived that the displaced persons' cultural practices should be included in the planning of the design of short-term accommodations (using influence and cognitive legitimacy), but not in the design of long-term accommodations (using moral legitimacy). The main alternative chosen by the interviewees to reduce issues related to cultural practices, mostly legitimized with moral legitimacy, was the education of displaced persons. In the long-term, they view this alternative as helping displaced persons integrate to the German culture.

Overall, this paper highlights the fact that the decision-making process of stakeholders concerning the education of displaced persons was morally constructed (moral legitimacy), while the decision-making process concerning the provision of built environments was more benefit driven (pragmatic legitimacy) and culturally constructed (cultural-cognitive legitimacy). This difference in decision-making process highlights the fact that stakeholders might have focused mainly on the way displaced persons used the built environment rather than on the built environment itself. In a way, their decisions can modify displaced persons' identities and be part of claiming and maintaining hegemonic power. Most of the interviewees legitimized some of their decisions by highlighting that this is "how [they] do it in Germany". Therefore, they expressed their willingness to homogenize displaced persons' identities with the German population, to "Germanize" them. This study thus highlights a need for more research and awareness raising in countries hosting a large number of internationally displaced persons about the effects of design choices in accommodations on displaced persons' identities. However, it should be noted that this willingness to homogenize displaced persons' identities is based on interviewee's intent to help displaced persons settle easily so that receiving communities may have good interactions with displaced persons.

The results of this study suggest that the awareness raising described in the previous paragraph could be achieved with policy discussions amongst decision-makers about (1) their definition of integration, and (2) the optimal built environment configurations for reaching integration. Additional recommendations for stakeholders involved in the provision of water and sanitation services to displaced persons during periods of large and sudden influxes emerged from the results of this study. They include: (1) improve access to information about displaced persons' practices and needs related to water and sanitation, (2) enhance the acquisition of data about displaced persons' practices by communicating with them and by monitoring their practices in accommodations, (3) promote collaborations between involved organizations, and (4) monitor changes that occur in organizations for an easier adaptation in the future.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A. Additional Result Tables

Table A1. Decisions made and legitimacy used while legitimizing the inclusion of cultural practices.

	Type of decision made	Projects Described as Long-Term					Projects Described as Short-Term				Projects Described as Possibly Short- or Long-Term			
		Adapt the design of accommodations	Adapted design example: robust toilets	Adapt systems to cultural practices	Education for proper use of facilities	Other services provided in accommodation	Adapt the design of accommodations	Adapted design example: robust toilets	Education for proper use of facilities	Other services in accommodations	Adapt the design of accommodations	Adapted design example: robust toilets	Adapt systems to cultural practices	Education for proper use of facilities
	Total number of excerpts (unique respondents)	5 (2)	2 (1)	4 (3)	7 (4)	1 (1)	8 (3)	2 (1)	4 (2)	2 (1)	3 (2)	1 (1)	4 (2)	7 (1)
Information type	**Assumptions (total)**	4	2	2	6		7	2	2		1		3	7
	Assumption about habits, tastes and knowledge	2		1	4		1		1		1		3	1
	Indirect observations of practices in housing	2	2	1	2		6	2	1					
	Previous experience with other groups from foreign countries													6
	Direct observations (total)	1		1	4		1		2	3	2	1	1	
	Direct Displaced persons testimonies/complaints	1								2				
	Direct observations of practices in housing				3		1		2	1	2	1	1	
	Plumbing issues in or around accommodations			1	1									
	Refusal to assume anything			1										
Legitimacy subtypes	**Pragmatic legitimacy (total)**	1	1	2	1		3		2		1		1	2
	Exchange legitimacy			1	1									
	Influence legitimacy	1	1	1			3	2	2		1		1	2
	Dispositional legitimacy													
	Moral legitimacy (total)	1			5		4			2			1	4
	Consequential legitimacy	1			1		4		1					1
	Procedural legitimacy				3					1			1	2
	Structural legitimacy				1									1
	Personal legitimacy													
	Cognitive legitimacy (total)	3	1	2	1	1	1		2		2	1	2	1
	Comprehensibility legitimacy	1	1	2	1		1		2		1		2	1
	Taken-for-grantedness legitimacy	2				1					1	1		

Table A2. Decisions made and legitimacy used while delegitimizing the inclusion of cultural practices.

	Type of decision made	Projects Described as Long-Term		projects described as short-term				Projects Described as Possibly Short- or Long-Term			
		Not adapt the design of accommodations	Not adapt systems to cultural practices	Not adapt the design of accommodations	*Non-adapted design example:* sit-down toilets	Not provide education for proper use of services	Other services in accommodations	Not adapt the design of accommodations	*Non-adapted design example:* sit-down toilets	Not adapt systems to cultural practices	Not provide education for proper use of facilities
	Total number of excerpts (unique respondents)	4 (3)	7 (5)	1 (1)	1 (1)	1 (1)	1 (1)	5 (2)	4 (2)	3 (2)	2 (1)
Information type	**Assumptions (total)**	1					1	3	2	2	2
	Assumption about habits, tastes and capabilities	1					1	2	2		1
	Indirect observations of practices in housing							1		2	1
	Previous experience with other groups from foreign countries										
	Direct observations (total)		2			1		2	2		
	Direct Displaced persons testimonies/complaints					1					
	Direct observations of practices in housing		2					2	2		
	Plumbing issues in or around accommodations										
	Refusal to assume anything	3	7							1	
Legitimacy subtypes	**Pragmatic legitimacy (total)**		1			1		2	2	1	
	Exchange legitimacy		1			1		2	2		
	Influence legitimacy									1	
	Dispositional legitimacy										
	Moral legitimacy (total)	3						1		2	1
	Consequential legitimacy	2									
	Procedural legitimacy	1						1		2	1
	Structural legitimacy										
	Personal legitimacy										
	Cognitive legitimacy (total)	1	6	1	1		1	2	2		1
	Comprehensibility legitimacy	1	6	1	1		1	2	2		1
	Taken-for-grantedness legitimacy										

Appendix B. Interview Questions

The following list of questions was used as a template for the questions asked during interviews. Not all questions were asked during the interviews. Questions asked were selected to fit the interviewees' positions and organizations. For instance, the questions in the section "Design and Requirements" were asked to architects only. Discussions about the cultural practices of refugees emerged throughout the interviews, as well as when specific questions were asked about this topic (e.g., questions 30, 46).

INDIVIDUAL'S ROLE

1. Now how long have you been in your current role?
2. What does your role look like?
3. What type of responsibilities do you manage in this position?
4. Have you personally noticed a change in the overall population over the last year and a half?
5. Would you say that this is linked with the refugee crisis or separate?
6. Do you feel that this change is temporary or permanent? What does permanent or temporary mean to you?
7. What about Germany as a whole?

QUESTIONS FOR ACCOMMODATION MANAGERS/SOCIAL WORKERS ONLY

8. When did the shelter open?
9. Was this facility originally built to serve as a shelter?
10. If not, what changes were made to the building to make it acceptable for housing refugees?
11. Who paid for these renovations? Do you agree with this?
12. We read that the facility has a capacity of _____. Have you exceeded this capacity at any point?
13. Does your organization have a contract with the government?
14. What does that contract look like?
15. Can you please explain how people receive food, water on-site?
16. How do people take showers and what is the system for using sanitary services?
17. How do you feel about this arrangement?
18. Are there any improvements you would make? Why?
19. Have you noticed any ways that this arrangement has exceeded expectations or worked well?
20. Who covers the cost of water and wastewater services on-site? How long is this payment arrangement for?
21. Do you feel this is equitable or the right decision, why?
22. How has the neighborhood received this facility? How about the city as a whole?
23. What are some reasons they would respond this way (**)?

QUESTIONS FOR THE INTERVIEWEES INVOLVED IN THE CONSTRUCTION OR RENOVATION OF ACCOMMODATIONS

Location

24. Are you involved in the selection process for the location of the housing facility?
25. How did you get involved in designing these accommodations?
26. What works well with the location, what would you improve? What would be the ideal location for this type of project?

Design and requirements

27. What were your top priorities in designing these housing facilities?

28. Have you noticed any difference between the design process for the housing facilities and your other projects?
29. What do the requirements look like when you are designing the facility? Are there any specific to refugee housing that you need to meet? Who creates these? Was it possible to meet all of these requirements?
30. Does culture play a role into how you designed housing facilities? Should it?
31. Did you take into account the surrounding community into your design? What does this look like?
32. What type of structure do you prefer for these projects? Is it the one you decided to go with for your contract?

Permitting/Construction process (timeframe)

33. How long did you have to design the building? Did you succeed in respecting this amount of time?
34. How long did the permitting process take? Was there any difference between refugee housing accommodations and your other projects?
35. How long was/is the construction process? Is it what you predicted? If not, why? What do you think enabled this construction to move more quickly?
36. What type of contract do you have for the design of the building? (Is it directly with the government or someone else?)

Maintenance

37. Does your contract extend beyond the construction process? If so, what does this look like for your responsibilities?
38. Do you consider this accommodation to be temporary or permanent? Why or why not?

Building Renovation

39. We have heard from different people that commercial buildings have been converted to residential use for the purpose of providing housing to refugees. Have you had any interaction with this process through your work?
40. What types of changes have been needed for buildings and who pays for these renovations? Are these changes consistent with each project or do they vary? Why do you think this is the case?
41. Are there any improvements you would suggest for the current situation of providing housing to refugees, specifically with respect to water and sanitary services?
42. Have you noticed any ways that this arrangement has exceeded expectations or worked well?
43. Do you feel this is sufficient? Have you heard any feedback after these changes have been made?
44. Would you consider these housing facilities to be a long term or short term solution?
45. Why do you feel this way? If short-term, how will refugees continue to receive services and whose responsibility is this? Can you please tell me more about why?
46. Does culture play a role in how you renovate select locations or plan new housing facilities for refugees? If so, can you provide an example? If not, do you feel that culture should be part of the planning process? Why or why not?

GOVERNMENT'S RESPONSE

47. Is there a difference in response from how your office has addressed the overall population change versus the response to the refugee crisis? How so? Do you agree with this approach?
48. How has the organizational structure of your agency been impacted in the last two years? Is it due to the population change? Is there a different way you would have adjusted the organizational framework? Why is this?

49. Could you please help us understand how the government chooses housing facilities for refugees and asylum seekers?

50. We have heard that some buildings are given time for renovation and others are not, what factors affect this decision? Is this the same approach that you would take? Why or why not?

51. Does culture play a role in how you select locations or plan new housing facilities for refugees? If so, can you provide an example? If not, do you feel that culture should be part of the planning process? Why or why not?

52. What is the government's process for assigning contracts for housing facilities with organizations?

53. In these contracts, who is responsible for covering utility expenses for water and sanitary services? Do you feel this is the best arrangement? Why or why not? How long are these expenses covered?

54. What is the extent of interaction between your office and the utility company for water and sanitary services? Do you think this is sufficient? Are there ways communication between the two entities could be improved?

55. We saw a map produced by the government which showed a significant number of housing facilities without contracts. What does this mean for how the facilities are set up? Specifically the permitting process and who pays for water and sanitary utility services in this context?

56. For the housing facilities that don't have contracts, how do they monitor the quality of living? Specifically with regards to provision of water services? How do these facilities without contracts pay for water services?

57. How do the EU requirements for refugee accommodation factor into your decision making for organizing housing facilities for refugees and asylum-seekers? (Specifically CEAS—"Receptions Conditions Directive" and "Revised European Agenda on Migration")

58. Are there ways that the government monitors water quality in housing facilities? We have heard from that water testing occurs at some facilities? How do you decide which facilities to test?

59. What sort of feedback have you heard from organizations you partner with regarding your response to the population change?

60. How do you feel about your office's overall response to the refugee crisis with respect to providing housing and water services? Is there anything you would improve?

61. Have you noticed any ways that this arrangement has exceeded expectations or worked well?

UTILITY'S RESPONSE

62. Has your office discussed the refugee crisis with respect to providing utility services? How about the overall population change?

63. What are some of the top priorities you think your department or the utility company has established in providing services to refugees?

64. How has the refugee situation affected the organization of your company? How has the utility adjusted to this organizationally? How has it impacted your specific position and your team?

65. What type of interaction has your department had with the refugee community? Are you in contact with emergency housing facilities or refugees after they move into more permanent housing? Can you explain this in more detail?

66. What type of interaction has your department had with the local community involving the refugee crisis?

67. I'd like to discuss a couple of technical aspects regarding your role. Do you feel that the patterns for water demand for the refugee population is different than what you've seen in the last two years in Berlin? Can you explain the difference (if applicable)?

68. Do you foresee any technical changes in functionality with respect to providing water and sanitary treatment to the refugee population?

69. Are you involved with the process of arranging payment for utilities associated with housing facilities for refugees? Who pays for utility services and for how long?

70. Does your office meter water use at the refugee housing facilities? What type of data are you collecting and have you noticed any trends?

71. Do you feel that the current arrangement for providing utilities to refugees is equitable?

72. In your opinion, what could water or wastewater utilities do differently to be better prepared for this type of sudden population growth? What would that change look like and how would it affect your role?

73. Have you noticed any ways that this arrangement has exceeded expectations or worked well?

74. Has your group or the utility made any operation or functional infrastructural changes due to the overall population change or the refugee situation?

75. I'd like to talk about two different scenarios in the coming years and how you think the utility company would respond:

76. Refugees do not stay and the population decreases. How do you think this will affect utilities and utility services in Berlin?

77. Refugees do stay and the population increases. How do you think this will affect utilities and utility services in Berlin?

78. What types of challenges do you see in the next coming years with refugees finding permanent housing in Berlin?

79. Have you noticed any ways that this arrangement has exceeded expectations or worked well?

ORGANIZATION'S RESPONSE

80. Could you please help us understand how your organization chooses housing facilities for refugees and asylum seekers? Is there a list of requirements that need to be met? Are there priorities? Is it different form the government's process?

81. We have heard that some buildings are given time for renovation and others are not. What factors affect this decision? Is this the same approach that you would take? Why or why not?

82. Does culture play a role in how you select locations or plan new housing facilities for refugees? If so, can you provide an example? If not, do you feel that culture should be part of the planning process? Why or why not?

83. Are there ways that your organization monitors water quality in housing facilities? We have heard from that water testing occurs at some facilities? How do you decide which facilities to test?

84. Are there ways that you monitor quality of life in general in those flats?

85. How do the EU requirements for refugee accommodation factor into your decision making for organizing housing facilities for refugees and asylum-seekers? (Specifically CEAS—"Receptions Conditions Directive" and "Revised European Agenda on Migration")

86. What sort of feedback have you heard from organizations you partner with regarding your response to the population change?

87. How do you feel about your office's overall response to the refugee crisis with respect to providing housing and water services? Is there anything you would improve?

88. Have you noticed any ways that this arrangement has exceeded expectations or worked well?

COORDINATION WITH OTHERS

89. Has your office been in contact with nonprofit organizations through this housing situation and refugee crisis?

90. What does that involvement look like?

91. Would you change the amount of involvement? What would that change look like and how would it improve your role?

92. And has your office also been in contact with other government agencies, such as LAGeSo?

93. What does that involvement look like?

94. Would you change the amount of involvement? What would that change look like and how would it improve your role?

95. And has your office also been in contact with the utility company?

96. What does that involvement look like?

97. Would you change the amount of involvement? What would that change look like and how would it improve your role?

OVERALL REFUGEE CRISIS

98. Do you feel that the government, utility company and other nonprofit organizations have responded appropriately to this rapid increase from refugees and other factors?

99. What are some of the biggest challenges that have occurred in relation to the refugee crisis in Berlin? (How about the population increase separate from the crisis?)

100. What about Germany as a whole?

101. What do you feel are the local and federal government's top priorities in responding to the refugee crisis regarding accommodation? (How about the population increase separate from the crisis?)

102. Do you agree with these priorities? What would you change and why?

103. What would happen if Berlin received 50,000 more refugees in the next year?

104. Why do you think this would be the response? Would this be a different response from a population increase separate from the refugee crisis?

105. There is always the option to "do nothing," why or why wouldn't this be an appropriate response from Berlin's government and/or nonprofit organizations?

INTERVIEW WRAP-UP

106. Are there any documents we could have (or talk about) that might help us understand the changes you have described?

107. Can you please walk me through this document?

108. Are there other people we should be speaking to about ways in which this sudden population growth has impacted water and wastewater utilities?

109. Can you help us get in touch with them?

110. Would it be possible for us to contact you if we have any follow up questions?

111. If so, what is the best way for us to do so?

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