Adaptive strategies of urban disaster recovery planning

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1. Introduction

When disaster impacts cities, planners are required to address two central aims: on the one hand, cities need to recover after disaster, and on the other, urban development that existed before disaster is supposed to continue afterwards. For both aims, forms of planning exist: recovery planning and urban planning. How similar and how different are they? How do they complement or contradict each other in the case of urban disaster? What role do existing conditions as well as the scale of disaster play, and how can planning adapt to these situations? Is it possible to plan for the rebuilding of existing structures and necessary improvements at the same time?

To address this subject matter, this contribution deals with contradictions between recovery planning and urban masterplanning in the case of the urban mega-disaster in New Orleans in the US after Hurricane Katrina. While recovery planning is intended to enable a 'return to normal', urban master land use planning is aimed at an alteration or transformation of a given situation. In the case of New Orleans after Hurricane Katrina in 2005 the Citywide Recovery Plan had to adapt to the aftermath of disaster, while the new Masterplan advocates growth and improvement. Here, the conjunction of particular spatial, institutional and social aspects of the city and the scale of disaster seems critical.

In the following, socio-spatial perspectives as theoretical basis for this contribution will be outlined in connection to urban planning and disaster recovery planning. A methodological discussion will describe the employed case study approach. For this contribution, data were selected from the author's empirical long-term case study based on mixed-method quantitative and qualitative research in New Orleans. A quantitative questionnaire survey conducted in 2007 with an impacted population in a particularly hard-hit area of the city, the Lower Ninth Ward, serves to indicate vulnerabilities related to societal and spatial aspects and the capacity to recover and rebuild. Qualitative interviews were conducted in 2009 with key individuals in federal and local institutions and planning authorities involved in the recovery process. Their integrated observation permits identifying weak links between spatial, social, and institutional aspects.

The conclusion will correlate these aspects and indicate processes of adaptation in recovery planning amidst contradictory planning aims and problems of repopulation and rebuilding in the city. Questions of density of impacted neighborhoods emerge against the background of existing urban shrinkage processes. The case study area demonstrates massive population loss and low rebuilding rates, related to vulnerabilities, stratification, and lacking capacity to rebuild. Recovery plans and related institutions in New Orleans adapted to these circumstances through the definition of Policy Areas and the Lot Next Door program, while the new Masterplan permitted potentially unsustainable development in low-density neighborhoods.

Knowledge-based planning recommendations may enable a balance between existing conditions and necessary adaptation and improvement to support quick, yet also sustainable recovery in the case of urban mega-disasters. The approach is applicable to cases of urban disaster in the USA and adaptable to other (global) cases of coastal and peri-coastal metropolises subject to (hydro-meteorological) risk by taking the particular spatial, institutional, and social context into account.

2. Socio-spatial approaches to planning

Socio-spatial perspectives in urban studies and disaster research provide a theoretical basis for research on planning in the context of both cities and disaster and their relation to social and demographic aspects. These perspectives state that "spatial or environmental and locational considerations are always part and parcel of everyday social relationships" (Gottdiener and Hutchison 2006:xv). This is based on a political economy approach towards the production of space by associating economic development "with important factors in the social and political change of metropolitan space" (Gottdiener and Hutchison 2006:86). These relate to particular social and demographic aspects, including "social class, race, gender, ethnicity, age, family status, and religion (Gottdiener and Hutchison 2006:1) and refer to spatial aspects such as "the clustering of homes according to family income" (ibid.). Research topics include policy and programs, questions on growth, and possible improvement of living conditions in urbanized environments (Gottdiener and Hutchison 2006:xvi). These refer to "the activity of planning, which seeks to obtain the best living and working arrangements in developing cities" (Gottdiener and Hutchison 2006:314).

Planning can be described as an activity that has the capacity "to predict the consequences of its actions" (Campbell and Fainstein 2003:2) and to adapt "to changes in the city and region, which in turn are transformed by planning and politics" (Campbell and Fainstein 2003:4). Its aim is "to alter the existing course of events" (Campbell and Fainstein 2003:6) by addressing "social, economic, and environmental challenges" (Campbell and Fainstein 2003:8). The fact is pointed out that planning is context-specific, as "problems and conditions of planning are not everywhere the same" (Friedmann 2003:76). In addition, there exists a field of tension between existing conditions and structures and intended or envisioned changes within them or impacting them: "the new will be resisted, not because it is new, but because it threatens to displace something that already exists" (Friedmann 2003:78).

Contemporary urban planning includes "participatory, broad-based strategies for managing urban change" (Kaiser and Godshalk 1995:367) and comprehensive plans that may include information on "amount, pace, location, and costs of growth as policy choices" (Kaiser and Godshalk 1995:374). In this regard, a master plan for contemporary land use planning can serve as a framework "for community consensus on future growth" (Kaiser and Godshalk 1995:366) in relation to "effective implementation under turbulent conditions" (Kaiser and Godshalk 1995:367). Plans also serve to apply for grants from the federal government, e.g. for urban renewal purposes (Kaiser and Godshalk 1995:370).

2.1 - Planning for disaster recovery

A brief review of relevant concepts serves to discuss planning for disaster recovery. Disasters can be defined as consensus crises as opposed to conflict crises (Tierney 2006a). US legislative definitions of natural disaster include "hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought" (Stallings 2005:240-241). Government authorities are required to respond when a disaster occurs and causes a "breakdown of public order and safety" (Dombrowsky 1998:20). The "trigger determines the measure" (ibid.) of institutional intervention. At the same time, socio-spatial perspectives in disaster research point out that the way societies alter their environment can contribute to disaster (Hoffman, Oliver-Smith 2002).

Emergency management includes the skills required to deal with harmful occasions such as disasters and is considered a public service (McEntire 2006:169). Within the disaster cycle (cf. Smith and Birkland 2012), it can be structured into phases, including planning and preparedness, mitigation, response, and recovery. In the US, the Robert

T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) serves as legislative basis for emergency management. It defines how the Federal Emergency Management Agency (FEMA) and other institutions operate during and after disaster (Witham et al. 2007:13-14).[1] Governmental assistance is supposed to enable the "reconstruction and rehabilitation of devastated areas" (42 U.S.C. 5121-5207 2007:1), and the Stafford Act calls for communities to return to "normal pattern[s] of life as soon as possible" (42 U.S.C. 5121- 5207 2007:48). For this purpose, recovery funding is provided through supplemental appropriations approved by US Congress.

Research on the recovery of cities after disaster points out that "the time needed for reconstruction reflects not only the amount of damage and the available recovery resources, but also predisaster trends" (Haas, Kates, Bowden 1977:xxvi). Urban disaster is considered an interruption of existing urban development processes, including growth. Existing conditions are seen to inform the progress of recovery after disaster: "stable, stagnant or declining cities recover slowly and may even have their decline accelerated" (Haas, Kates, Bowden 1977:19). Recovery is considered complete when the evacuated population has returned, debris has been removed, and infrastructure and services have been restored.

Recovery can be structured into periods including restoration, replacement reconstruction, and betterment reconstruction, each requiring successively longer amounts of time in relation to the scale of disaster. The latter may be oriented towards future urban development (Haas, Kates, Bowden 1977:3). Overly ambitious plans may cause delays within the recovery process, and enabling a transition between the two reconstruction periods is recommended. Planning can also lead to inequalities in the context of "official priorities to provide disproportionate assistance to certain kinds of people and certain kinds of places" (Vale and Campanella 2005:353). Thus, rebuilding is correlated to "value-laden questions about equity [and] the needs of low-income residents" (Vale and Campanella 2005:13).

2.2 - Social aspects: stratification and vulnerability

When researching urban disaster recovery, city and disaster can be identified as a dual context. Within the respective discourses on cities and disasters, socio-spatial research perspectives point out the relevance of social aspects and inequalities. In cities, the concept of stratification indicates social disparities that immanently refer to spatial aspects. In disasters, the concept of vulnerability points out how social and demographic aspects impact the capacity of populations to respond to disaster. In the case of urban disaster, both concepts can be correlated. Stratification describes how individuals are distributed asymmetrically "across social categories that are characterized by differential access to scarce resources" (Massey 2007:1-2). These social categories can be defined according to specific characteristics including "gender, age, and kinship" (Massey 2007:2). Inequality serves to measure degrees of stratification and is reinforced when social and spatial aspects overlap, as in the case of spatial segregation (Massey 2007:19). In US cities these problems are historically related to "the problems of racial inequality" (Wilson 1987:20).

Vulnerability indicates why populations are impacted by disaster to differing degrees in relation to root causes of historic or societal origin. Vulnerability and natural hazards combined are seen to produce disaster based on "a chain of root causes embedded in ideological, social, and economic systems (...) and specific sets of unsafe conditions" (Hoffman and Oliver-Smith 2002:28). Social characteristics of "class, race, ethnicity, gender, or age" (ibid.) serve as indicators in relation to "specific political, economic, and social variables" (ibid.). Vulnerability is considered "a condition that already exists before a hazard triggers disaster [and] is part of people's everyday life" (cf. Wisner et al. 2004). In addition, certain locations can be identified that contribute to

vulnerabilities, such as “high-density population concentrations in flood plains” (Quarantelli and Perry 2005:343). Access to resources comprises a significant indicator that refers to inequalities that existed before the impact of disaster and are related to "a livelihood in normal, pre-disaster times" (Wisner et al. 2004:94). After disaster, progress in recovery is based on access to resources, including funding, loans, and insurance monies (Tierney 2006b).

3. Case Study Methodology

This contribution features data from the author's empirical case study research in New Orleans and a particularly hard-hit area of the city, the Lower Ninth Ward in 2007 and 2009. A case study methodology was selected to research the interrelation of planning and social aspects of urban recovery after disaster. Case studies may draw from “multiple sources of evidence” (Yin 2009:18) and are useful when cases are unique or offer “a phenomenon previously inaccessible to social science inquiry” (Yin 2009:48). Communities are possible research units for case studies (Yin 2009:12) and can be related to the concept of neighborhood in urban space, as “neighborhood is often the place were people find community” (Williams 1985:34). Researching communities can “provide evidence of specific links to sociospatial organizations in the area” (Gottdiener and Hutchison 2006:195-196). Neighborhoods in return can be differentiated according to social characteristics of “wealth, race, and gender [and] differences in individual lifestyles” (Gottdiener and Hutchison 2006:141).

This paper proposes a research unit in the city based on its progress in recovery, i.e. where recovery is below the city average in terms of physical rebuilding, repopulation, and the impact of post-disaster planning. It focuses on an area that is confronted with weak recovery within a context of preexisting socio-spatial conditions and corresponding recovery programs. Central factors for the selection of an appropriate research unit include the degree of destruction of the built environment, the degree of repopulation, urban vulnerabilities in recovery, and their relation to recovery planning and master planning in the city. These are outlined here and followed by a description of the employed methods, which include document research and archival review, a quantitative questionnaire survey, and qualitative semi-structured, open-ended interviews.

3.1 - Selection of research unit: Lower Ninth Ward

After Hurricane Katrina impacted the Gulf Coast of the US in August 2005, congressional emergency supplemental appropriations provided funding for recovery, while the impacted states were responsible for action plans (Czerwinski 2007:2,9-12). Funding was increased also due to Hurricane Rita, which struck in September 2005. The immense degree of housing damage in combination with uninsured losses or insufficient funding based on insurance payouts, private resources, and loans comprised key issues in the recovery of individual homeowners.

Based on the action plan submitted by the state of Louisiana, the state's central rebuilding effort titled the Road Home program[2] faced numerous problems, including a difficult and slow application process, budget deficits, and legal and regulatory conflicts causing changes while the program was running. The most significant change was the inclusion of a buyout option, which enabled applicants to sell their properties and homes to the state instead of rebuilding them. This essentially counteracted the program's original aim. In 2009 approximately 45,000 Road Home program closings took place in New Orleans, of which 40,000 decided to rebuild (GNOCDC 2009:13). According to 2010 estimates, “approximately 4,500 properties (...) were sold to the state via the Road Home program” (Plyer 2010:3) and were acquired by the New

Orleans Redevelopment Authority (NORA). By June 2009 the Road Home program had produced 4,600 buyout properties that were unevenly distributed across planning districts. The Lower Ninth Ward or Planning District 8 comprised 776 buyout properties at that time - not the highest quantity, yet the highest rate among city planning districts.

After peaking in 1960 at 33,000 population numbers in the Lower Ninth Ward had declined to 19,500 before Katrina. It was hit hard particularly by floods caused by collapsing flood walls along the Industrial Canal, which intersects the urban fabric. The Lower Ninth Ward is comprised of two identifiable neighborhoods (Holy Cross and Lower 9 neighborhoods, the latter sometimes also called Lower Nine or Lower Ninth Ward neighborhood) and includes Jackson Barracks, a historic military facility now serving the Louisiana National Guard situated along the border to St. Bernard Parish. Existing social aspects in the Lower Ninth Ward include a majority African American population, high poverty rates, an above-city average percentage of homeowners, and high levels of disabled and elderly citizens. Dense social networks existed, related to patterns of generational housing and long-term residency (cf. GNOCDC 2009; H3 Studio Project Team 2007; The ACORN Housing/University Partnership 2007). For these reasons, the Lower Ninth Ward was selected as research unit.

3.2 - Quantitative and qualitative mixed methods

The case study employs mixed methods, including document research, a quantitative questionnaire survey, and qualitative semi-structured interviews with key individuals. The empirical research took place in 2007 and 2009 in New Orleans, Houston, and Washington, D.C. The quantitative questionnaire survey was conducted in 2007 and served to research vulnerabilities of a population sample group that lived in the Lower Ninth Ward before Katrina. The major share of the sample group had returned to New Orleans after Katrina, while some had not yet been able to return at that time and lived in Houston, a major destination for Katrina evacuees. The questionnaire was designed to enable comparison with the US Census (GNOCDC 2000; GNOCDC 2003a; GNOCDC 2003b) and a larger survey conducted among New Orleans evacuees in Houston (Wilson and Stein 2006). The author surveyed respondents at three occasions: in New Orleans in the Lower Ninth Ward at a Holy Cross Neighborhood Organization meeting and in St. Maurice Church, and in Houston at the Lakeside Estate Housing Complex. 75 completed questionnaires were collected and calculated as 100 percent. The questions aim at evacuation and return, housing conditions, and support in recovery.

In 2009 the author held qualitative semi-structured interviews with key individuals in federal, state, and local institutions involved in the recovery process. The interviews served to critically address how legal frameworks, programs, and plans informed the recovery process. For this purpose, a set of topical question modules was developed forming a pool of questions that could be targeted to specific interviewees. Confidentiality was guaranteed and interviews recorded digitally. Verbatim transcripts were then created and submitted to the interviewees for edits, corrections, and approval.

4. Results

In addition to selecting data from the quantitative questionnaire and the qualitative interviews for this section, the following documents were reviewed: the 'Citywide Strategic Recovery and Rebuilding Plan' (City of New Orleans n.d.), the 'Master Cooperative Endeavor Agreement Between the City of New Orleans and the New Orleans Redevelopment Authority' (City of New Orleans and New Orleans Redevelopment Authority 2008), the New

Orleans Redevelopment Authority's 'Community Improvement Planning Areas'. (NORA n.d.), and the 'New Orleans Master Plan and Comprehensive Zoning Ordinance' (City of New Orleans et al. 2009). Initial recovery planning proposals in New Orleans after Katrina included the ‘Action Plan to Rebuild New Orleans’ of the Bring New Orleans Back Commission (BNOB) and the ‘New Orleans Neighborhoods Rebuilding Plan’ presented by the City Council. Eventually, the ‘Unified New Orleans Plan’ (UNOP) was developed as a collaborative effort and outlined the aims of the ‘Citywide Strategic Recovery and Redevelopment Plan’ ('Citywide Plan'). It focuses on reconstruction after disaster and is defined as a type of plan different than a master land use plan. The Citywide Plan was created by a ‘Citywide Team’ that included “local urban planning practitioners and university professors” (City of New Orleans n.d.:13) who collaborated with District Planners from “nationally recognized architectural firms” (ibid.) within a participatory planning process that resulted in the creation of district and neighborhood plans.

The Citywide Plan describes the priorities of reconstruction in the city in relation to funding within a recovery timeframe spanning 5 to 10 years. It serves to guide the recovery process “in a rational way that creates stability and paves the way for future growth and prosperity” (City of New Orleans n.d.:9). The aim is to achieve a “quality of life in New Orleans [that] is back to – or better than – what it was before Katrina” (City of New Orleans n.d.:10). However, the UNOP also acknowledges that "it cannot be assumed that everyone will want to, or be able to, return to the City” (City of New Orleans n.d.:9). This is also related to lacking “financial or manpower assets to fix everything at once” (City of New Orleans n.d.:10), and leads to a prioritization of recovery efforts according to Policy Areas:

> “Policy Area A – Less flood risk and/or higher repopulation rates
>
> "Policy Area B – Moderate flood risk and/or moderate repopulation rates
>
> "Policy Area C – Highest flood risk and slowest repopulation rates” (City of New Orleans n.d.:65).[3]

The New Orleans Redevelopment Authority (NORA) was originally responsible for neighborhood development and clearance of slums as Community Improvement Agency. Based on a Master Cooperative Endeavor Agreement NORA became the city's contractor in the recovery effort in 2008. NORA already had the competence to acquire blighted properties before Katrina (NORA n.d.). To deal with both blight and the vacancies created by Road Home buyout properties, NORA developed the ‘Lot Next Door Incentive Program Management’ (Lot Next Door program). It offers homeowners the opportunity to purchase adjacent properties in this context from NORA (City of New Orleans and New Orleans Redevelopment Authority 2008:12). As result, homeowners can both increase the size (and value) of their properties, yet also contribute to an increase of neighborhood repopulation percentages.

In the course of the planning processes and citizen participation taking place after Katrina, the new district and neighborhood plans were integrated within a new master plan aimed at a twenty-year timeframe. In 2007, the City Charter was amended, thus providing the basis for the City Planning Commission to create the 2030 Masterplan and Comprehensive Zoning Ordinance in relation to “the city’s capital improvement plan [and] a neighborhood participation system for land use decision making” (City of New Orleans et al. 2009:3.12). How and where do the aims of these planning documents become contradictory, where did adaptation occur, and how are these issues related to social aspects in the research unit? The following interview excerpts offer insight into these questions.

4.1 - Qualitative interviews

A staff member of the United States House of Representatives Committee on Homeland Security (WDC-RDH-2009.05.22) responsible for emergency management

issues discussed the impact of federal legislation on post-Katrina recovery. Using the CDBG program to provide funding for recovery is considered appropriate, since it comprises “a useful (...) preexisting tool that is able to be funded very quickly” (ibid.). As result, legislation “didn’t have to be an authorization of a new program to send money to the state” (ibid.). CDBG may pose problems, yet also benefits: “states can use it for whatever they want” (ibid.), while it offers the opportunity to propose plans “to the federal government from the ground up” (ibid.), since “nobody understands the issues on the ground like the locals do” (ibid.).

The Director of Real Estate Strategy of the New Orleans Redevelopment Authority (NO-OS-2009.06.12) offered a detailed view on interactions between recovery funding, programs, and plans. The fact that the state of Louisiana received the CDBG funding for recovery is not considered beneficial for rebuilding the city: “the rules of a traditional program like CDBG do not fit disaster recovery” (NO-OS-2009.06.12), because “you need somebody willing to take legitimate and reasonable interpretation” (ibid.). However, “because you have a state that is in charge of stewarding this money, they have no incentive ultimately to take an aggressive interpretation (...) because that ensures they will never have to repay a dime of this money” (ibid.). As a result, this procedure is seen to be “responsible for an incredible number of problems with the recovery” (ibid.). Most prominently, the Road Home program became “a fundamentally unfair program to New Orleans, yet sort of inevitable if you are letting decisions being driven by the state” (ibid.), due to its “disproportionate share of the rental-type programs” (ibid.). This emerges as a problem in a city that has a large rental population: “the state is something like a 75 percent homeownership state, but New Orleans is at 40 percent” (ibid.).

In this regard, the decision to include the buyout “didn’t do anything to promote collective action” (NO-OS- 2009.06.12) and resulted in “no effective procedures to guarantee rebuilding” (ibid.). This was viewed as “a massive failing. Because now you could take that money and walk away” (ibid.). Orienting Road Home grants on pre-disaster property values contributed to this situation: “If you lost a 50,000 dollar house, it will still cost you 150,000 dollars to rebuild” (ibid.). As result, Road Home applicants may be confronted with funding gaps and choose the buyout option: “if you only give someone 50,000 dollars for their house they lost that was in a poor neighborhood, it didn’t make sense for them to go with the rehab program, and they might have sold you the property” (ibid.).

The difficult application procedures of the Road Home program were intended “to make sure that people weren’t improperly applying for it” (NO-OS-2009.06.12), yet impacted the recovery of the city: “if it took you 3 years to get money to rebuild your house, and you have just spent three years living somewhere else, (...) re-uprooting your life to come back is not necessarily what is going to happen. So that delay in getting the money out had tremendous consequences that far exceeded anything you would have lost by using a more simple or straightforward calculation methodology" (ibid.). As a result, the Road Home program contributed to low, incomplete, and uneven repopulation.

The Citywide Plan was required to adapt to this by formulating different recovery policies and Policy Areas. This is also due to the fact that a recovery plan didn't exist when Katrina struck, preventing timely coordination with the Road Home program: “what you would have wanted would have been for this Road Home Program to match your recovery plan” (NO-OS-2009.06.12). The Policy Areas are differentiated according to degree of destruction and repopulation. The most successful belong to Policy Area A, comprising the historic parts of the city that received little damage. Policy Area B includes "all those neighborhoods that were safe prior to Katrina and are right now in the states of 45-50 percent occupancy” (ibid.). Here, recovery is confronted with “high

levels of vacancy and (...) drastically depressed real estate prices" (ibid.). However, the repopulation of the third type is the decisive aspect: "until it gets from that sort of incredibly vulnerable 50-80 percent unoccupied level, it is a neighborhood that is a lot more likely of going down that it is of going up" (ibid.). The most difficult neighborhoods belong to Policy Area C: "urban areas in tremendous states of decay" (ibid.) defined by "[h]istoric poverty combined with massive storm damage, population loss, economic loss" (ibid.). Planning here needs to be "relatively narrowly targeted. You pick a few blocks, a few zones" (ibid.). The notion is that otherwise "you will quickly dilute whatever is feasible, whatever energy those areas have" (ibid.).

The new Masterplan and Comprehensive Zoning Ordinance is viewed critically due to its emphasis on growth. However, New Orleans was a shrinking city before Katrina and struggled with slow repopulation in particular areas during the recovery phase: "basically the Masterplan is projecting very high levels of growth for the city, which runs contrary to the last 45 years, and ignores the facts that in a tremendous number of our neighborhoods we're facing an incredibly difficult challenge right now, in that they're 50 percent occupied" (NO-OS-2009.06.12). This resulted in the presence of "far more urban spaces than people who want to live in them" (ibid.). Yet, the Masterplan is seen to contradict this situation: "it allows multifamily development outside the downtown" (ibid.). Instead, "for reasons of de-densification for integration and everything else, a single family plotting of people is a much more resilient pattern" (ibid.).

Lacking coordination between state and local programs and plans led to a situation where the recovery plan needed to adapt to the actual situation and depart from the return to normal paradigm. The conclusion is made that "planning and recovery confronts very difficult challenges in how to handle and control shrinkage" (NO-OS-06.12.2009) due to repopulation rates and urban densities. As for recovery, the most important thing is getting money into people's hands quickly" (ibid.).[4] However, shrinkage was not adequately acknowledged by the Masterplan. This caused problems particularly in hard-hit neighborhoods with existing social disparities belonging to Policy Area C with existing conditions such as low incomes and low property values. These resulted in recovery funding gaps that contributed to deciding for the buyout option. The following data illustrate related social aspects identified within the author's empirical research.

4.2 Quantitative questionnaire survey

The following selection of questions from the author's quantitative questionnaire survey in 2007 deal with reasons for returning to New Orleans, circumstances of homeownership, damages to homes, support from institutions, and access to resources.

Question 15. Describe your residence (before and after Katrina). Before Katrina, 71 respondents lived in a house. This changed significantly after Katrina: 19 individuals lived in a house, 15 in an apartment or condominium, 15 in a mobile home or trailer, 8 noted 'other', and 18 did not respond. A significant number of participants had not returned to the housing conditions they had lived in before the disaster.

Question 17. Did/Do you own or rent your residence? (before and after Katrina) 60 respondents noted they had been homeowners before Katrina, while 11 had been renters and 4 didn't answer this question. After Katrina, 41 individuals remained homeowners. The number of renters rose to 19, and 15 provided no answer. The majority of participants were homeowners before and after the disaster, yet figures declined significantly.

Question 18. Was your home damaged? 42 individuals answered that their homes were 'strongly damaged'. The homes of 28 respondents were 'completely destroyed'. The Holy Cross subgroup, with its lower number of completely destroyed homes, reflects to the fact that the Holy Cross neighborhood, located along the natural levee of the Mississippi, also incurred less damage than the adjacent Lower 9 neighborhood.

Question 24. Are you back in your old home? 14 participants noted they had returned to their pre-disaster homes. 47 individuals hadn't been able to move back at that time. 14 provided no answer. Despite having returned to the city, a large majority was still either dependent on interim housing, which indicates that these citizens had not yet completed their individual rebuilding efforts, or had moved on to alternative housing solutions in the city.

Question 28. What makes help difficult? This question features examples that made receiving assistance difficult either ‘very much’, ‘somewhat’, or ‘not much’. In each case, respondents noted that receiving help was 'very' difficult: in the case of insurance paperwork (26 individuals), in terms of FEMA paperwork (21 individuals), and regarding building permits (14 individuals). The fourth example is medical attention, an aspect relevant to researching vulnerabilities (here, 19 noted 'very much' in terms of difficulty in receiving help).

Question 26. Are there other reasons that make returning difficult? The answers here show that 'no money' is the most significant reason that makes return difficult (32 answers). Traumatic experiences are summed up in 'bad memories' (22 answers), followed by absence of family and friends (17 answers) and lack of security (17 answers). While access to monetary resources appears most important, social capital (or absence thereof) also emerges as an important factor.

While these questions already indicate the problems citizens face in recovery, the comparison with the Houston subgroup offers insight into why people cannot return. It can be compared with a larger study among Katrina evacuees from New Orleans who had arrived in Houston (Wilson and Stein 2006), which concludes that the evacuees who remained in Houston were unlikely to return mostly "because very few of these respondents owned their homes in New Orleans” (Wilson and Stein 2006:7). In comparison, the author's survey also features a majority of individuals that noted their ethnicity as African American. Incomes were below $25,000 (7 respondents noted a household income of less than $15,000 after Katrina), and the majority were renters. Differences include the fact that the author's survey indicated a higher average age of participants (42.5 years) and a higher degree of female respondents. In sum, lacking access to resources can be correlated predominantly to existing demographic aspects of income and ethnicity. In the context of disaster, they can be interpreted as vulnerabilities that existed before the disaster; in the context of the city, they can be identified as aspects of stratification; and in recovery, they translate into access to resources:

- most respondents are homeowners who had been able to return;
- most housing was either strongly damaged or completely destroyed;
- difficulties emerge in applying for support in recovery;
- the degree of renters increased;
- long-term evacuees are mostly renters with low income;
- returning individuals require alternative housing during recovery.

Figure 1: Lower Ninth Ward, N Villere St @ Cherbonnet Street (the author 2009)

Figure 2: Lower Ninth Ward, typical shotgun house (the author 2009)

Figure 3: Lower Ninth Ward, multi-family development (the author 2009)

Figure 4: Lower Ninth Ward, small rental property (the author 2009)

5. Conclusion

The following contradictions between recovery planning and masterplanning that emerged in the aftermath of the Katrina disaster in New Orleans can be identified: the Citywide Plan addresses shrinkage, while the Masterplan advocates growth. The context that both refer to is based on existing conditions and the scale of disaster, resulting in uneven recovery in the city, where some areas are more and others are less successful in their repopulation and rebuilding efforts. The Road Home program for individual homeowner recovery contributed to this situation by offering the buyout option, exacerbating low rebuilding rates in hard-hit neighborhoods. Planning and institutions in recovery in the city were required to adapt to this situation in terms of recovery policies and programs, thus proposing perspectives of urban development that contradicted the aspirations of the new Masterplan. These forms of adaptation include the Citywide Plan's Policy Areas and NORA's Lot Next Door program.

Due to uneven repopulation and rebuilding, the Citywide Plan formulated three different policy areas. Policy Area C denotes parts of the city that experience below-average repopulation and rebuilding, thus necessitating targeted recovery initiatives. This departure from the return to normal paradigm of recovery planning is related to the existing conditions in these areas. They inform the progress of recovery after the disaster, and the existing spatial and social aspects can be interpreted as vulnerabilities in disaster and inequalities of stratification. The selected research unit, the Lower Ninth Ward, exemplifies these conditions with a pre-storm majority African-American population with below-average incomes and homeowners with low property values. In addition to this, the Road Home program's buyout option enabled residents with funding gaps and limited access to resources to sell their properties to the state and leave. The situation is most pronounced in the Lower 9 neighborhood, partially below sea level and subject to increased risk, compared to the historic Holy Cross neighborhood, situated along the natural levee of the Mississippi.

Blighted properties and Road Home buyout properties are made available to residents via NORA's Lot Next Door program, a form of adaptation in recovery planning aimed at fostering infill development. In Policy Area C this becomes extremely difficult, due to low repopulation rates. However, this situation is further complicated by the aspirational aims for urban growth formulated in the new Masterplan. It supports large multi-family development throughout the city. Thus, its aims become doubly contradictory: they defy historic shrinkage before Katrina and low repopulation rates in hard-hit areas of the city after the disaster. These observations indicate the weak link between institutional aspects of recovery and related social and spatial aspects. However, the entire rebuilding process is not yet complete, and despite weak recovery in the Lower Ninth Ward, nonprofit organizations purchase Lot Next Door properties from NORA to further rebuilding efforts.

For recovery to be effective, institutional support and funding must be quick. Recovery planning and masterplanning, while comprising two different forms of (urban) planning, require coordination of planning goals in relation to existing conditions. Therefore, the author proposes the following planning recommendations: planning before disaster is beneficial, as it enables coordination between recovery programs and plans. State-led recovery funding and programs must take into account that cities comprise particular ratios of homeowners and rental populations: strategies need to be adjusted accordingly. To assist both homeowners and renters in low-density neighborhoods, the author suggests targeted and early support for Small Rental Properties, particularly where infill development appears more sustainable than large multi-family development. Rebuilding what existed before the storm ('reconstruction') and improving this situation ('betterment') need to be balanced carefully to avoid contradictions between shrinkage and growth.

While the empirical data refers to an American example, the theoretical basis, the methodological approach, and the sociological and community-oriented methods enable application to other contexts and similar (potential) cases. Due to global urbanization

processes and the potential dangers of (anthropogenic) climate change and sea level rise, plenty of coastal and peri-coastal metropolises come to mind in this regard. The existing conditions of the city - social aspects that are continually informed by spatial aspects - appear as significant factors that influence recovery planning. In the case of urban disasters, to value what exists in the city becomes a matter of survival during recovery after disaster.

Endnotes

1 In this context, planning is supposed to take place before disaster and may complement other planning activities oriented towards urban development while also stating “land acquisition needs during recovery” (McEntire 2006:173). Planning may also contribute to mitigation, defined as "efforts to prevent disasters or minimize impact through hazard and vulnerability assessments, improved construction practices, and better land-use decisions” (McEntire 2006:172). Mitigation may include structural (built) measures and non-structural measures, such as legislature, zoning, or building codes.

2 After receiving massive housing damage due to Hurricanes Katrina and Rita, the state of Louisiana created a coordinating institution, the Louisiana Recovery Authority (LRA). Use of funds as intended by the LRA was subject to approval by the state legislature. The LRA developed the Road Home program, which was introduced in 2006 with the intention to “encourage homeowners to (...) begin rebuilding” (Czerwinski 2007:7) and “re-establish their lives in Louisiana” (Road Home n.d.:n.p.). The program's primary focus were owner occupants, who could apply for grants based on property values “before the storms and the amount of damage that was not covered by insurance or other forms of assistance” (Czerwinski 2007:7). The Road Home program was continually altered and comprised four different options for homeowner recovery assistance defined as repair, rebuild, relocate, or sell. Preconditions included that applicants were owner-occupants of “a single or double unit structure” (Road Home n.d.:n.p.) as “main residence at the time of the hurricane” (ibid.) and that FEMA had categorized these structures as either ‘destroyed’ or with ‘major’ or ‘severe’ damage. Applicants could receive a maximum grant sum of $150,000. Other forms of support, e.g. insurance monies, were deducted from the total amount. The Road Home program included a component for the owners of rental properties, including “large developers and small property owners” (ibid.). These were implemented only after delays.

3 To address recovery problems of hard-hit areas of the city, the Citywide Plan was supplemented by the Citywide Recovery Implementation Strategy (Recovery Strategy), created by the Office of Recovery Development and Administration (ORDA) and adopted by the City Council in 2007. The Recovery Strategy defined Target Recovery Areas in 17 neighborhoods "in need of urban transformation as the result of pre-Katrina deterioration as well as damage incurred both during the 2005 Hurricane Season” (City of New Orleans and New Orleans Redevelopment Authority 2008:1-2).

4 Differences between planning for recovery and for 'normal' urban development are pointed out. For instance, independent planning commissions exist so “that politicians aren’t able to dictate (...) waivers and variances” (NO-OS-2009.06.12). The precondition for this is “insulat[ing] as many of these boards and commissions from the political process” (ibid.). During disaster recovery, however, “that is all upside-down” (ibid.).

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