EARTHQUAKE REHABILITATION AND VULNERABILITY REDUCTION:

URBAN PLANNING IN A WESTERN INDIAN TOWN

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This dissertation analyzes recovery efforts in the town of Bhuj in the State of Gujarat in western India after a devastating earthquake of magnitude M_w 7.7 on January 26, 2001. It provides a nuanced description of the technical, administrative, and political complexities associated with long-term recovery, specifically those related to post-disaster planning and the reconstruction of public infrastructure and private homes. The dissertation explores how post-disaster interventions that focus on physical rebuilding interact with existing patterns of vulnerability to influence the recovery of affected populations, especially the most socially and economically marginalized.

The inherently political nature of the urban planning process, compounded in this case by systemic administrative vulnerabilities (lack of resources, previous unregulated growth, lax enforcement of building regulations, and dated records some of which were lost in the earthquake), complicated the process of rehabilitating a badly damaged town. At the same time, an event as momentous as an earthquake offered an opportunity for renewal that would not have taken place otherwise.

In Bhuj, where the urban rehabilitation program heavily emphasized infrastructure

development and the reconstruction of houses, long-term disaster management relied on several regulatory mechanisms: a Development Plan (DP), Town Planning Schemes (TPSs), Development Control Regulations (DCR), and building codes to reduce vulnerability in case of future incidents. These governmental efforts were accompanied by the creation of new institutions for short-term rehabilitation, long-term urban planning, and land management. In the aftermath of the earthquake, the city of Bhuj was able to transform its dense, medieval urban core into a disaster-resistant center city with modern amenities. Bhuj's transformation is one of the focal points of this study.

The dissertation considers the complexities of disaster recovery—its humanitarian aspects, the resiliencies of affected populations, and pressure to produce results in a short time span. It explores how policies and plans formulated at higher levels of government were made to work in Bhuj, where those who lacked resources required socio-technical support. The analysis aims to understand both the challenges and the opportunities in urban planning initiatives for long-term disaster recovery.

BIOGRAPHICAL SKETCH

Reshmi Theckethil received her bachelor of technology degree in civil engineering from the University of Kerala, India. She worked for an information technology firm for two and a half years before beginning graduate school in the Department of Urban and Regional Planning at University of Illinois at Urbana-Champaign to pursue a master's degree in urban planning. Subsequently, she joined the graduate program in the Department of City and Regional Planning at Cornell University where she pursued a doctorate in city and regional planning with a minor in development sociology. For her doctoral research, she explored the application of urban planning mechanisms for the recovery and rehabilitation of disaster-affected areas, and wrote a dissertation on post-disaster urban planning in Western India after the devastating earthquake of 2001.

Through an ethnographic investigation of the planning process in Bhuj, in the western Indian State of Gujarat, her dissertation examines the dynamics of the processes of preparation and implementation of particular planning mechanisms in the reconstruction of an earthquake-affected area. It emphasizes the need to understand and analyze the challenges and opportunities that a post-disaster context offers to planners and development practitioners for faster recovery and long-term vulnerability reduction of urban residents.

Reshmi Theckethil has worked as a consultant to the World Bank Institute in Washington, DC. She has also worked with NGOs in Bhuj and Ahmedabad, India, advocating for effective planning techniques as well as sustainable ways of providing affordable housing and services to marginalized urban populations who are often most vulnerable to disasters. She works with the Bureau for Crisis Prevention and Recovery, United Nations Development Programme, as a Regional Programme Associate in the South and Southwest Asia Regional Office in New Delhi, India.

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I express my immense gratitude to Shelley Feldman for teaching me that the best way to learn is to ask questions for yourself, for constantly reminding me not to be bogged down by "categories" or research proposals in the pursuit of intellectual excellence, and for giving me the confidence that a civil engineer turned urban planner could combine her interests and knowledge of technology (engineering) and city planning with sociology, with greater results.

I am thankful to Neema Kudva for her patient efforts to make me a better writer and for her constructive criticism, scholarship on urbanization in India, and familiarity with the socio-political context that helped give my research its rootedness in the realities of the Indian Subcontinent. I am also grateful to Ann-Margaret Esnard for her guidance and support during my initial days at Cornell University.

In Bhuj, I owe my deepest gratitude to Mohammedhussain B Khatri for introducing

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LIST OF ABBREVIATIONS

ADA	Area Development Authority
ADB	Asian Development Bank
BAPS	Bochasanvasi Akshar Purushottam Swaminarayan Sanstha
BDC	Bhuj Development Council
BHADA	Bhuj Area Development Authority
BJP	Bharatiya Janta Party
BSNL	Bharat Sanchar Nigam Limited
CADS	City Assessment and Development Strategy
CEO	Chief Executive Officer
CEPT	Centre for Environmental Planning Technology
CM	Chief Minister
CRC	City Resource Centre
CRED	Center for Research on the Epidemiology of Disasters
DC	District Collector
DCR	Development Control Regulations
DDO	District Development Officer
DIC	District Industries Centre
DILR	District Inspector of Land Records
DP	Development Plan
EERI	Earthquake Engineering Research Institute
EPC	Environmental Planning Collaborative
FAR	Floor Area Ratio
FP	Final Plot
FSI	Floor Space Index
GERRP	Gujarat Earthquake Reconstruction and Rehabilitation Program
GoG	Government of Gujarat
GoI	Government of India
GIDC	Gujarat Industrial Development Corporation
GIS	Geographic Information Systems
GSDMA	Gujarat State Disaster Management Authority
GTPUDA	Gujarat Town Planning and Urban Development Act
GUDC	Gujarat Urban Development Company

GURP	Gujarat Urban Reforms Project
IA	Implementing Agencies
IAS	Indian Administrative Services
IDNDR	International Decade for Natural Disaster Reduction
IDSC	Infrastructure Design and Supervision Consultants
IIT	Indian Institute of Technology
ILFS	Infrastructure Leasing and Financing Services
IPPR	Initiative for Planned and Participatory Reconstruction
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
KDA	Kachchh Development Authority
KPT	Kandla Port Trust
MLA	Member of Legislative Assembly
MOU	Memorandum of Understanding
MP	Member of Parliament
NGO	Non-governmental Organization
OP	Original Plot
PDS	Public Distribution System
PR	Public Relations
RSS	Rashtriya Swayamsewak Sangh
RTO	Road Transport Office
SEWA	Self-Employed Women's Association
SEZ	Special Economic Zone
SPV	Special Purpose Vehicle
SRCL	Sindhu Resettlement Corporation Limited
TAC	Technical Advisory Cell
TP	Town Planning
TPC	Town Planning Consultant
TPO	Town Planning Officer
TPS	Town Planning Scheme
TP&VD	Town Planning and Valuation Department
UDD	Urban Development Department
UNDAC	United Nations Disaster Assessment and Coordination
UNDP	United Nations Development Programme
USGS	United States Geological Survey
WB	World Bank

CHAPTER 1

DISASTER RECOVERY IN URBAN AREAS

Introduction

An earthquake of magnitude M_w 7.7 devastated the western Indian state of Gujarat on January 26, 2001. Beginning at 8:46 am, the earth shook for nearly two minutes, and subsequently, 14,000 people were dead, 167,000 injured, and 150,000 homes were damaged or destroyed. After the government's immediate response to the crisis, its long-term disaster management response consisted of several regulatory mechanisms: a Development Plan (DP), Town Planning Schemes (TPSs), Development Control Regulations (DCR), and building codes to reduce vulnerability in the case of future incidents. After the earthquake, the dense, walled, medieval city of Bhuj in Kachchh district was transformed into a disaster-resistant city center with modern amenities. The process of Bhuj's transformation is one of the focal points of this study.

In large measure, this dissertation describes the highly political nature of the post-disaster management process in Kachchh. The process had many facets: immediate needs versus long-term goals; concerns shared by everyone in affected areas and the particular concerns of the wealthy, the ordinary, and the disenfranchised; interactions among local, state, national, and also international institutions—public, private, and

nongovernmental; and the tension between official, public participation in the rebuilding process and the way that residents of the city experienced that transformation. The complicated activity of earthquake rehabilitation and rebuilding in an urban area required extensive negotiation among a great many actors, and this dissertation attempts to provide a nuanced understanding of the complexities associated with such a process in the aftermath of the Gujarat Earthquake of 2001.

Among the key questions addressed here is this: How did planning as an institutional mechanism of governance operate through a multitude of institutional as well as non-institutional actors? By examining specific urban planning techniques used in Bhuj, such as the Development Plan (DP) and Town Planning Scheme (TPS), this analysis explores whether the specific context of disaster rehabilitation presented a proverbial "window of opportunity" to planners, disaster managers, and/or development practitioners to undertake otherwise-difficult-to-adopt-and-implement rational physical planning measures and institutional changes to reduce vulnerabilities of urban residents in case of future disasters.

Beyond simplistic interpretations that would characterize post-earthquake urban planning and rehabilitation measures as mere instruments of power camouflaged as technocratic interventions—and beyond idealistic notions of urban form that pose haphazard or unregulated growth as "organic" while considering "planned" development to be imposed or top-down—this dissertation explores the implications of spatial restructuring using rational urban planning measures. It examines the

combined effects of the application of such measures, along with the tendency of planners and implementers to distance themselves from the sociocultural, economic, and political realities of local populations, especially the most socially and economically marginalized.

This dissertation also interrogates claims of public participation in post-disaster urban planning processes, and it explores how processes of formulation and implementation of post-disaster policies and plans could most effectively involve affected communities. In Gujarat, while specific actors (government officials, community leaders or civil society members) were able to influence the formulation of policies and plans (and subsequent modifications to them during their implementation) to reflect the needs of those affected, such "informal" spaces of deliberation were largely born out of the state's need for validation and public acceptance; participation in them was dependent on understanding the technical aspects of planning processes as well as having bargaining power vis-à-vis the state. By analyzing the multiple forms of the articulation of public demands related to urban planning and reconstruction in Bhuj, this dissertation seeks to underscore the need for formal participation with a legal mandate to represent public needs and grievances in order to facilitate faster recovery of those affected.

Consideration is given to the establishment of mechanisms for the provision of socio-technical support to those who lack the necessary resources (financial, organizational, political, and/or technical) to participate in planning processes. In the

immediate aftermath of an earthquake or similar catastrophic event and in the long-range planning opportunities it affords, state-approved forms of public participation do not necessarily account for the sum of activity that takes place for survival and renewal. Therefore, post-disaster urban planning processes for vulnerability reduction in any context can learn from the particular experience of Bhuj and its residents how things truly happen on the ground.

This dissertation's account of the post-earthquake re-articulation of urban Bhuj through town planning processes is divided into eight chapters. The remainder of this chapter reviews the literature of disaster recovery in urban areas and then describes the dissertation's methodology.

Chapter 2, "Bhuj, near the Epicenter" begins with a discussion of the earthquake and its impacts and the immediate responses to the earthquake. It surveys the damage throughout Kachchh, including three other important towns besides Bhuj that were affected by the earthquake—Anjar, Bhachau, and Rapar. The chapter introduces post-earthquake rebuilding strategies under the rubric of Gujarat Earthquake Rehabilitation and Reconstruction Program (GERRP), primarily through the narratives of various state actors engaged in the rehabilitation of Bhuj. Finally, it details the policy and institutional framework for GERRP.

Chapter 3, "Institutional Responses to Rebuilding of Kachchh," examines the details of the regulatory town planning mechanisms used to rebuild urban areas of

Kachchh along with the institutional mechanisms to facilitate their translation into action. Chapter 4, "Making Town Planning Work in Bhuj," examines processes of preparation and implementation of planning mechanisms, such as the Development Plan and Town Planning Schemes. Chapter 5, "Political Process of Urban Planning in Bhuj," discusses various challenges faced by the implementers of the program and strategies adopted to overcome them in an effort to make the program work.

Chapter 6, "Participatory Planning in Bhuj" interrogates the claim of GERRP as a successful case of participatory rehabilitation. It examines the state approved forms of participation and asks how the specific context of post-earthquake urban planning for vulnerability reduction interacts with the socioeconomic and political context shaping the notion of participation as well as the forms of it.

Chapter 7, "Resilience and the Re-articulation of Bhuj," examines the multiple resiliencies of residents of Bhuj using the officially established categories of ownership and legality to understand how residents experienced the processes of town planning. It discusses how changes to the physical city intersected with social, economic, and political lives of its residents and their processes of recovery, especially that of socially and economically marginalized groups.

Finally, Chapter 8, "Disaster as Opportunity for Vulnerability Reduction," discusses the institutional changes in urban governance and disaster rehabilitation brought about by GERRP and situates them in the larger context of techno-legal

regime of disaster management in India. It suggests ways in which post-disaster urban planning processes intended for long-term vulnerability reduction could do so while enhancing the inherent coping capacities of those affected. A discussion of the limitations of this study is followed by recommendations for future research.

Literature Review

This dissertation draws heavily on Michael Lipsky's 1980 formulation that policies are essentially made in the street: that policy really comes down to the street-level bureaucrats who implement it, or don't. In discussing how policies and plans were realized in the city of Bhuj, Lipsky's ideas inform thoughts about how policies and plans related to earthquake recovery formulated at high levels of government were "made to work" at the local level in urban areas such as Bhuj by the plans' implementers, thereby emphasizing the dynamic nature of policy-making. If policy-making is indeed an ongoing process, then it warrants sustained attention to the implementation processes as well as establishment of mechanisms for the provision of socio-technical support to those who lack the necessary resources (financial, organizational, political, or technical) to participate in these processes.

In terms of theoretical discourse on disasters, discussion has shifted from an earlier emphasis on post-disaster responses (Dynes, De Marchi, and Pelanda, 1987) to a new emphasis on pre-disaster conditions and the processes that lead to disasters (Tobin and Montz, 1997; Blaikie, Cannon, Davis, and Wisner, 2004). The literature

also differentiates between *hazards* ("phenomena which may pose a threat to humans, their welfare and livelihoods . . . [and] may be natural, such as floods, earthquakes, hurricanes/cyclones and drought, or induced by human processes, such as industrial accident") and *disasters* ("the impact of a natural or human-made hazard on a group of people, causing widespread human, material or environmental losses which exceed its capacity to cope using its own resources") (Palakudiyil and Todd, 2003).[1]

The naturalist or physicalist approach looked at "violent forces of nature" or nature on rampage (Frazier, 1979; Maybury, 1986; Ebert, 1993; de Blij, 1994). Others have emphasized the trigger role of geotectonics/climate/biological factors or the hazards (Bryant, 1991; Alexander, 1993; Tobin and Montz, 1997; Smith, 1992). Unlike man-made disasters, these "natural events" were considered to be the geophysical causal mechanisms beyond human control.

Beyond these earlier categorizations of events by type (natural and "man-made") and by scale, the term "disaster" now invokes a wide range of events—from regular, everyday, unexceptional occurrences of illnesses, disease, and hunger that often pass unnoticed (Blaikie et al., 2004) to extreme events that result in widespread loss, human as well as material. The blurring of boundaries between the natural and the man-made has opened up space to engage with the underlying processes that allow a

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[1] The Center for Research on the Epidemiology of Disasters (CRED) in Brussels, Belgium, defines a disaster as "a situation or event which overwhelms local capacity, necessitating a request to a national or international level for external assistance." It maintains a database (EM-DAT) of all events where 10 or more people are reportedly killed, and/or 100 or more people are reportedly affected, and /or a call

trigger event or hazard to become a disaster. Anthropogenic factors assume greater significance in their interaction with nature beyond a subtle environmental determinism (Burton, 1978; Whittow, 1980).

In terms of theoretical discussions of human vulnerability, the literature is less dense. Hazards and their impacts have been examined closely for the complex interactions of human and natural factors that result in a disaster (Deyle, French, Olshansky, and Patterson, 1998). *Vulnerability* (the "susceptibility of human settlements to the harmful impacts of natural hazards") has also received greater attention from scholars (Olshansky and Wu, 2004, p. 71). Scholars also differentiate vulnerability from *risk,* which is defined as the possibility of suffering harm from a hazard.[2] Extreme events are created in particular contexts. They are not determined solely by a set of characteristics inherent in a physical phenomenon; instead, they are created by the interaction of those characteristics with other systems (Sarewitz, Pielke, and Keykhah, 2003). It has been acknowledged that vulnerability is a complex matter that is constituted by the interaction of the natural environment with social, political, and economic environments that continuously pattern society. However, despite its rootedness in physical, social, economic, and cultural spheres, the social and physical aspects of vulnerability have often been treated separately (Sen, 1982, Blaikie et al.,

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for international assistance/declaration of a state of emergency has been made. (Source: http://www.em-dat.net/documents/bangkok06/Emdat.pdf)

[2] Risk is often understood as precise mathematical equations of future events, the result of a physical hazard that occurs within a physical, built, and social environment that is vulnerable to such hazards (see for example Coburn and Spence, 1992). From another perspective, risk is a culturally selected, socially constructed threat (see for example: Douglas, 1990; Douglas and Wildavsky, 1982; Fischhoff, Lichtenstein, Slovis, Derby, and Keeney, 1981, Johnson and Covello, 1987; Rohrmann and Renn, 2000;

2004).

Disaster management efforts have often taken the form of engineering and techno-legal measures that focus on reducing the vulnerability of physical infrastructure—including housing, improving emergency services, and regulating the built form through zoning, land use regulations, and building codes. Despite their constant engagement with physical space, such interventions/processes often reduce space to a backdrop for the unfolding of social, economic, and political processes (Harvey, 1997).

However, patterns of vulnerability are often manifested in patterns of differential access to tangible and intangible resources (GFW, 2005; Blaikie et al.; 2004, Glantz; 2005; Enarson and Morrow, 1998). Overemphasis on the event and physical aspects of the built form, "the hardware aspects of vulnerability," distracts attention from the political and economic determinants of vulnerability (Blaikie et al., 2004, p. 56). The complex and contextual nature of vulnerability and resilience require that we pay attention to many less quantifiable social determinants including attitudes, values, behavior, perceptions and social/community networks (Glavac, Hastings, and Childs, 2003, p. 10). In its rejection of environmental determinism, the vulnerability model reduces space to physical space, an inert entity, a product of other processes. This attribution of concreteness to space fails to capture the dynamism or fluidity of the various processes that constitute space (Massey, 2005) and its experiential qualities

Slovic, 2000; Wildavsky and Dake, 1990). For a discussion on the evolution of the concept of risk, see

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(Tuan, 1977). Such a narrow definition of space cannot account for the dialectic relationship between its physical and experiential characteristics that produces space (Lefebvre, 1991).

With greater understanding of differential vulnerability to disasters, attention to its multiple facets becomes crucial for improving resilience (the ability to cope with extreme events and return to a "normal" life) and for development to be sustainable.[3] Solutions to reduce impacts of disasters often point to addressing social, environmental, and political issues in society (Zaman, 1986; Haque and Zaman, 1991; Davis, 2005). However, equating vulnerability with poverty has also led to a process of merely categorizing beneficiaries, rather than analyzing their situation (Christoplos, Mitchell, and Lijelund, 2001, p. 191). Under-specification of possible agency of vulnerable people through a narrow characterization of them as victims of structural inequality as well as reduction of space to its physical form (buildings and other infrastructure) fail to capture the complex ways in spatial restructuring following disasters are shaped by non-physical factors that constitutes space and its implications for long-term recovery of people from disasters and vulnerability reduction.

In the anthropological literature on relocation and displacement, there is a general exploration of the way people exercise agency through various coping mechanisms in situations conceived as marginalizing (Oliver-Smith, 2001; Olaa, 2001). In the astute

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Lupton, 1999.
[3] This is discussed in length in the disaster literature in the urban context by Vale and Campanella (2005).

words of Sorensen, "people are not simply victims of change, but social agents taking a keen and active role in the ongoing process of social engineering" (Sorensen, 1997, p. 144). By situating places, people, and the relationships among them in the context of the local, national, and global—and not as isolated localities— Sorensen and others emphasize the role of agency in bringing about change as opposed to being restrained by "hierarchical relations and chronologically regulated time" (Ilcan, 1998, p. 57; Turner, 2005; Sorensen, 1997). The recognition of agency of the vulnerable populations, along with cognizance of the fluidity and dynamism of space beyond its physical dimensions, are critical to a nuanced understanding of how alterations to the physical space in the aftermath of a disaster both shape and are in itself shaped by processes of recovery of those affected.

In terms of disaster vulnerability and recovery of cities, which by virtue of their role as social, economic, political, cultural, and technological centers, have been the targets of both "natural" and human-induced disasters, the literature is rich (Ockman, 2002; Vale and Campanella; 2005; Pelling, 2003). Rapid urbanization along with rural-to-urban migration exposes large number of people to unsafe living conditions (Neuwirth, 2004; Davis, 2004; Roy, 2003).[4] The increasing vulnerability of urban areas to disasters poses a significant challenge to already impoverished populations in

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[4] The dichotomization of urban areas into cities of global north and that of south, the developed and the developing/underdeveloped, is prevalent even in the analysis of urban disasters (Quarantelli, 2003). While the vulnerability of cities like San Francisco or Tokyo or London are attributed to infrastructure and the role these cities play in the global economy, the vulnerability of Nairobi or Bombay are attributed to their large populations, lack of adequate services, poverty, and so on (Blaikie et al., 2004). Hurricane Katrina in the United States demonstrated how even in developed countries of the West, inequality is spatialized where certain population groups are "forced" into unsafe living conditions, rendering them more vulnerable to disasters.

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coping with the impacts of hazardous events. It also puts immense pressure on local governments and humanitarian actors to address the basic factors contributing to vulnerability rather than to engage in "disaster clean-up" after the fact (IFRC, 2010).

However, the dichotomization of disaster vulnerability into either physical vulnerability (Tobin and Montz, 1997) or social vulnerability (Oliver-Smith, 2001; Cutter, Boruff, and Shirley, 2003; Rossi, 1993; Perry and Mushatel, 1986; Palakudiyil and Todd, 2003; Varshney, 2002; Zaman, 1986) generally tends to ignore how societal relations embedded in the built form affect the ability to cope with extreme situations (Turton, 1977; Torry, 1986; Haque and Zaman, 1991; Barton, 1969; Marris, 1996). Urban landscape often reinforces power inequities and social exclusion (Zukin, 1995, 1991). This spatial ordering which is part of uneven development implies positions of dominance and subordination. It is critical therefore to analyze the relationship between physical and social vulnerabilities to disasters in neighborhood and community spaces in disaster-prone areas, sites of contestation (Zukin, 1995) that are both socially "constructed and produced" (Low, 1999).[5]

Without romanticizing the rootedness of "culture" or "identity" (Malkki, 1992) in particular localities or depoliticizing various disaster management policies and practices to a technical project in the public interest (Scott, 1998; Ferguson, 1994), a deeper understanding of the dynamics of such spaces (congregation, economic transactions, and political expression) could better inform disaster management

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practices that often alter the built form with consequences for community structure, social capital, and subsequently, long-term disaster vulnerability.[6] The inclusion of the notion of agency in the vulnerability model provides a useful framework to understand not only the impacts of disaster management policies on the vulnerability of marginalized groups but also the processes of active, reconstructive negotiation between these groups and the state and/or civil society organizations towards vulnerability reduction in urban areas.

Reconstruction policies often emphasize construction rather than repair, buildings rather than social networks, and housing units rather than accessible communities (Olshansky, Kobayashi, and Ohnish, 2005). Some accounts of disaster-rebuilding efforts in cities warn against highly centralized political systems that are more likely to fall back on routine behavior, making them incapable of responding to the new circumstances (Davis, 2005).[7] Others suggest that equal resources and access to information, consultation over time, and shared, inclusive authoritarian decision-making are more likely to yield outcomes that are fair and wise (Hunold and Young, 1998).

While there is widespread agreement among researchers and practitioners on

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[5] Community is not considered a homogeneous static entity, but one that is in a dialectic relationship with social, economic, political and cultural processes (Harvey, 1997).

[6] Some of the accounts of urban disasters have looked at urban rebuilding as a political process (Davis, 2005) and how urban planning for disaster risk reduction could affect recovery of marginalized populations (Green, Bates, and Smyth, 2007).

[7] Inam (2005) argues that it's the routine, bureaucratic structure of public agencies based on familiar protocols and large-scale coordination which actually enables rapid and successful response in times of crisis.

differential vulnerability, rehabilitation policies or programs are often shaped by notions of disaster vulnerability of the institutional actors and are based on generic parameters. Moreover, policies and programs in response to disasters are often formulated in haste. Following Lipsky, policies are "made" by street-level bureaucrats who interact directly with the "client" populations. Implementing generic policies to address issues of differential access to resources, while being sensitive to the unfolding of multiple resiliencies, is extremely difficult in a democratic setup. Premised on "equal treatment of all its citizens" in an unequal society, decisions made in greater public interest often disadvantage a few. The ability of street-level bureaucrats to exercise discretionary powers can be a significant aspect of how the differences in "client" populations (their differential vulnerabilities) could be addressed with policies crafted on the basis of generic categories (Lipsky, 1980).[8] Hence, it becomes important to explore not only the processes through which various institutional actors "create" policies and programs, but also how they are "made" in particular localities in a post-disaster context.

It is equally significant to understand the ways in which vulnerable populations can be involved in processes of risk reduction and recovery from disasters. Engaging citizens and affected communities might require a shift in the culture of public administration (United Nations, 2011). Despite the large number of reconstruction and rehabilitation programs undertaken worldwide, disaster literature suffers from a dearth

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[8] Considered a possible solution or potential problem, the discretionary powers of street-level bureaucrats are influenced by routinization and bias, which force them to put clients into categories (creation of client identities) (Lipsky, 1980).

of case studies that analyze how policies and plans in urban areas are made to work at the local level and how the lived realities of the affected populations shape these processes. Various factors that shape urban rehabilitation processes such as the complex institutional set-up in urban areas, social, economic, and political aspects of urban governance, and the conduct of institutional actors within particular contexts are largely missing in the disaster discourse. This dissertation attempts to fill this gap by analyzing one such large rehabilitation program after a disaster in Western India, specifically the adoption and implementation of urban planning mechanisms in an earthquake-affected town.

Notes on Methodology

This dissertation's analysis of earthquake rehabilitation processes in Bhuj is based on field research done over a period of approximately 22 months from 2004 to 2008, with the longest duration from June 2006 to August 2007. In-depth, semi-structured interviews, approximately 40- to 90-minutes long, were conducted to gain understanding of the earthquake rehabilitation process and town planning, in particular, from the people who played a key role in the creation and implementation of various plans. This included all the key institutional actors, as well as residents of Bhuj for whom the rehabilitation program was created and who experienced or influenced these processes as they rebuilt their lives in the aftermath of a devastating

earthquake.[9]

Interviewees included: private citizens (residents of Bhuj, community leaders and representatives of voluntary organizations); members of the local business community, real estate developers, and practicing architects; elected officials (local representatives, other government officials including previous office holders); appointed officials (Area Development Authority, municipality, GUDC, Gujarat State Disaster Management Agency (GSDMA) and Town Planning Officers (TPOs); professionals (planning consultants, representatives of NGOs, including local NGOs Abhiyan and BDC), civil engineers, historians, and geologists. [10]

In the case of residents of Bhuj, already defined categories based on caste and binaries—such as formal and informal settlers, residents of walled city and relocation sites, owners and tenants, men and women, etc.—served as useful starting points to capture the experiences of those interviewed. Many of the respondents understood and spoke Hindi. Interviews with planners, administrators, and bureaucrats were

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[9] Longer interviews with various actors were conducted in order to understand and analyze the "webs of meaning" (Geertz, 1973) as expressed through narratives.

[10] Nearly 280 households in Bhuj were interviewed (stratified by region/caste and gender): 32 from the walled city, 167 from the relocation sites (RTO 36, Mundra Road 44, Rawalwadi 64, and GIDC 23 – nearly 4.5 to 5% of the total number of households in each site) and 81 from the area outside the walled city not included in the relocation sites (31 in the formal and 50 in the informal settlements). In addition, 16 government officials were also interviewed, including administrators and planners involved in the GERRP formulation and implementation; and 30-35 engineers, architects, planners, NGO representatives, journalists, community leaders/representatives, social workers, and others. In many cases, multiple follow-up interviews were conducted with the same person to get further information or clarification on specific aspects. Also, the same person often talked about his/her family's recovery process and his or her community's, the socio-political history and development of the city, economic recovery of the old city, technical or legal aspects of town planning, etc. In the case of household-level interviews, although there was one main interviewee, there were often other family members who

conducted in Hindi or English. Interviews in Bhuj were initially conducted with the help of two research assistants fluent in Gujarati and *Kachchhi*. Interviews were recorded, transcribed, and analyzed to identify the range of experiences with regard to the earthquake and town planning across various respondents.

Secondary data used include: newspaper articles on town planning in Kachchh, specifically in Bhuj from 2001-2007; documents pertaining to the built form of Kachchh; historical accounts of the urban development pattern of Bhuj (especially from historians and Kachchh Museum); archival material on the history of urban development of Kachchh, such as District Gazetteers (government reports), etc.[11] Official videos (such as "New Bhuj" made by BHADA) and photographs of earthquake devastation and the rehabilitation process (including personal albums of residents), along with the author's own audio and video recordings of the city and its people, when situated in the context of Bhuj served not just as snapshots of time but how the city was being continuously made and was infused with multiple meanings.

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participated in the conversation and shared opinions and insights. Therefore, the number of people mentioned above as having been interviewed is approximate.

[11] Corresponds to the pre-independence period (before 1947), existence as a Union Territory (1948-1956), post-unification with Gujarat (1956–1976), introduction of Gujarat Town Planning and Urban Development Act of 1976 till the 2001 earthquake (1976–2001), post earthquake period (2001– 2008)

CHAPTER 2

BHUJ, NEAR THE EPICENTER

The Gujarat Earthquake

On January 26, 2001, at 8:46 am, the earth shook violently with a rumbling noise in Bhuj, headquarters of Kachchh District.[12] Many people, including the District Collector of Kachchh, Kamal Dayani, thought it was a terrorist attack on the 50th anniversary of India becoming a republic (Mishra, 2004). The earthquake of magnitude 7.7 Mw (USGS estimate) that caused extensive damage in the entire state of Gujarat had its epicenter at Chaubari village, located to the north of Bhachau in Kachchh district.[13] After the earth shook for approximately 110 seconds, nearly 14,000 people lost their lives, 167,000 suffered injuries, and 150,000 homes were damaged.[14]

In view of the geographical spread of the devastation, the Gujarat earthquake, as it is widely known, was declared a national disaster.[15] The damage spread over a radius of 400 km from the earthquake epicenter (See Maps 1 and 2), affecting 21 out of 25 districts of Gujarat. Kachchh and seven other districts—Surendra Nagar, Patan,

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[12] Bhuj is located 400 km northeast of the state capital, Gandhi Nagar.

[13] Initially it was estimated by the Indian Meteorological Department to be 6.9 on Richter Scale. The Geological Survey of India estimated it to be 7.6 on the moment (Mw scale) and US Geological Survey estimated it at 7.7 (Mw scale). The USGS estimate is the most accepted one.

[14] Final figures from the Gujarat State Disaster Management Authority (GSDMA) report 13,805 dead and 166,812 injured, of which 14,382 were severely injured.

Banaskantha, Jamnagar, Rajkot, Ahmedabad, and Surat—were most heavily affected. 182 *talukas* (sub-administrative units within a district), and 7,922 villages were severely impacted (Gujarat State Disaster Management Authority, 2001).[16]
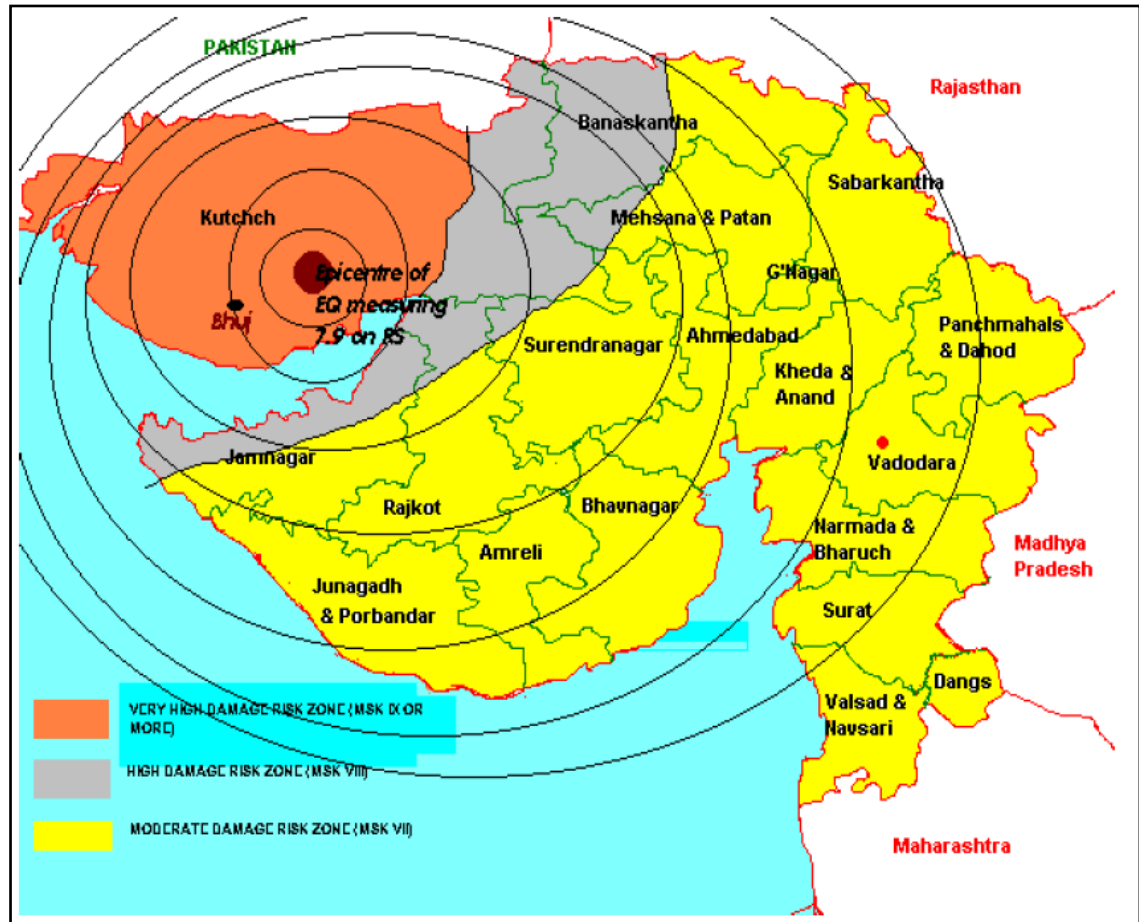
Map 1: Gujarat Earthquake Damage Zones (Source: United Nations, 2001)[17]

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[15] Based on its geographical spread, disasters are classified into three levels: Level 3 if an area within a district is affected, Level 2 if two to three districts within a state are affected, and Level 1 if four or more districts are affected (Source: GSDMA spokesperson).

[16] *Taluka* is an administrative and geographical block consisting of approximately 80 to 100 contiguous villages, with a primarily agricultural base. Details of affected districts are given in Appendix A.

[17] Medvedev-Sponheuer-Karnik (MSK) is a macroseismic intensity scale to assess severity of ground shaking on the basis of observed effects in the area of an earthquake.
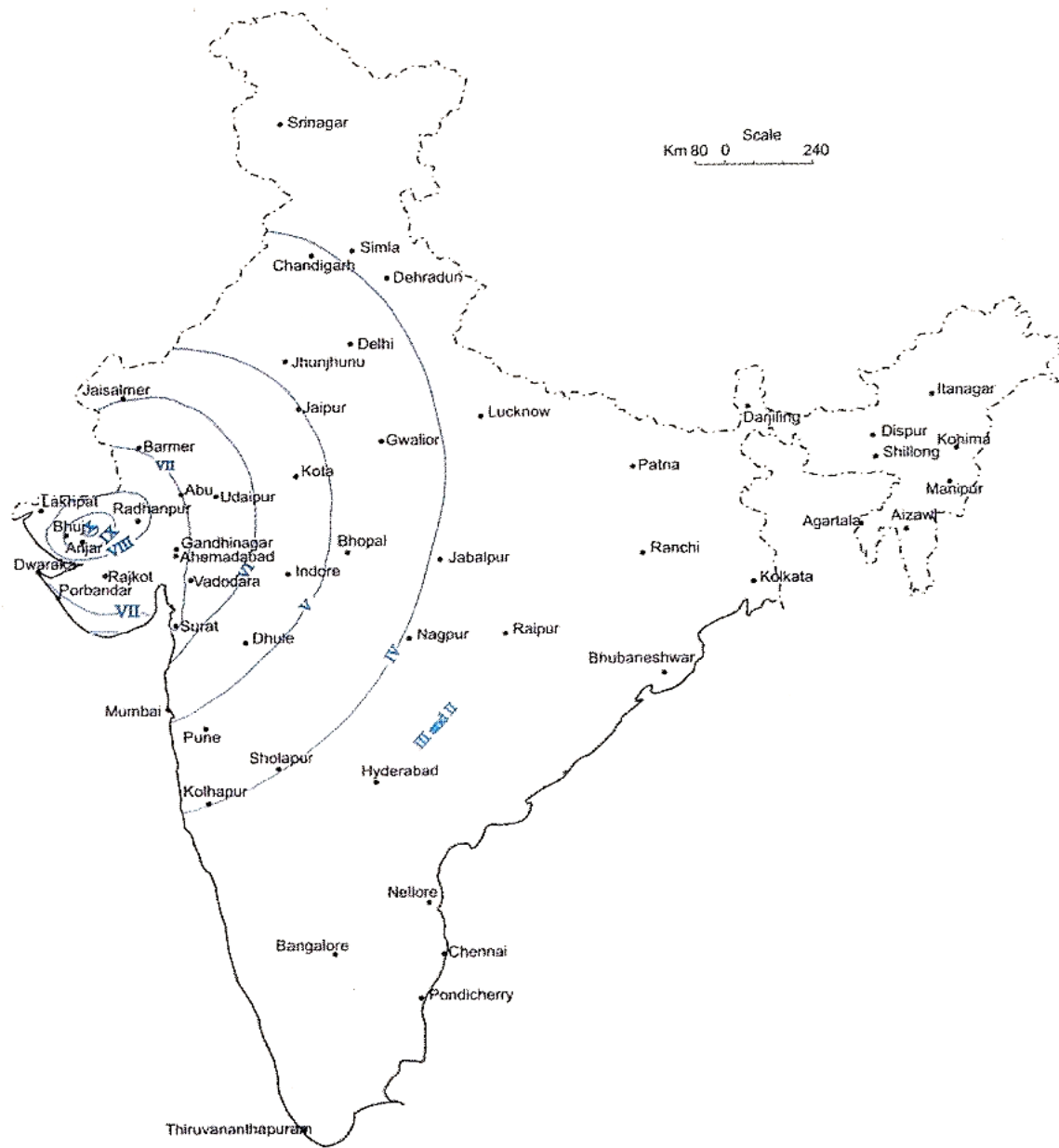
Map 2: Gujarat Earthquake Isoseismal map (Source: United Nations, 2001).

Since the day of the quake was a public holiday, most business establishments, schools, and government offices were closed or unoccupied, thereby reducing the number of casualties. However, the earthquake generated several aftershocks,

including two shocks of magnitudes 5.9 and 5.3 during the first fortnight after the quake, accentuating the extent of damage (Mishra, 2004, p. 59).[18] More than 230,000 one- and two-story masonry houses collapsed, and more than 980,000 were damaged. The net economic loss was estimated at about US $5 billion (Jain, Lettis, Murty, and Bardet, 2002). See Map 3 for details of various talukas (administrative subdivisions within a district) affected by the Gujarat earthquake.
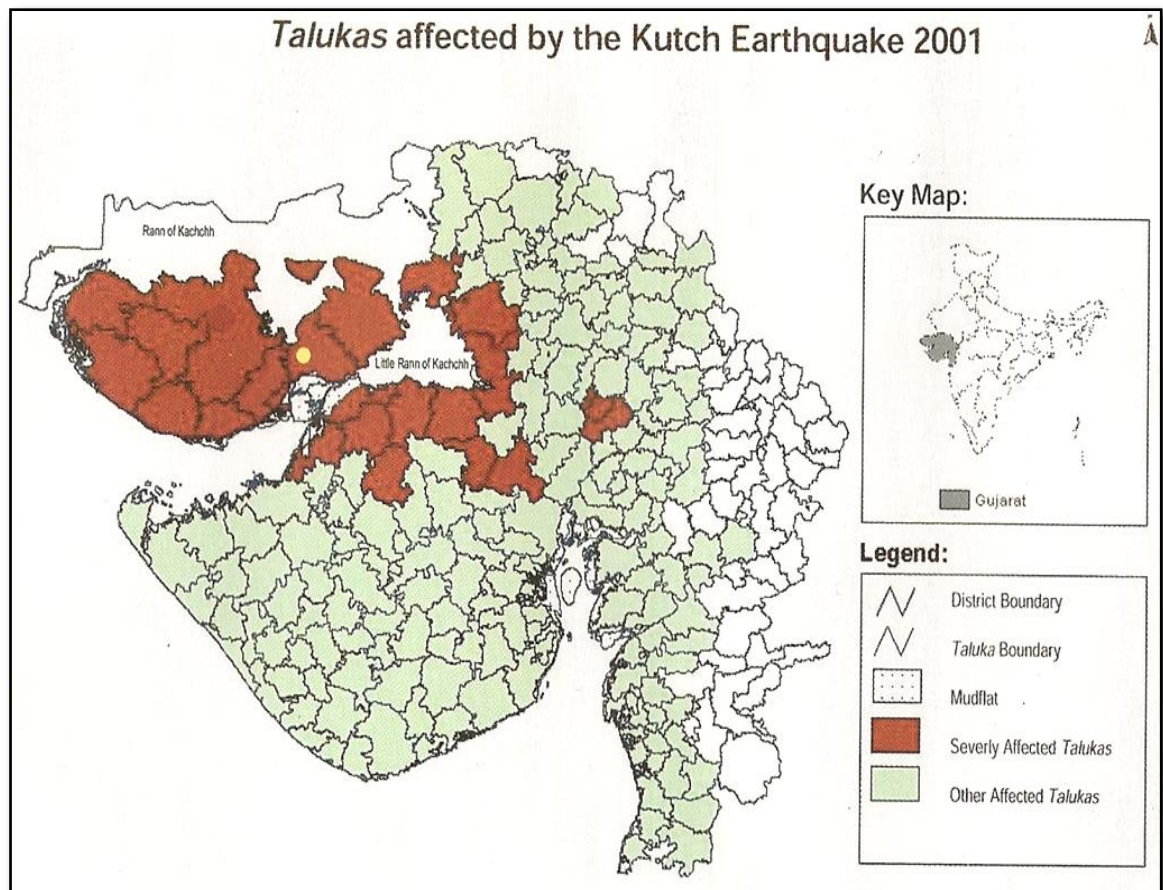
Map 3: Talukas Affected by the 2001 Earthquake (Source: GSDMA)
          Note: Map is not to scale and is indicative.

Kachchh, the district affected the worst, suffered 90 percent of the deaths and 85

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[18] There were approximately 953, 149, and 53 aftershocks in 2001, 2002, and 2003, respectively.

percent of the asset losses (World Bank/ADB, 2001). While four towns—Bhuj, Bhachau, Anjar, and Rapar—and more than 400 villages were severely affected, the city of Bhuj, the administrative capital of Kachchh district, suffered extensive damage to life and assets, including buildings and infrastructure.
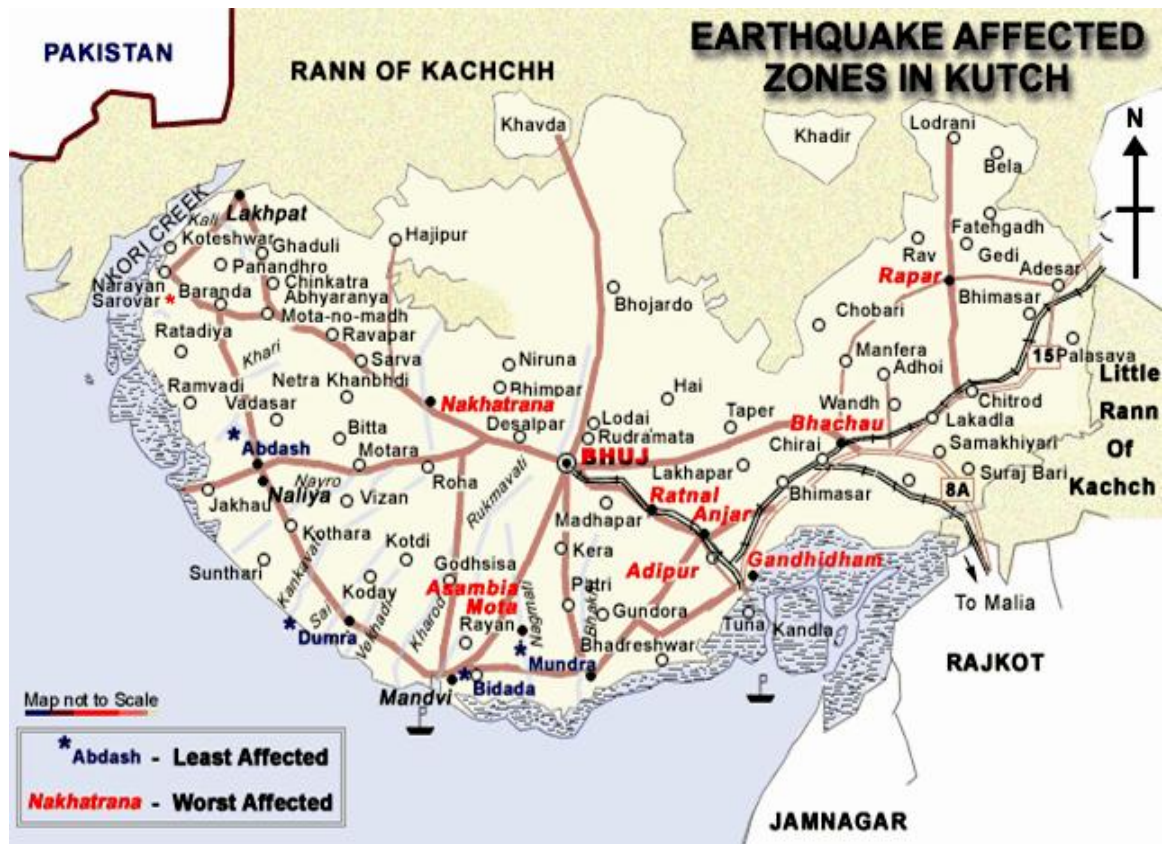
Map 4: District of Kachchh with its affected areas
      (Source: http://www.drmonline.net/drmlibrary/gujarat.htm).

More than 7,000 people died in the walled city "as buildings constructed of stone and mud mortar came crashing down on extremely narrow streets" (Balachandran and Tyabji, 2001).[19]

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[19] The physical form of the walled city of Bhuj is defined by a fortified wall built in 1723, and is characterized by a dense urban fabric of compact clusters of houses around cul-de-sacs/*falia* with meandering streets and open courts.

The state government's long-term disaster management responses turned on regulatory urban planning mechanisms to reduce the vulnerability of the built form. These efforts were accompanied by the creation of new institutions to implement the rehabilitation plans and programs as well as to undertake long-term urban planning and disaster management. In the years following the earthquake, the city of Bhuj took part in an urban planning "experiment" to transform its dense, medieval urban core into a disaster-resistant one with modern amenities. These processes intersected with the long history of disasters, geographical peculiarities of the region, history of governance, patterns of development, and socio-political and economic processes that had been shaping the urban spaces of Kachchh, such as Bhuj.

In the next section, I provide a brief overview of some of these space-making processes and their physical manifestations in Bhuj for two reasons: to provide the context within which post-earthquake urban planning processes unfolded, and to reinforce the significance of understanding such processes for effective disaster recovery in urban areas.

Disasters, Development, and Space-making in Bhuj, Kachchh

With several East-West-trending folds and faults traversing its terrain, historically, Kachchh has been seismically active, with a suggested recurrence of approximately 200 to 300 years for large magnitude events (Rajendran and Rajendran,

2001; Malik, 2000).[20] Kachchh is located in seismic zone V (see Appendix B), the zone of highest intensity earthquakes (see Map 5).

Map 5: Seismic Zones of India (Source: Bureau of Indian Standards).

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[20] District of Kachchh lies on Seismic Zone V, the highest category of earthquake proneness, according to the Geological Survey of India. The Harappan civilization that flourished here around 3500 BC is believed to have declined owing to the seismic activity. Though there are references to earthquakes in the 9th, 12th, 15th, and 18th centuries, not much information is available about the sizes and effects of

Seismic disturbances in the 11th or 12th centuries converted the once-navigable waters to the north and east of Kachchh into the difficult and treacherous Rann, introducing a period of relative isolation into the history of Kachchh (Rushbrook Williams, 1958).[21] The 1819 earthquake reduced Bhuj to rubble, killing around 2,000 people, damaging 7,000 houses, and inflicting significant damages on the fort walls.[22]

The semi-arid to arid coastal zone of Kachchh is exposed to periodic droughts and other hazards, such as cyclones and storm surges.[23] Droughts are a regular phenomenon. The 2001 earthquake occurred after a two-year drought (1999 and 2000).[24] These disasters had an adverse effect on health, quality of life, and level of food available in the area, and made farmers vulnerable.

Mass exoduses of people following droughts and famines had been a common phenomenon.[25] Because of the uncertainty of rainfall, along with the lack of livelihood options, high-class traders, both Hindus (Bhatias, Osval Vanias (Jains), and Lohanas)

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these events. Earthquakes were reported in 1819, 1844, and 1954 (Geological Survey of India). See Bilham, 1999, for descriptions of the 1819 and 1844 earthquakes.

[21] The Rann of Kachchh is a vast salt desert with a thick salt layer mixed with fine sand and clay devoid of vegetation and habitation spread over an area of about 33,000km^2, divided into two parts, the Great Rann to the North and the Little Rann to the East (Gazetteer of India, 1971).

[22] The 1819 earthquake that occurred on June 16 at 6:45 p.m. is believed to have been more devastating than the 2001 earthquake. It changed the course of the Indus River flowing through Kachchh by the geological formation called *Allah bund.*

[23] Owing to its 352 km long coastline, Kachchh has been extremely vulnerable to cyclones. In 1998, a major cyclone hit Kandla Port, killing more than 3,000 people, followed by another cyclone in 1999.

[24] 13,148 of 18,356 villages were in the grip of the drought. Many districts spared by the earthquake were under severe scarcity, and many suffered the dual calamity of the drought and the earthquake.

[25] During the great famine of 1823, one-fifth of the population of Kachchh is said to have left the region (Gazetteer of India, 1971). Bubonic plague of 1812 wiped out half the inhabitants of the state, including the famous Fateh Mohammed and the ruler Rao Rayadhanji II himself. The infamous famine (known as *chappanio*) of 1900 resulted in yet another stream of disaster-induced population movement (Yagnik and Sheth, 2006).

and Muslims (Khojas, Memons, and Bohras) left their homes in search of employment. Rushbrook Williams (1958) observed:

> for every Kutchi [people of/from Kutch] who habitually lives and works inside Kutch, there is another Kutchi who habitually lives and works outside, whether in Bombay, Calcutta, East Africa, Aden, the Persian Gulf, Europe, or the United States.[26]

The Anjar earthquake in 1956, whose epicenter was 55km from Bhuj, and two wars with Pakistan in 1965 and 1971 also discouraged many settlers and led to a significant exodus during 1960-1970. While the search for liberal economies where Kachchhis could exercise their entrepreneurial freedom made them venture outside of Kachchh, they continued to transact with a place in Kachchh called 'home' (Tyabji, 2006, p. 47).[27]

The Kachchh region had two distinct eras of development. Early construction took place under the Jadeja rule that lasted for over five centuries. Old towns like Bhuj and Anjar were fortified, had high density housing, very narrow streets, and old mud masonry construction with sloping mud tiled roofs. In the case of villages in remote areas, particularly in the northern islands (*bets*), vernacular architecture prevailed with conventional *bhoonga* or *jhumpa* dwellings which are rounded structures made of

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[27] Remittances from expatriate Kachchhis have been a major source of income.

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stone, mud, and dung with conical roofs.[28] In the case of Bhuj, the Jadeja ruler, Pragmalji II (1860-75), known as a great builder, undertook many useful public works, including deepening and improvement of many water tanks, the causeway in Hamirsar Lake, a new jail, stables, and a hospital (Gazetteer of India, 1971).

The more recent construction in the region began after the partition of the Indian Subcontinent into India and Pakistan in 1947. The strategic location of Kachchh from the perspective of national security (being located on the international border separating India and Pakistan), as well as occurrence of natural disasters, were rather the only factors that brought this region to any significant attention, whether in terms of development funding or in the national imaginary. During 1948-49 and 1951-52, when Kachchh was in the grip of severe famines, with a view to provide relief to the people of the famine-stricken area, government undertook road construction. Such relief works and Five Year Plans were instrumental in the implementation of several projects which increased the total road length of Kachchh (Gazetteer of India, 1971).

During 1948-1956, when Kachchh was under direct central government rule, the central government of India showed some interest in the development of the region. It developed the port at Kandla (since Karachi, a prominent port on the western seaboard, became part of Pakistan after the partition of the Indian subcontinent), along with some infrastructure development, including those for the resettlement of refugees

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[28] *A bhoonga* or *jhumpa* is a traditional house that consists of a single room circular in plan, diameter 3 to 6 meters, walls made of sun-dried (adobe) bricks about 500 mm thick, pitched roof made of bamboo sticks and thatch, with basic earthquake-resistant features built into them.

following partition.[29] In 1948, on the recommendation of Mahatma Gandhi, the Government of India for the purpose of developing a township near the Port of Kandla granted land and commissioned the Sindhu Resettlement Corporation Limited (SRCL) with the main objective of settling and rehabilitating the persons displaced from the Sindh province of West Pakistan (now known as Pakistan).[30]

By 1958, the SRCL completed a major part of the construction in two locations, which are today's cities of Adipur and Gandhidham. However, due to a slow increase in livelihoods arising from the marginal growth in commerce, trade, industry, and communications, it took a few more decades for these urban areas to realize their full potential. In 1965, the region sprung back into national consciousness owing to border dispute with the neighboring country of Pakistan, resulting in extensive militarization of Kachchh.[31]

During the 50 years after independence, the SRCL, the Kandla Port Trust (KPT), the Indian Railways, the Department of Telecommunications, and the Military Engineering Service (also responsible for improving and introducing new construction

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[29] In June 1948, Kachchh became part of the Indian Union, and the 400-year old Jadeja king's rule over Bhuj ended. After the integration with India, during 1948-1956 Kachchh was placed directly under the Central Government, as a Part C state. On the reorganization of states, despite public opposition, Kachchh was integrated with the bilingual Bombay state on November 1, 1956. With the bifurcation of Bombay state on May 1, 1960 into Maharashtra and Gujarat, Kachchh became a district in the newly formed Gujarat state.

[30] In 1948 the Government of India granted SRCL 6,070 hectares (15,000 acres) of land, which was revised in 1955 to 2,600 acres; the Port of Kandla received an adjoining 4,320 acres.

[31] Though the dispute was later resolved through a tribunal that decided on demarcation of the boundary in 1968, the dispute brought Kachchh to national consciousness as a frontier territory that is vulnerable to external aggressions. For details on the dispute, see Gupta, 1969, and Indian Society of International Law, 1965.

technology) were the main organizations that undertook construction activity in the Kachchh region. Construction in other parts of Kachchh was a consequence of the development in the Gandhidham-Adipur areas. The road from Nakhatrana to Lakhpat was given priority for strategic reasons, thereby opening up the area for commercial exploitation of deposits of lignite, gypsum, and rock-salt (Rushbrook Williams, 1958). The growth of the Kandla Port Trust, the construction of new highways during 1970s, and the commissioning of the Broad Gauge Railway line in the 1980s, led to an influx of people into the region.

Real estate and land business began to flourish in Kachchh in the 1980s. Expatriate *Kachchhis* invested in property and built houses and bungalows in the *Wagad* area (eastern Kachchh) as well as in Mundra (in the South) for their parents, or they left it with caretaker. They also made contributions for the development of social and physical infrastructure in their ancestral villages. This has been a significant factor in the development of villages and also fuelled real estate development in the region.

The physical form of Bhuj is characterized by a princely citadel, the Bhujjia Fortress that overlooks the city from a hill known as the Bhujjio. The recorded history of Bhuj dates back to the days of the Naga Chieftain Bhujang, and it is said to have witnessed the Indus Valley civilization, the exile of the Pandavas during the Mahabharata, and the invasion of Alexander the Great.[32] In 1548, Rao Khengarji I, the

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[32] According to legend, Bhujang Naga who ruled the area on which Bhuj stands today was a ruthless Naga ruler. Later in life he renounced all his powers and did penance by helping the poor. After his death, he became Bhujangadeva and the hill was named Bhujangia or Bhujjia (Khare, 2004).

Jadeja ruler, chose Bhuj as the administrative capital of the princely state of Kachchh.[33] The old city was confined within fort walls with five gates and an emergency exit known as the *Chattibari* (sixth window). The city grew around the *darbargarh*, a complex of royal apartments and palaces at the core of the walled city. The walled city area (*gamtal)* served as the residential and commercial center, surrounded by relatively scant development in the area outside the walled city known as the *simtal*. [34]

Ordinary life around the *darbargarh* revolved around the *falia,* or neighborhood. Inside the walled city, the urban form was characterized by compact clusters of contiguous row of houses built on meandering streets or open courts.[35] Streets served as a social amenity, affording social interaction in day-to-day life, as well as on special occasions, such as festivals, when it translated to a group space. Domestic activities often extended into the street. The entrance node was defined by a gateway, or d*eli,* which marked the transition from the public (external road) to the semi-public (settlement) spaces. The neighborhoods were often differentiated from each other based on caste or trade. The general layout of towns of Kachchh was similar with regard to the functional distribution of houses by caste.

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[33] Bhuj was known as Tahej in the ancient times.

[34] In Bhuj, while most residences were located within the walled city, land outside the fort walls was given to *Bakalis* (Muslims) or the *Waghiris* (Hindus originally from the Wagad region of eastern Kachchh) to grow vegetables, fruits, and flowers to be supplied to the city. The only settlements outside the walled city were those near the British campson the foothills of *Bhujio* fortress, inhabited by *Parsis*, *Bhils* (from Rajasthan), Christians, *Kolis*, *Maldharis,* and *Bakalis*.

[35] Darbargarh is a complex of royal apartments and palaces at the core of the walled city. Prag Mahal, is situated across the courtyard from the old palace, Aina Mahal designed by Henry St. Claire Wilkins, a British engineer, and built around 1865 by Rao Pragmalji. A grand Durbar Hall in the new Gothic style and the 45 m lofty clock tower commanded the skyline of the whole town of Bhuj.

In the post-independence era, the fortification remained intact until the 1960s when the *Vaniawad* gate, along with the southern edge of the fort wall, was demolished under development pressure. The moat surrounding the wall was filled in to permit contiguous development towards the south of the city.[36] In the 1960s, the first legal housing society outside the walled city was developed by migrants from Karachi.[37] By the 1970s, the walled city had mixed construction that ranged from old mud masonry construction with sloping, mud tile roofs, and masonry structures with reinforced concrete roofs. Several cooperative housing societies were built outside the walled city. Tyabji (2006) describes the nature of this development as follows:

> In the newly developing Bhuj, however, there was little hint of the original *falia* arrangement of housing, and none of the traditional signs of community identity which builders had used for generations in Kachchh. . . . although residents of the first few colonies seemed to be bound by tradition and tended to form housing societies as though they were an extended family, newer developments were to reflect an individualism and economic independence previously unseen in the city. It was as though residents had been bound together in the 1930s by a common vision to break from the past and modernize, spurred by a common dream of economically emancipating themselves from a restrictive monarchy. In doing so, people had ironically begun to isolate themselves from one another, to ignore those very social and

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[36] One of the first attempts to build settlements outside the old city was in the 1930s, when the Prince Regent, Vijayarajji, decided to sell parcels of land (60 x 90 foot plots for approx. Rs150, or 500 Koris per plot) to cater to wealthy, potential Vania clients, many of whom had settled in Mumbai, Hyderabad, Kerala, and East Africa, and who could afford to buy plots of land and to build on them (Tyabji, 2006). However, the plan didn't materialize until Khengarji III's lifetime.

[37] Mulji R Ganatra and Jamiat B Vora, businessmen from Karachi who moved to Kachchh after the partition, formed a cooperative housing society with an initial membership of 11 that would be called Orient Colony (Jamiat Vora, personal communication, in Bhuj, 10/26/2006).

economic ties that had bound them for four hundred years . . . (Tyabji, 2006, p. 64)

The 1970s also saw the beginning of apartment construction (outside the walled city) in response to the housing needs of people who did not want to commute from Bhachau or Rapar to work day jobs and wanted more permanent housing in Bhuj. Absentee landlordism and remittance economy significantly influenced the nature of land ownership and tenure arrangements. The absentee landlords of Kachchh living in Bombay or other parts of the world (UK, US, and East African countries) had left their houses in charge of caretakers who had been living there for several decades without any legal documentation. In many cases, the houses were either kept vacant or rented out. In comparison with urban areas, rural areas have large number of vacant houses belonging to the émigrés.

With passage of time, when land speculation started to gain momentum and the government began to approve fewer and fewer housing cooperatives, residents of Bhuj who could not afford land close to the walled city found themselves living in high-rise apartments. Also, land outside the walled city, owned by *bakalis* (Muslim community members engaged in fruit and vegetable farming outside the walled city) and *harijans* (lower caste *Hindus*), would be subdivided into plots and sold off to those who wanted housing at affordable rates close to the commercial centers of the walled city. Since most of this land was granted for agricultural purposes (sometimes on lease), its sale as well as use for residential purposes rendered the houses constructed on it "illegal."

In other cases, to accommodate expanding families, additional rooms or even floors were added to existing homes without taking into account their implications for the structural safety of the house. In the 2001 earthquake, these buildings would suffer maximum damage, claiming the lives of many of its residents.

Urban development took place in an unregulated manner, with no specific efforts to undertake systematic planning of developing areas or enforcement of building standards. The urban built form reflected existing economic divides, with the southern and western parts of the city having primarily bungalows, apartments, row houses and tenements, while the northern and eastern parts largely comprising of very low income houses ranging from shanties/hutments to small tenements (one or two floors high). Nearly 30% of its total population lived in informal settlements. Yet, outside the municipal limits, Bhuj Taluka had 24 villages belonging to the affluent non-resident Indian community of Patels.[38] According to the Development Plan of Bhuj:

> There have been hardly any systematic efforts towards planning. The only planned areas are Vijaya Nagar area and an approximate 50 hectare patch around Hospital Road. Development has been loosely regulated as evident from the widespread violation of building bylaws and illegal construction, especially in the northern and eastern parts of the city. Small portions of the Government-owned land are often allocated in ad-hoc manner. Many water bodies have been encroached upon. Natural drains have been covered up or built upon. Access to basic physical and social infrastructure is mostly concentrated in the south and west while the north and east are the most

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[38] The villages are Sukhpar, Manakuva, Bodki, Shamatra, Varasar, Naranpar, Kera, Bhadadiya, Meghpar, Daisara, Barasar, and Mirzapar.

deprived areas. (BHADA, 2001a, p. 47)

In 1996, the first high-rise apartment within the walled city, near Mahadev Gate of the fort wall, was about to be constructed. At the same time, based on seismological observations in the Rann of Kachchh, a geologist from MS University in Baroda declared that there was a greater chance of earthquakes in Kachchh of intensities on the order of the 1819 earthquake, and emphasized the need to monitor seismic activities continuously.[39] Despite attempts by the District Collector to stop the construction, the apartment building was constructed with political influence, followed by many more high-rises in different parts of Bhuj.

In 2000, Bhuj, a monocentric town, had a 1 square kilometer inner urban core with eight municipal wards that houses as many as 38,653 people, while the remaining 18 km^2 of the municipality (wards 9 to 12) housed 63,523.[40] An estimated 40,000 to 50,000 defense services personnel lived there owing to the military and air force bases located in the city. Being the administrative capital of the district, all important government offices were located in Bhuj. These government offices along with some of the major educational institutions, hospitals, and commercial establishments (nearly 8,000 in the walled city alone) brought people to Bhuj on a daily basis.[41]

The walled city, an intertwined network of commercial and residential areas, was

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[39] An editorial was published in the regional newspaper, Kutch Mitra, on the press conference.
[40] In 2001, Bhuj Municipality extended over an area of 19km^2 and consisted of 12 wards with an estimated population of 165,000 (2001 projected population) compared to 120,000 in 1991.
[41] It was estimated that Bhuj had a floating population of 50,000 to 60,000 (BHADA, 2001a, p. 35).

a major commercial node. It catered to the needs of people inside the city as well as those living outside and from surrounding villages and *talukas*. Commercial activities outside the walled city were concentrated on the Hospital Road, with its high-end commercial establishments and large number of clinics and hospitals. Recent commercial establishments started developing on the Mirzapar and Madhapar roads. As a result of its central location, most of the commodities to be exported and imported from Mundra and Mandvi ports passed through Bhuj. Also, its location on the transportation route of lignite from Pandhro (in northwestern Kachchh) had led to the establishment of many transport agencies and related business in Bhuj and nearby Madhapar.[42] Bhuj had several bauxite and bentonite pulverizing factories. Compared to other districts of Gujarat, Kachchh had a very low level of industrialization.[43] Despite the incentives offered for the development of industries in the district, industrialization had not quite picked up in the Golden Corridor of Gujarat. There were no large-scale industries in or around Bhuj city.[44]

In the last week of December 2000, a four-day seminar was conducted in the city of Baroda in Gujarat on Kachchh geology and seismology, emphasizing the need to monitor the seismicity of the area and advocating for development that was cognizant

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[42] Sale of lignite from the Pandhro mines to outside of the Kachchh district was banned by the State Government in 2008 (http://www.expressindia.com/latest-news/transporters-agree-to-pick-lignite-from-kutch-mines/316100/).

[43] Existing industrial activity is centered around Kandla Free Trade Zone and Gandhidham. Minerals such as lignite, limestone, and bentonite are mined in Lakhpat and Abdasa *talukas*. There are also several cement plants. Kachchh is also an important producer of salt from sea water in India.

[44] Bhuj *taluka* has about two medium-scale industries and about 809 small-scale industries (textiles, wood based industries, engineering units, etc.) with an investment of Rs. 524,000 and Rs. 637,000, respectively (DIC, Bhuj); 2 GIDC estates exist within the BHADA area, one on Bhuj-Madhapar Road, three km from the center, and another in Madhapar village.

of such geological processes.[45] That same week, a tremor occurred with its epicenter near Bhachau in Kachchh district.[46] Two weeks later, on January 17, 2001, geologists of Kachchh made a public statement emphasizing the need to monitor these tremors. But neither politicians nor administrators acted on it. Elections to the municipal council, the governing body of the municipality, were scheduled.

Nine days later, on January 26, 2001, within 110 seconds, an earthquake reduced the once-thriving walled city of Bhuj in Kachchh to a ghost town with no power or other critical services, piles of debris, and dead bodies buried in them. The city disappeared from tourist maps and guidebooks, only to reappear on the routes of another category of visitors, referred to as 'disaster tourists.' From their tents, residents wandered in the deserted city, gathering what was left of their homes, memories, and a city they called theirs.

As many people grappled with the extensive human misery and devastation, the state was confronted by the daunting tasks of recovery and rehabilitation. Policies and plans to rebuild lives, livelihoods, homes, businesses, and infrastructure in the towns and villages would be debated and adopted. Over the next five years, Kachchh, and Bhuj more so, became the epicenter of a rehabilitation exercise of gigantic proportions, unseen in the history of independent India, with a massive convergence of people, materials, and ideas.

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[45] For four days, Kutch Mitra published articles on the seminar. Last of the series was published on 24th December 2000.

[46] This would be the epicenter of the January 26th earthquake.

In May 2001, the Government of Gujarat announced an earthquake rehabilitation package. This was followed by a tax holiday to encourage new industries to come and establish their business in Kachchh. The Chief Minister of Gujarat, Kesubhai Patel (a member of the prominent farming community of *Patidars* or Patels) stepped down on allegations of corruption related to the earthquake response and was replaced by Narendra Modi, a right-wing Hindu politician. With this change in political leadership at the state level, earthquake rehabilitation would assume a state priority. Under its new Chief Minister, the state of Gujarat soon assumed an authoritarian regime with a strong neo-liberal development agenda.[47]

Many expressed their faith in the "resilience of Kachchhis" and their inherent ability to overcome adversities in a tumultuous terrain where vagaries of nature intersected with socio-cultural, economic, and political processes continuously shaping and being shaped by a space in flux called Kachchh.

Rehabilitation Through Town Planning

The state response to the 2001 earthquake was significantly different from the response to previous disasters. Under the Gujarat Earthquake Rehabilitation and Reconstruction Program (GERRP), the state government's long-term disaster management responses turned on regulatory mechanisms of Development Plans (DP),

and Town Planning Schemes to reconfigure the earthquake-affected towns of Bhuj, Bhachau, Anjar, and Rapar.[48] It also adopted Development Control Regulations (DCR) and building codes to reduce earthquake vulnerability of its built form.[49] Setting up an institutional framework, including the creation of new institutions to implement the plans, accompanied these efforts.

In May 2001, the government of Gujarat created Area Development Authorities (ADA) in Bhuj, Bhachau, Anjar, and Rapar, for implementing town planning proposals and ensuring adherence to improved building regulations.[50] In the case of Bhuj, Environmental Planning Collaborative (EPC), a non-profit organization based in Ahmedabad was commissioned to prepare the Draft Development Plan as well as Town Planning Schemes as a strategy to re-organize the walled city's morphology (Balachandran and Tyabji, 2001).[51]

Using the statutory planning tool of TPS, the walled city of Bhuj, where most of

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[47] For the authoritarian nature of the new regime and its developmental agenda, see Mukta, 2003; Shah et al., 2004.

[48] The Development Plan, as mandated by the GTPUD Act of 1976, generally indicates the manner in which the use of land in the area shall be regulated and also indicate the manner in which the development therein shall be carried out (this typically includes land use zoning, road networks, and development control regulations for various land uses); the Town Planning Scheme is a statutory planning mechanism used to regularize existing plots on urban fringes, along with provisions for physical and social infrastructure to achieve balanced growth. Under the GERRP Development Plans and Town Planning Schemes would be prepared and implemented in Bhuj, Bhachau, and Anjar. In Rapar town, headquarters of the *taluka* by the same name, only a Development Plan would be prepared.

[49] The new DCR restricted both building heights and permissible built area, or the Floor Space Index (F.S.I.). Floor Space Index is defined as the ratio of total floor area to the area of the plot/land parcel.

[50] These were created under the provisions of the Gujarat Town Planning and Urban Development Act (GTPUDA) of 1976.

[51] The previous Development Plan for Bhuj was prepared in 1976.

the casualties had occurred, would be de-densified.[52] A new hierarchical network of widened roads would be built along with access streets to individual plots. Alternate sites (relocation sites) would be provided to households affected by town planning activities, such as road widening and reconfiguration of plots, and to those who opted for 'voluntary' relocation from the walled city. Owners whose houses were damaged in the earthquake, and who could not accommodate the previous inhabitants (especially of joint families) due to smaller size of the newly rebuilt homes, constructed in compliance with the setback, height, and bulk requirements, also qualified for plots in relocation sites.[53]

The outdated and inaccurate land ownership records (as indicated by revenue records) and plot layout maps (as indicated by City Survey maps) complicated the entire reconfiguration exercise, which used these records as the base for the micro-level planning interventions. Many records were lost in debris as the government offices which housed them collapsed in the earthquake. Despite these concerns, the pressure to rebuild a disaster-resistant and "efficient" city overwhelmed the rehabilitation process, leaving very little room for public debates on the appropriateness of the plans or the social and economic implications of the de-densification efforts on the walled city and its residents. The trauma suffered from the loss of dear ones deterred many people from returning to the city or taking part in the

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[52] This term is used to indicate the approach to enhancing the safety of the densely crowded walled city and hence the underlying rationale for implementation of TPS.

[53] Many houses which earlier occupied entire plots and/or had a number of floors higher than that permitted by the new development control regulations now needed to be rebuilt smaller to be compliant with the regulations.

public consultations. The technical nature of post-earthquake planning processes, along with uncertainties regarding its implementation, also curtailed public involvement.

Substantial damage suffered by the administrative machinery, along with a history of corruption in local elected bodies and collusion with land lobby, led to the creation of new institutions for local planning and implementation. The fear of politicization of issues, along with the pressure to rebuild faster, encouraged the state machinery to adopt a mode of post-disaster planning and implementation contrary to the decentralized urban governance. It discouraged the creation of institutions that could act as channels for the multiple voices of the earthquake-affected, especially the marginalized groups who lack legitimate ways of expressing/communicating their concerns regarding rehabilitation policies and plans. The techno-legal approach employed by the rehabilitation program, in line with the dominant discourse of disaster management in India, maintained silence about those outside the legal frameworks of the state.

The choice of Bhuj as a case for exploring the larger question about disaster vulnerability reduction through post-disaster planning processes in urban areas—and to understand town planning and vulnerability reduction "as a contextualized set of practices with an emphasis on meaning and human concerns"—was significantly

shaped by two key concerns:[54]

1. How could a planning mechanism (such as the Town Planning Scheme) that is used to reconfigure largely unbuilt agricultural tracts in the urban fringes be applied to restructure a 400-year-old medieval walled city with 10,000 plots ranging from 10 m^2 to 400 m^2 where 7,000 people had just died, and where 50% of the structures were damaged and the remaining 50% partly damaged or unaffected, dispersed all over a 1 km^2 area? What would be the technical, administrative, and financial challenges in making work such a planning mechanism in a post-disaster scenario?[55]

2. If disaster vulnerability is constituted by physical and socioeconomic aspects of everyday lives embedded in the lived spaces of neighborhoods and towns, then in an earthquake-affected town where the built-form undergoes drastic restructuring, what implications would there be from the changes brought about by both the earthquake and ensuing rehabilitation process, in terms of the coping processes and the recovery of those affected? How would residents experience and cope with, as well as influence, these changes?

There were also concerns about the fairness of these interventions. Considering the differential nature of damage, how could the argument of the "democratic" nature of town planning schemes (through equal sharing of costs and benefits for greater

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[54] To gain understanding of the earthquake rehabilitation policy and planning process as a "social reality connected to socio-economic conditions and institutions and thoroughly grounded in specific persons, times, places, conditions and institutions" (Yanow and Schwartz-Shea, 2006) it seemed the case-study method would be an appropriate choice. See Flyvbjerg (2006) on the merits of case study approach and how social science may be strengthened by the execution of a greater number of good case studies.

[55] Building permissions are not granted until the Town Planning Schemes (TPS) layout is finalized. Here in a post-disaster scenario where rebuilding was the most important consideration for both the government and the earthquake-affected, the average time period of 10 years that it takes TPS to be fully implemented, seemed like a significant concern that might affect the recovery of the earthquake-affected. Given the history of the continued inability of TPS to generate revenues for financing its own infrastructure development, I was also skeptical about its financial capability to fund the infrastructure from the betterment charges paid by the plot owners. This was critical since reinstating the infrastructure was key to successful disaster rehabilitation. However, unlike other TPSs, the infrastructure for Bhuj TPS was financed by the Government of Gujarat through a loan from the Asian Development Bank, thereby making it possible to undertake the work before the residents paid their betterment charges. Also, in contrast to the "usual" TPS method of claiming the betterment charges as each owner developed individual properties, the earthquake made it possible to deduct the betterment charges from the housing compensation for the earthquake-affected owners as and when they got disbursed.

public good) hold good?[56] Damage was more intense in the northern part of the walled city of Bhuj where two major fault lines intersected and which at the time of the earthquake had a lot of old, non-compliant construction and was also inhabited by a majority of poor residents. Tenants, who constituted 40% of the residents at the time of the earthquake, and informal settlers posed additional challenge to a rehabilitation program framed around legal ownership of property.

Bhuj presented itself as an *extreme case* of physical restructuring, considering the nature of devastation, especially in the old urban core or the walled city, where half the buildings were severely damaged or destroyed while the other half were either undamaged or partly damaged (therefore repairable).[57] Being the administrative capital of Kachchh District, Bhuj was the focus of attention of the media, which added to the pressure to produce faster, visible results. The earthquake and the ensuing town planning processes were important events in the personal histories of the residents. Many who were not severely impacted by the earthquake were nonetheless affected by town planning. The restructuring of the walled city and its immediate surroundings—the dense built-form central to the socio economic life of the city and its residents—would not only delay the physical rebuilding of homes (a significant aspect of recovery) but also have repercussions on the economic, social, and cultural aspects of

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[56] *Costs* are reduction of one's plot size, sometimes complete or partial demolition of building with compensation, and *benefits* are new infrastructure, appreciation of property values, safer city, better access, etc.

[57] Reconfiguring the walled city of Bhuj, 1 km^2 in area with high density, narrow, winding streets, 10,000 plots (and around 20,000 ownerships) with plot sizes varying from less than 10 to 400 m^2, was an enormous task. Rehabilitation policy required that all standing structures be left undisturbed to the maximum possible extent, which further constrained the process. Barzelay (1993) demonstrates the

recovery. Hence, Bhuj presented a unique opportunity to understand not only the processes of adaptation of urban planning mechanisms to post-disaster rehabilitation, but also to understand the dialectic between these processes and recovery of those affected by the disaster.

This dissertation attempts to offer an alternate way of understanding post-disaster response and planning processes in urban areas by capturing their dynamic nature in relation to socioeconomic processes. This dissertation builds on the idea of differential vulnerability and its articulation through spatial practices, a product or outcome of a dialectic relationship between urban form and socioeconomic-political processes. It attempts to capture the highly political process of disaster management facilitated through constant negotiations between various actors.

Vulnerability from ambiguous land ownership/tenure, uneven allocation, and issues pertaining to management of land (including maintenance of records) could be found in any city with or without disasters. While disasters offer a great opportunity to address the basic causes of vulnerability, responses often focus on physical reconstruction generating a myth of well-being and resilience.

Analysis of Bhuj demonstrates how planners intervening in urban areas engaged in constant negotiations with various actors using means within and beyond legal frameworks mandated by the state. In Bhuj, it was these extra-legal processes of

capability of the single case study to produce empirical generalizations regarding administrative

negotiation, including long-drawn-out grievance redressal that facilitated the implementation of town planning efforts after the earthquake. By examining how changes in the physical environment of Bhuj came forth (structures, institutions) through negotiations between various state and non-state actors, I attempt to present a more nuanced narrative on earthquake rehabilitation that captures the complexities of policy formulation and implementation processes in post-disaster urban planning and rehabilitation.

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rationality, professional treatment, and normative reasoning.

CHAPTER 3

INSTITUTIONAL RESPONSES TO REBUILDING OF KACHCHH

This chapter examines in detail the state machinery's response to the Gujarat earthquake that caused massive destruction to life and property. It analyses the formulation and operationalization of the institutional framework along with specific policies, assistance packages, and plans for the rehabilitation of earthquake-affected areas. In the following sections, beginning with a discussion of the impacts of the earthquake on Kachchh, I explore how recovery and rehabilitation priorities were established and specific measures adopted in Bhuj to meet the recovery as well as long-term vulnerability reduction needs.

Damage, Assessment, and Response in Kachchh

The district of Kachchh accounted for nearly 90% of the total deaths and 82% of asset losses after the earthquake (Balachandran and Tyabji, 2004).[58] The entire population was affected as an estimated 12,221 people lost their lives and 136,048 suffered injuries. The earthquake affected both urban and rural areas. This included one major city, Gandhidham, and four large towns: Bhuj, Bhachau, Anjar, and Rapar.

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[58] Kachchh District: Bounded in the north and northeast by Pakistan, on the northeast by the state of Rajasthan, on the east by the districts of Banaskantha, Patan and Mehsana, on the southeast by Surendranagar district, on the south by the Gulf of Kachchh and Rajkot district and on the west by the

Since the earthquake occurred on a public holiday, most of the office buildings, public facilities, schools, etc. were not open, thereby minimizing the number of casualties.[59]

Critical infrastructure in the region was severely disrupted. The Bharat Sanchar Nigam Limited (BSNL) telecommunications building in Bhuj suffered extensive damage, disrupting phone services. There were traffic blocks on highways connecting Bhuj, Anjar, Bhachau, and other devastated towns and villages due to vehicles carrying relief materials, rescue teams, and security personnel and also people fleeing the state. The Old Surajbari Bridge, a vital transportation link connecting Saurashtra and Kachchh, was damaged by the earthquake and closed to traffic for the first two days after the quake, causing delays in relief and rescue operations.

Hospital facilities housed in seismically vulnerable structures were badly damaged or destroyed in the earthquake (Jain et al., 2002). Collapse of the 281-bed Civil Hospital of Bhuj, the largest in Kachchh, killed 172 people, and left a large number of injured and sick without any medical treatment.[60] In Bhuj, the fairground was converted into an instant hospital with minimal infrastructure where volunteer doctors handled patients. After their initial treatment, these patients were immediately moved to hospitals outside of Kachchh, including those in Mumbai, Pune, and Surat.

Arabian Sea. The population density is 33 persons per km^2 compared to 258 persons for the entire state (Socio-Economic Review, Gujarat State 2002-2003).

[59] In Anjar, 300 school children who had come to participate in the Republic Day march died when they were trapped on a narrow street and buildings on both sides of them collapsed.

[60] This was built in 1956 after the Anjar earthquake and inaugurated by Prime Minister Jawaharlal Nehru despite local resistance to its location far from the old city (Tyabji, 2006). Prior to the earthquake, it was designated as the referral hospital to attend to the medical needs of around 1 million people living in the region.

Several small and medium earthen dams that provided drinking water and irrigation to local communities, urban and rural water supply systems, public buildings, municipal infrastructure, roads, power and telecommunication systems, etc. suffered heavy damages. Thousands of small and cottage-based industries and agricultural assets were also destroyed or damaged. More than 10,000 small and medium industrial units in the earthquake-affected areas stopped production due to damages to plants, factories, and machinery. The earthquake also caused serious losses to agriculture and livestock. More than 20,000 cattle deaths were reported in the region. Many salt refineries were damaged and brine wells and salt fields destroyed.[61] As many as 50,000 artisans in the handicrafts sector lost their houses, workshops, and tools.[62]

In Bhuj, the administrative capital of Kachchh district, there was heavy damage to the office of the district collector (chief administrator of the district from the Indian Administrative Services (IAS)),[63] the *Zila Panchayat* (District Council, an important organization for the development activities of the district), the Municipal Office building, and a number of police stations. Significant damage to office buildings, loss

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[61] Kachchh accounts for 80 percent of India's salt production.

[62] Kachchh is famous for its diverse crafts with recognized craftspersons for every material (wool, textile, wood, clay, stone, brass, *zari*, and mirror) and it is well known for craft techniques such as vegetable dyes, embroidery, block printing, resist dyes (tie-and-dye or *bandhani*), lacquering, etc.

[63] The District Collector, who is also the District Magistrate, plays a pivotal role in the administration of the district. Responsibilities include land revenue, tenancy reforms, magisterial work, civil supplies, small savings, land acquisition, elections to the State Legislature and *Lok Sabha*, census, etc. Under the Famine Code of 1915, the District Collector is required to keep himself informed of agricultural conditions within the district, organize relief measures, and create as far as possible a permanent famine relief fund on a charitable basis for the relief of the needy (Gazetteer of India, 1971).

of records, and injuries to personnel had a negative psychological impact on the administration's capacity to deal with the rescue efforts. Extensive damage to residences along with injuries and fatalities in their families posed additional challenges to personnel in the public and private sectors who were needed to resume their official duties.

Approximately 70% of the buildings in Kachchh were destroyed in the earthquake. In the towns of Bhuj and Anjar, a majority of the casualties occurred within the area enclosed by the fort walls.[64] These places had suffered similar damages during the 1819 earthquake, and most of the reconstruction and repairs at the same sites. Lack of maintenance of historic buildings and heavy masonry work with inadequate through-stones also contributed to earthquake damage (Jain et al., 2002).

In the densely populated urban cores where families expanded by adding rooms or floors to older structures, this expansion was often done without considering the implications for structural safety. Hence, a large number of masonry structures were hybrid in nature.[65] Such construction sustained severe damage to the weaker, lower story. (The opposite was also observed.) Structures with traditional wooden frame and stone masonry performed better than some of the modern structures built near them.[66]

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[64] Most of the fort walls in villages and towns were made of undressed stones (with well-dressed face stones) and thick lime mortar.

[65] In a typical two-story construction, while the older first story walls might have been constructed in random rubble masonry with mud mortar, the newer extension of the upper story was built in brick masonry laid in cement mortar with reinforced concrete slabs for floors and roof.

[66] In this type of construction, wooden frames consist of lintels and posts tied together with wall plates to act as a single unit, enhancing the seismic resistance of a structure. Examples of this include Swaminarayan Temple next to Darbargadh Palace and *Rani vas* (Queen's Residence) in Bhuj.

Over 7,000 people perished in Bhuj, a majority of them in the fortified central urban core of 1 km^2 area (the *gamtal* or *gam*). In this walled city area with a population density of 350 people/hectare, buildings that were constructed of stone and mud mortar collapsed into the narrow streets. Nearly 50% of the walled city area suffered considerable damage to buildings and infrastructure. Several of these buildings were unreinforced construction built in the 1700s.[67] Outside of the walled area, 75% of the multistoried reinforced concrete buildings (3 to 10 floors) collapsed. Nearly 60% of the shops and establishments were also damaged in the earthquake (BHADA, 2001a, p. 41).

In villages that were severely damaged, masonry construction with random rubble and mud mortar had been widely used. Since this type of construction offered poor shear strength, thicker walls were built to compensate for it—sometimes as thick as 750 mm (Jain et al., 2002). Unlike the normal practice in India of using stones with a maximum dimension of 400 mm, in Kachchh semi-dressed stones of 600 mm x 400 mm x 250 mm were employed in stone masonry with 80-mm-thick mortar. Under strong seismic shaking, the out-of-plane dislodging of one stone can lead to the collapse of a significant portion of the large-block masonry above, jeopardizing the

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[67] Noted historic buildings and monuments such as the palace of Rao Pragmalji and Sharad Baug Palace, Kachchh Museum, Jubilee Hospital, Alfred High School, Kalyaneswar Temple Complex, Mohammed Pannah Mosque, Fateh Mohammed's Tomb, the *chhatris*, and the Fort, all suffered severe damage. *Aina Mahal* (Palace of Mirrors), another major tourist attraction, was also damaged.

safety and stability of the entire building.[68]

Damage assessment. In order to assess the extent of physical damage to the built form, buildings were surveyed and classified into five damage categories: G-0 (no damage), G-1 (slight non-structural damage), G-2 (slight structural damage), G-3 (moderate structural damage), G-4 (severe structural damage), and G-5 (collapsed).[69] In urban areas, damage assessment and categorization were performed by teams constituted by the District Collector (for the areas under his jurisdiction). The teams comprised a representative of an NGO or professional body, an engineer from the state government, and a representative from the Revenue Department at the district-level.

Table 1: Damage statistics in towns of Kachchh district (Source: Jain et al., 2002: 306)

Town	Distance from Epicenter	Percentage of Buildings in each Damage Category				
		G-1	G-2	G-3	G-4	G-5
Bhachau	13 km	0.0	0.0	0.9	0.7	98.4
Rapar	33 km	3.1	11.2	21.0	31.9	32.7
Anjar	41 km	35.5	12.7	12.7	6.7	32.4
Gandhidham	44 km	47.4	22.6	12.9	8.5	8.5
Bhuj	63 km	16.0	19.2	18.3	20.5	25.7
Total		29.2	17.4	14.1	13.1	26.2

Table 1 indicates that unlike Bhachau, where more than 95% of   affected

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[68] In the older construction, walls were made of rammed earth, adobe, or uncut stone masonry with mud mortar, and roofs were made of wooden trusses and clay tiles. More recent stone masonry used quarried sandstone or lateritic rock available locally (cut/dressed stones) or burnt clay bricks, cement mortar, and reinforced concrete slabs.

buildings were in the G-5 category, in Bhuj nearly 50% were in badly damaged/collapsed condition (G-4 and G-5) and the other 50% were partly damaged/standing. This fact presented a significant challenge to reconfiguration of the walled city using town planning interventions as the damage pattern (standing structures, either undamaged or partially damaged, interspersed with collapsed ones which would be cleared, creating vacant plots), along with special considerations for the earthquake-affected people did not allow for a uniform application of the basic principles of Town Planning Schemes, such as deducting the same percentage of land from all the plots (within each size range) for infrastructure development and plot reconfiguration. It also tested the adaptability of a land restructuring mechanism such as the TPS, typically used in unbuilt areas on the urban fringe, in a dense urban center with 50% standing structures and remaining 50% vacant plots (from clearance of damaged structures) that severely restricted the flexibility offered by large vacant plots or agricultural land on the urban fringes for changing the layout of plots and demarcating land for social and physical infrastructure in the TP Scheme area,

The assessment of building damages was in itself an extremely difficult process due to the extent of damage and debris that made it hard to get to all the structures. In addition, the assessments were often subjective (based on visual inspection of structures), done in haste without thorough inspection, and influenced by owners or

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[69] Categorization of Reinforced Concrete framed buildings damaged in cities of Gujarat during earthquake is given in Appendix C.

occupants.[70] Mud buildings without any reinforcement that sustained little exterior damage were assigned to lower damage categories. If most of the houses in a neighborhood had fallen, the surveyor assigned a category to an individual building based on external inspection ("quick look from the outside"). There were no standardized yardsticks with which to measure damage.[71] The enormity of the task also contributed to the lax manner of the damage assessment process. Survey results were published at the District Collector's office as well as *mamlatdar's* (chief administrator of a *taluka* or sub-district) office.

Many areas had to be resurveyed because of inconsistencies or inaccuracies, as well as allegations of irregularities in the surveying process. However, the results of the damage assessment became the baseline for the rehabilitation process, including planning and housing assistance.

Emergency assistance. Immediately after the Gujarat earthquake was declared a national disaster by the state government of Gujarat, the Government of India (GoI) deployed its Defense Services to provide assistance to the affected areas.[72] The Indian

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[70] Buildings classified in G-4 and G-5 categories had to be demolished and rebuilt according to the new building regulations, which included reduced built-up area. Hence, many residents found it beneficial to have their building assigned to a lower damage category so they could have them repaired later without losing their total buildable area. Many of them used personal connections or bribes officials to influence the surveyors.

[71] Criteria for assessment of damages and who should be part of the assessment teams were discussed early on among the state government agencies involved in rehabilitation as indicated by Dr. Anand S. Arya, National Seismic Advisor to the Government of India (personal communication, New Delhi, March 22, 2007).

[72] Disaster management in India, like most federalist political systems, is the responsibility of the State governments. The role of the national/central government is often advisory. In the wake of a major

Air Force Base at Bhuj, as well as the airport at Ahmedabad, served as focal points for the initial national response. The Ministry of Agriculture spearheaded the central government's relief operations through a National Disaster Management Control Room at the ministry in the capital city of New Delhi (United Nations, 2001). On January 29, three days after the earthquake, the United Nations Disaster Assessment and Coordination (UNDAC) Team arrived in Ahmedabad. It worked primarily with Indian authorities in Ahmedabad and Bhuj on assessment and coordination of international assistance (including urban search and rescue). Other Indian states contributed generously to disaster relief by providing cash, medical staff and supplies, communications teams, relief workers, shelter supplies, food, clothing, heavy machinery, transport, domestic supplies, and reconstruction materials.

Government of Gujarat, as well as a large number of nongovernmental organizations (including philanthropic and religious groups, development agencies, and private businesses), stepped in to provide food, medical services, clothes, blankets, utensils, basic supplies, and tents (WB/ADB Report, 2001). Local industries donated equipment and personnel for search and rescue operations. The Gujarat government established a State Control Room in the state capital of Gandhi Nagar to coordinate response activities. In addition, it established an External Aid Co-ordination Cell in Ahmedabad and appointed a Chief Relief Coordinator in the district

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catastrophe, the national government provides administrative and financial support to the affected states. If and when it is beyond the capacity of the state government, the national government agencies would take over. It facilitates assistance through various committees coordinated by the Central Relief Commissioner. It can also mobilize additional assistance from national and international agencies on behalf of the affected states (Todd and Palakudiyil, 2003).

headquarters of Bhuj to coordinate relief activities from within the worst affected area of Kachchh.

Of immediate concern were the rescue of those trapped in the debris and restoration of essential services—electricity, water, sanitation, and health care—and the Public Distribution System (PDS).[73] Removal of debris and disposal of dead bodies had to be undertaken at the same time. Rescue efforts were largely finished by the first week of February 2001. At that time there were about a million people on the streets who had lost their homes and did not have a roof over their heads in winter temperatures of less than 2° or 3° Celsius at night. Thus, along with locating and procuring equipment such as cranes, trucks, and other heavy machinery to carry out the removal of debris, the administration had the equally important priority of distributing blankets, clothing, tents, and food—relief materials for those made homeless by the quake.[74]

With several different government agencies entering into the rescue effort and NGO personnel joining in, too, coordination had to be established. Communication channels were established with the state government to report on the immediate issues and seek assistance. Efforts to address immediate needs required careful planning to ensure that the most cost effective and efficient approach was followed and that

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[73] Public Distribution System (PDS) is an Indian food security system established by the Government of India under Ministry of Consumer Affairs, Food, and Public Distribution and managed jointly with state governments in India that distributes subsidised food and non-food items to India's poor through a network of Public Distribution Shops.

[74] A. Mukim (personal communication, New Delhi, March 21, 2007).

interim measures could be incorporated into the long-term reconstruction and recovery efforts.

To ensure a transition from the immediate response to the crisis to long-term recovery and reconstruction, the state government established a rehabilitation committee (*Punarvasan Samiti*) in each town, made up of civic leaders and elected or appointed representatives of the major interest groups and cultural committees. Their responsibilities included: participating in decision-making processes of the administrative authorities; monitoring reconstruction work; facilitating public consultations and information campaigns to explain relief strategy and procedures; supervising detailed examination and testing of public structures and systems to determine their structural soundness; overseeing temporary repairs to restore water and sewerage systems; setting up regular tanker service for water to unserviced areas and the numerous temporary camps around the major centers; monitoring the restoration of superficially damaged buildings on a permanent basis; removal of rubble to enable private building owners and builders to access their sites; and clearing the roads of congestion and relieving dangerous driving conditions.

One of the urgent needs was to provide temporary shelter to those affected by the earthquake and to do this before the onset of the monsoon season in July. These temporary shelters needed to be built with a life expectancy of two years, at least. In urban areas where town planning would take longer than it would in the rural areas, this was an important priority. Vast numbers of people had to be accommodated until

Town Planning Schemes for core areas of the cities could be prepared and translated into action (through reconfiguration of the layout of plots as well as development of infrastructure in the scheme areas) and relocation sites developed. For urban residents, private contractors constructed cluster-type arrangements of individual family shelters. In rural areas, affected families received reusable building materials and the technical assistance they would need to construct shelters   in their own yards.

Immediately after the earthquake, while deliberations on how the city should be rebuilt were going on, most residents of Bhuj stayed in tents in various locations across the city. The temporary settlement, known as the *Hungami Awas* or *Awas* for short, was built on government-owned land 5 km from the city center, near the Gujarat Industrial Development Corporation (GIDC), one year after the earthquake. Some 4,500 dwelling units were set up with the assistance of the World Bank, United Nations Development Programme (UNDP), NGOs, and community organizations.[75] Through a joint venture of UNDP and the Government of Gujarat, temporary shelters were also constructed for people who could not afford to construct their own. Each unit was 32 m^2 in area, with two small rooms; and two such units with a shared wall occupied a 65 m^2 plot.

Another temporary settlement called Tin City, a collection of shipping containers, was established by the *Bochasanvasi Akshar Purushottam Swaminarayan* (BAPS) to

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[75] The government provided Rs. 12,000 for each house, and the rest was contributed by a community organization with or without contribution from the beneficiary. The Islamic Relief Fund (a Muslim NGO) constructed temporary shelters in GIDC for Muslim families with government's assistance.

provide temporary shelter to followers of the Swaminarayan Sect until they found permanent housing. Other people constructed temporary shelters on their own on vacant plots, most of it government-owned land in various parts of the city. Many others moved out of Bhuj to stay with relatives in Gujarat or other parts of India.

Comprehensive Recovery Planning

A joint assessment by the World Bank and the Asian Development Bank identified priorities for the first phase of earthquake rehabilitation, which was estimated to last for two to three years. These included: (i) provision of temporary shelters, (ii) initiating reconstruction of damaged housing stock as well as rebuilding physical and social infrastructure in accordance with new earthquake-proof standards and specifications (to strengthen the reconstructed facilities against damages from future disasters), (iii) measures to restore livelihoods, and (iv) long-term disaster reduction and mitigation efforts. Other priorities were full restoration of services and the development of new building sites to accommodate existing owners who chose to relocate their houses or businesses. Urban planning initiated in the first phase would incorporate future requirements into the reconstruction plans.

At the institutional level, the WB/ADB Report identified strategies for coping with future disasters by developing disaster management capabilities at the municipal level aimed at reducing the delays and problems faced during an earthquake. Kachchh suffers from nearly annual calamities related to cyclones and droughts. In the past,

municipalities were fully dependent on the state government to provide emergency services, relief, and rehabilitation. These municipalities relied on grants and subsidies from the state government to manage, operate, and maintain local services and public facilities. The report suggested that once recovery from the earthquake was well underway, appropriate measures be undertaken by the municipal authorities to rationalize property taxes, water tariffs, and fees for sewerage, sanitation, and other services, and to institute these measures through a plan to achieve cost recovery of the operation and maintenance expenditures.

Based on the recommendations of the WB/ADB assessment report, as well as other studies conducted by various agencies in the aftermath of the earthquake, in February 2001, three weeks after the day of the earthquake, the Government of Gujarat (GoG) announced a statewide rehabilitation and reconstruction policy.[76] The rehabilitation policy framework emphasized both mitigating the destructive effects of disasters and preparedness— the readiness of a society to forecast, take precautionary measures, and respond to an impending disaster. With regard to reconstruction, the policy adopted an approach that combined in-situ reconstruction and partial relocation. The framework evolved into a multi-year rehabilitation program that came to be known as the Gujarat Earthquake Reconstruction and Rehabilitation Program (GERRP), funded by multilateral agencies such as the World Bank and the Asian Development Bank along with the central and state governments.

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[76] In policy formulation, the role of the Central Government is restricted to setting broad policy guidelines. Decisions pertaining to details of the policy, including housing assistance, come within the

GERRP, a comprehensive multi-sector program, aimed at "the rehabilitation of the people affected by the earthquake through provision of housing, social amenities, infrastructure, and livelihood support, based on sustainable economy and ecology" (GSDMA, 2001, p. 3).

GERRP's objectives were to:

1. Build, retrofit, repair, and strengthen houses and public buildings affected by the earthquake through the application of earthquake-resistant technology
2. Revive the local economy by providing assistance to agriculture, industries, small businesses, and handicrafts, and regenerate livelihoods of the people
3. Rebuild and upgrade community and social infrastructure, improve education and health system, and strengthen social protection measures for weaker sections of the population
4. Provide health support to the people injured by the earthquake on a long-term basis and psychological counseling for those suffering from trauma
5. Restore lifeline infrastructure of transport networks and utilities such as power and water supply, and reduce their vulnerability to natural disasters
6. Support gender empowerment by involving women at all stages of program implementation
7. Provide support for children affected by the earthquake, and alleviate social deprivation through an integrated nutrition and education strategy
8. Implement a comprehensive disaster management program, improving disaster preparedness and emergency response capacity of the government to deal with different types of disasters
9. Reduce vulnerability through long-term mitigation programs aimed at watershed management and drought mitigation, and improve people's

purview of the respective state governments. Source: V. Thiruppugazh (personal communication, Gandhi Nagar, March 17, 2007).

resilience and food security through diversification of sources of income-generation and asset building

To go beyond the immediate priorities of earthquake reconstruction and to pursue broader social and economic issues impinging on development and empowerment at the household and community level, the reconstruction and rehabilitation program was based on the following guiding principles (Gujarat Earthquake Reconstruction and Rehabilitation Policy, GSDMA, 2001):

1. Involve people and representative institutions in the decision-making processes
2. Strengthen civil society institutions through partnership-building and collaborations in the implementation process
3. Apply principles of equity and empowerment
4. Disseminate knowledge pertaining to seismic technology, building materials, and construction practices to facilitate informed decision-making with regard to habitats
5. Encourage participation of the private sector
6. Introduce structural and non-structural measures that are feasible, affordable, suitable for the climatic conditions, and culturally sensitive
7. Ensure high levels of transparency and accountability in the program implementation

GERRP comprised five key components:

1) Housing Recovery

2) Livelihoods Support Programs

3) Infrastructure Development

4) Social and Community Development

5) Disaster Management.

For details of the program see Appendix F.

The housing component of the rehabilitation program involved monetary assistance for the purposes of reconstruction, repair, and strengthening (retrofitting) of buildings. The policy clearly stated that "individual grants for reconstruction is by way of assistance and not compensation." This implied that the housing assistance would not be equivalent to total loss estimates but would be proportional to damages, as determined on the basis of damage category (G-1 to G-5) and the type of construction, within certain limits. A second priority was to provide houses for living. Hence, in cases where residential buildings had been used for non-residential purposes, the owner or occupants of such houses were not entitled to any assistance. Beneficiaries were to be identified "strictly on the basis of 'house replacement' needs" (GSDMA 2001, pp. 12-13). These housing assistance packages were financed through a loan from the World Bank.

A special, fifth package was developed with an emphasis on urban planning for the rehabilitation of the four worst affected towns in Kachchh viz., Anjar, Bhachau, Bhuj, and Rapar. Separate compensation schemes were offered in these towns based on damage category and the type of structure and its built area. The assistance was provided in three tranches: first installment of 40% as mobilization assistance in the beginning of construction; second installment of 40% when construction reached sill

level; and third and final installment at the lintel level. The maximum assistance was about Rs. 175,000 or US $3,700 (GSDMA, 2001). Financial assistance was also provided for the repair of multi-storied and non-multistoried buildings as well as huts that were completely destroyed. For details of the housing assistance package, see Appendix G.

The initial package for those affected by the earthquake was directed to home owners, even though many of them were absentee owners. In Bhuj, where 40% of residents were tenants, the compensation scheme raised the question of who should be compensated—the absentee owner, or the tenant who had invested in the property and suffered material losses?[77] Later, another assistance package was extended to tenants, making them eligible to buy plots in one of the relocation sites at rates higher than that for owners from the walled city.[78]

The livelihoods support component under GERRP consisted of short-term economic benefit packages to self-employed people and those in service or cottage industries. These were arranged through commercial banks and financial institutions. Popularly known as 60:40 Schemes, loans of up to Rs. 2 lakhs, or approximately US $4,000 (with 60% subsidized by the government) were offered to cottage-industry owners and handicrafts artisans for a variety of purposes, including the purchase of tool kits, temporary construction of work sheds, and direct material assistance. To

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[77] N. Upadhyay (personal communication, Bhuj, April 2, 2008).

create long-term employment opportunities and promote industrial development overall in Kachchh, the government introduced a Special Incentive Scheme six months after the earthquake that remained operational until October 2004. Popularly known as *Tax Holiday for Industries*, the scheme granted new industrial units exemption or deferment of sales tax based on their preference and total investment. This was supplemented by excise duty exemption by the central government.[79]

The infrastructure component of GERRP included repair and reconstruction of transportation infrastructure (primarily the road network), water supply, irrigation, and power systems in the earthquake-affected areas. A key aspect of the policy was to improve town planning to provide the framework for infrastructure development in the four towns of Kachchh. The Urban Development Department (UDD) of the state government and the newly formed Gujarat State Disaster Management Authority (GSDMA) developed a strategy for the restoration of basic services in larger urban areas using a three phase approach: (a) addressing the immediate need to restore essential services, such as water, power, sanitation, and roads, to a level that would sustain both the people still remaining in their homes and the large, displaced population; (b) the two-to-three-year medium-term need to rehabilitate or reconstruct the urban infrastructure and civic facilities; and (c) long-term plans to improve the ability of local governments to maintain all local infrastructure systems, which they

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[78] This was applicable only for Bhuj and Anjar, as according to the municipal records Bhachau did not have any tenants. Despite the large number of absentee owners in Bhachau, official records did not reflect any occupancy by tenants or caretakers.

had become responsible under the 74th Constitutional Amendment (WB/ADB 2001, p. 50).[80]

Institutional Framework for GERRP

Earthquake rehabilitation in Kachchh saw the creation of a new institutional framework to guide the process of planned reconstruction and recovery—and to engage in disaster management preparedness and mitigation as a sustained activity. The intensity and geographical extent of earthquake-related damage warranted the involvement of central and state governments, as well as non-state actors, such as United Nations agencies, in formulating strategies and approaches to move from short-term relief to long-term rehabilitation and recovery.

The relief effort was centrally coordinated by the Natural Disaster Management Control Room, which worked closely with the Government of Gujarat. To coordinate long-term recovery and reconstruction, the state government also established the Gujarat State Disaster Management Authority (GSDMA), under the chairmanship of the Chief Minister. The central government set up a high-level Disaster Management Task Force to advise the government on relief and reconstruction policy and related activities.

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[79] An excise tax or excise duty (now known as Central Value Added Tax or CENVAT) is the tax on the production or sale of a good within the country (as opposed to customs duties, charged on goods from outside the country).

[80] The 74th Amendment to the Indian Constitution mandates devolution of power from states to local governance bodies such as the *Panchayats* (in rural areas) and Urban Local Bodies (ULB) in matters of development planning and financial decisions.

Gujarat State Disaster Management Authority (GSDMA). In May 2001,

the Gujarat State Disaster Management Authority (GSDMA) was established by the

Government of Gujarat to finance and oversee the entire post-disaster reconstruction

project in the state of Gujarat.[81] The mission of GSDMA was broad. It would:

> provide effective management of disaster, mitigation of effects of disaster, administer, facilitate, coordinate, and monitor emergency relief during and after occurrence of disasters, and implement, monitor and coordinate measures for reconstruction and rehabilitation in the aftermath of disasters, in the state of Gujarat (GSDMA, 2003a).

The governing body under the chairmanship of the Chief Minister had the same

powers as the State Cabinet to expedite decision-making. A State Advisory

Committee, consisting of government officials, technical experts, representatives of

civil society organizations, professional organizations, and academe, gave broad

outlines and suggestions on policies. The technicalities of the policies would be

worked out by respective government ministries and departments before being sent to

GSDMA, where it would be discussed by the Committee and then formally approved

by the governing body with or without modifications.

A Central Implementation and Review Group, under the chairmanship of the

Chief Secretary, would review and monitor program implementation. Though the

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[81] Its status as a Society (under the Societies Registration Act) gave it autonomy and flexibility in

implementation of GERRP was decentralized to the district-level governmental agencies, quality-control of earthquake and cyclone resistant construction, financial management, and procurement procedures were to be coordinated by GSDMA (WB/ADB Report, 2001, p. 44). Loans were negotiated by the state government, and the allocation of funds, monitoring, and coordination (with funding agencies, NGOs, experts, and various government departments) fell within the mandate of GSDMA.

GSDMA also acted as a facilitator of the town planning processes in urban areas where Development Plans as well as Town Planning Schemes were to be prepared and implemented. Despite the Urban Development Department's stronghold on the preparation and implementation of plans in the earthquake-affected towns, GSDMA had an upper hand in approving decisions pertaining to GERRP. The Urban Development Department had the authority to approve Development Plans, but the Department sought GSDMA's consent before approving plans because GSDMA was responsible for the allocation of funds. A plan could be implemented only if money were sanctioned for infrastructure, roads, water, sewer lines, etc. Hence, consultants prepared their plans and presented them for approval to the ADA, which then forwarded them to GSDMA for final approval.[82]

The approval process of the Town Planning Scheme (TPS) was similar. TPSs were prepared and implemented according to the Gujarat Town Planning and Urban Development Act of 1976. Because of the legal processes involved in TPS preparation

implementing the reconstruction program.

and implementation, the Urban Development Department and Town Planning Officers were in charge. Instead of having individual centers in the different towns, GSDMA operated through Area Development Authorities (ADA) to provide assistance in policy-making, planning and implementation, and to get feedback from the towns. In Bhuj, the district headquarters, a Camp Office was set up to oversee the process.

State government activities. The Urban Development Department was responsible for the implementation and coordination of the reconstruction and rehabilitation program in urban areas (the four towns of Kachchh). A key component of the earthquake rehabilitation program was the creation of a new and planned built-form that would be disaster resistant. Since the post-earthquake urban reconstruction program demanded "special attention, dedicated staff and special skills," the Gujarat government designated the Gujarat Urban Development Company (GUDC) as the implementing agency for housing and infrastructure.[83] Instead of the line departments, GUDC was given the power and resources to hire experts and make decisions about infrastructure planning and implementation.[84] The implementation would be done in two phases. In the first phase, draft development plans for the four towns were prepared by the Town Planning and Valuation Department (within the Urban

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[82] M. Sahu, (personal communication, New Delhi, March 23, 2007).

[83] GUDC is a Special Purpose Vehicle (SPV) established by the government of Gujarat in 2000 to conceptualize and implement urban development projects. GUDC "facilitates urban development by assisting state government and existing agencies in formulation of policy, institutional capacity building, and the funding and implementation of projects." Source: http://www.gudcltd.com/gudc-role.asp

[84] Line departments are government departments at the state level, with mandates related to specific thematic sectors. A line department is generally headed by a state government Minister, assisted by a career bureaucrat, of the designation of Secretary, Principal Secretary or Commissioner, depending on seniority. Each Line Department has a district-level head, staff for implementation of work, and clerical staff. Source: http://sapplpp.org/glossaryterms/line-department/

Development and Urban Housing Department) of the Government of Gujarat. The second phase involved design proposals for the rehabilitation and reconstruction of urban infrastructure and its supervision.

A preliminary assessment by the World Bank and the Asian Development Bank (ADB) of damage and reconstruction needs resulting from the earthquake indicated a total of Rs. 9,900 crores (US $2.1 billion) in asset losses and Rs. 10,600 crores (US $2.3 billion) in improved-standard reconstruction costs (WB/ADB, 2001).[85] Subsequently, the state government negotiated loans of US $675 million and US $377 million from the World Bank and the Asian Development Bank, respectively, to fund earthquake reconstruction. As the rehabilitation and recovery phase began, the state government assumed a coordination/facilitation role, working with various national and international agencies involved in the rehabilitation program. Funding sources and types were as follows:

Table 2: Details of GERRP funds, including sources and types of funding (Source: WB/ADB, 2001)

Agency	Type of Funding	Amount in Rs., in crores[86] (US $ in millions)
Government of Gujarat	Grant	2,603 (578)
Government of India	Grant	490 (109)
World Bank	Loan	3,044 (675)

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[85] See Appendix D for detailed sector-wise losses and reconstruction costs and Appendix E for Rehabilitation Cost Estimates.
[86] Indian Rupee 1 crore = US $ 200,000

Asian Development Bank	Loan	1,697 (377)
European Commission	Grant	172 (38)
The Netherlands	Grant	170 (38)
Others (NGOs, other state governments)	Grant	320 (108)
Total		**8,496 (1,885)**

In general, the newly created GSDMA acted as the focal point for donors. However, in the case of urban rehabilitation, GSDMA worked closely with the Department of Urban Development in deciding on the allocation of funds and coordinating with donors.

Local administration. The district administration of Kachchh was badly affected by the earthquake. There was extensive damage to public buildings, including various government offices; deaths or injuries to personnel were numerous; and records were lost, buried in the rubble. All of this exposed the vulnerability of administrative machinery. Most government officials and functionaries suffered either loss of life in their families, injuries, or damages to their houses. Therefore, additional personnel were mobilized from other parts of the state.[87]

At the district level, the administration presided over by the District Collector was responsible for the implementation of GERRP. An advisory committee headed by the minister in charge of the district provided guidance. At the *taluka*level (sub-district

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[87] A. Mukim (personal communication, New Delhi, March 21, 2007).

level), Additional Collectors, Additional District Development Officers, or Deputy Collectors with delegated powers of the District Collector and the District Development Officer were responsible for program implementation, while at the village level, an officer of the rank of Deputy *Mamlatdar* (administrative head of a *taluka*/ sub-district unit) coordinated the implementation.

In smaller urban areas (towns), where municipal governments are typically responsible for regulating development, creating and maintaining infrastructure and services, and making investment decisions in their jurisdictions, the local municipal councils had been suspended and elections scheduled just before the earthquake,. The Additional CEO of GSDMA explained why existing local bodies were considered inadequate to undertake the task of earthquake rehabilitation:

> The history of corruption and collusion between local government authorities and local elites and land developers had led to their de-legitimization in popular imagination. This along with the lack of technical competency of local bodies to undertake a massive rehabilitation effort favored the formation of a new body that would be autonomous and flexible, and therefore, capable of faster decision-making and less susceptible to influence of local politicians.[88]

Hence, in May 2001, the government of Gujarat created Area Development Authorities (ADA) in the four towns of Bhuj, Bhachau, Anjar, and Rapar under the provisions of the Gujarat Town Planning and Urban Development Act of 1976.

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[88] V. Thiruppugazh (personal communication, Gandhi Nagar, March 26, 2007).

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Responsibilities of ADAs included implementation of Development Plans, as well as town planning proposals, development and upgrading of urban infrastructure, and ensuring adherence to improved Development Control Regulations (DCR) through granting of building permissions. The Technical Advisory Cell (TAC) within each ADA, consisting of civil engineers and architects, scrutinized structural designs, suggested modifications, and made recommendations to the ADA.

Despite the fact that the ADAs were local bodies, there were no locally elected representatives in them.[89] According to the Town Planner of Bhuj Area Development Authority (BHADA):

It is no question of whether they [local elected representatives] were involved or not . . . we required a special body to tell them . . . to assist them. They cannot do it because the system is complex. They were having several politicians and all. ADA is a special body created, so there is no politician involved. All government [officials], specialists from different departments, technical experts from Indian Institute of Technology (IIT) [a premier technical university] and other places, following all the procedures. . . there was no *kachara* [garbage].[90]

Once the program was implemented, the ADAs would cease to exist and the responsibility of enforcing the new regulations as well as maintaining the newly created infrastructure would be that of the Municipalities of the respective towns. Line

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[89] The GTPUD Act was amended in 1999, giving the state government the authority to overrule the requirement of local representation under "special" circumstances.
[90] P. V. C. Prasad (personal communication, Surat, January 5, 2008).

departments, referred to as Implementing Agencies (IA), were responsible for implementing sectoral programs. For information on the Departments responsible for each sector, see Appendix H.

Town planning and infrastructure consultants. While larger cities and municipalities tend to use services of private or non-profit planning and infrastructure design consultants in the preparation of development/master plans, smaller municipalities assign this function to be performed by their respective Town Planning and Valuation Departments (TPVD). Since it was not mandatory for municipalities to prepare either Development Plans or Town Planning Schemes, most small municipalities were less familiar with these processes.

In order to support the ADAs and GUDC, the Government of Gujarat chose to outsource the tasks of town planning, infrastructure planning, and scrutiny of applications for building permissions, in contrast to the conventional method of hiring new staff or temporarily deputizing government employees from other departments. Preparation of Development Plans and Town Planning Schemes were contracted to professional planning agencies, referred to as Town Planning Consultant (TPC), through competitive bidding to avoid bureaucratic delays.[91] Many of the state government officials were of the opinion that public consultations, which were considered very important at that time, would be more intense if a professional agency

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[91] While their preparation was outsourced to consultants, DP and TPS would be implemented as in-

prepared the plans, instead of a government agency.[92] Infrastructure Design and Supervision Consultants (IDSC) were appointed by GUDC for detailed infrastructure planning and design including repairing damaged infrastructure, and upgrading and expanding existing infrastructure based on the Development Plan.

Town planning consultants saw this as an opportunity to apply their technical skills, and more— to learn from the challenges of operating in a post- disaster context in which none of them had any previous experience. Coordinating with communities and government agencies, meeting the demands of the earthquake-affected, confronting clientelism (social relations based on patronage), and delivering services as promised would prove to be extremely challenging in most cases. Despite the fact that they were at the forefront of rehabilitation planning, decisions had to be approved by the state government, which not only controlled the flow of funds but also exercised a strong hand in dictating criteria for choosing projects and beneficiaries.

However, what was most rewarding for many of them was the prospect of actually seeing the plans they made implemented in their lifetimes. Consultants took pride in their role as clients to the government, and often provided technical assistance beyond the contract period in helping with problems that were not their "responsibility." The humanitarian nature of the exercise that provided the opportunity to "save lives in the future" and "create safe and efficient urban areas" was also a motivating factor. Compared to the infrastructure consultants, the town planning

house projects under the supervision of respective Area Development Authorities (ADA).

consultants had a stronger presence in the affected localities. This was partly because the process of preparing Development Plans and Town Planning Schemes required information as well as public acceptance that could only be obtained through long-term engagement with the local population.

Non-governmental Organizations (NGOs). Gujarat has a strong network of non-governmental organizations that quickly rallied to support community efforts. The government encouraged partnerships between international and local NGOs to pool resources and expertise to meet disaster relief needs. Many international NGOs had existing relationships with Indian NGOs, while others formed partnerships as activities developed. In Kachchh, a local NGO, *Kutch Nav Nirman Abhiyan* (known as Abhiyan), coordinated NGO activities in the region.[93] The Abhiyan network was active in 350 villages and supported activities ranging from natural resource management to health and micro-credit programs. With encouragement and formal endorsement from the government, Abhiyan set up 22 local sub-centers known as *setu*s (bridges) in Kachchh to coordinate relief distribution and rehabilitation initiatives. They set up information management systems to assess losses and needs of the communities, and conveyed this information to government agencies for targeted assistance.

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[92] A. Mukim (personal communication, New Delhi, March 21, 2007).
[93] The Kutch Nav Nirman Abhiyan, or the Kutch New Building Movement, is a collective of 14 grassroots NGOs in Kachchh. It was formed to undertake relief and rehabilitation work in a coordinated manner after a disastrous cyclone in June 1998.

A total of approximately 200 NGOs came forward to offer assistance in various sectors, including housing reconstruction, dam repair, health, education, handicrafts, livelihoods, and legal assistance. Several local and national NGOs, such as the Self-Employed Women's Association (SEWA) that were already active in the region, helped people restore their livelihoods and meet other needs. Many of these NGOs were engaged in the construction of houses, either owner-driven or through public-private partnerships.[94] Other organizations provided assistance to community members in their transactions with banks (including creating bank accounts); some trained women in handicrafts; others set up software skills training programs.

The formal interactions between various agencies involved in the reconstruction and rehabilitation program is represented in the diagram on the next page (GSDMA, 2001):

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[94] In the case of the owner-driven approach, individual owners performed the reconstruction with technical assistance from a government-appointed village engineer; in the case of public-private partnerships, the Government of Gujarat provided 50% of the assistance and the remaining 50% was provided by an NGO that identified the beneficiaries and ensured quality control. In that case, assistance money was handed to the NGO and not to the owner (Murty, Green, Jain, Prasad, and Mehta, 2005).
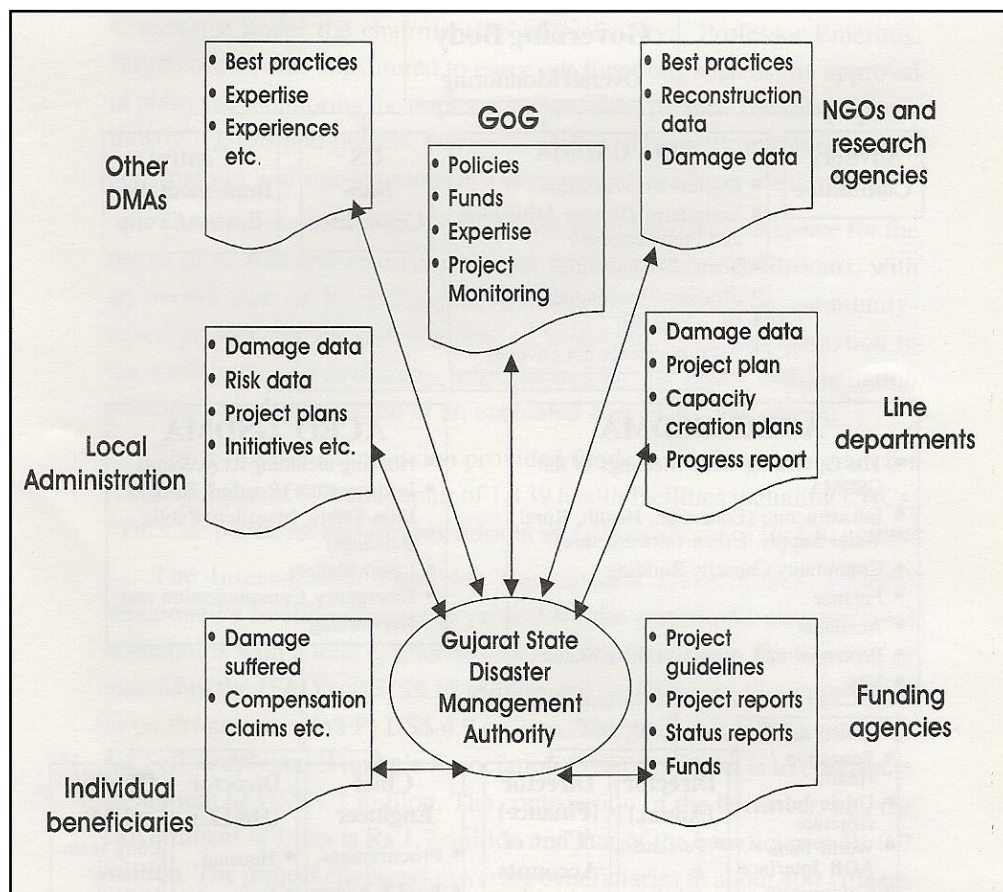
Figure 1: Various stakeholders of GERRP and their interactions

Now that I have discussed Gujarat's policy framework and the institutional arrangements for implementation of GERRP, I turn to the rehabilitation policies in the urban areas of Kachchh and some of the debates that shaped those policies.

Post-earthquake Urban Rehabilitation

The lack of an effective street pattern was a major obstacle to disaster management in the earthquake's aftermath. Over the years, poorly framed building regulations had been loosely adhered to, and this had exacerbated

congestion in the city.[95]

The statement quoted above, made by the executive director of the planning firm that had been hired to prepare the Development Plan and Town Planning Schemes for Bhuj, captures the basic concern regarding earthquake-affected urban areas, which shaped as well as provided the rationale for post-earthquake interventions.

In urban areas, the number of casualties was accentuated by the inability to undertake rescue and relief operations in the narrow streets that made evacuation difficult. The congested nature of the urban form, characterized by a cul-de-sac (*falia*) street network in the inner core often made it impossible for earthmoving machines to reach the narrow lanes. When they did, they damaged parts of standing structures during search and rescue or debris removal that had not been badly affected by the earthquake.

To many people, the extent of earthquake damage was a result of governmental, bureaucratic failure to enforce building standards. Allowing the use of low-quality construction materials and unsafe construction techniques created vulnerable building stock. Municipal authorities, who were responsible for the enforcement of building regulations, had largely been unaware of the long-term safety implications of lax enforcement of structural standards.[96] These authorities often colluded with the land-

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[95] Balachandran and Tyabji, 2004
[96] During one of the legal proceedings, Bhuj municipal officials pleaded that they were not aware that their town was in Seismic Zone V (the zone of highest earthquake intensity and occurrence) and had

developer lobby by granting permission for structures that did not meet the safeguards stipulated in building codes and Development Control Regulations. Inadequately regulated urbanization meant that non-compliant structures increased in number in the already dense urban cores; the number of multi-storied apartment buildings within and outside the urban core increased as well. The real estate boom that began in the 1980s and continued throughout the 1990s was an impetus to a surge of construction that was non-compliant with seismic safety requirements (Jain et al., 2002).

Taking into account these factors, as well as the area's proneness to earthquakes, the rehabilitation of urban areas in Kachchh was centered on the regulation of the built-form through new development standards and stricter enforcement mechanisms for them.[97] Three ideas were discussed for the rehabilitation of urban areas, ranging from in-situ reconstruction to complete relocation of towns and villages to new sites.

Relocation versus in-situ development. The first idea was to rebuild in-situ, without town planning. With World Bank funds, the government would provide housing assistance to rebuild homes, as per the wishes of the owner. This was rejected by donors, such as World Bank and ADB, as well as agencies within and outside the government primarily because of concerns about whether such construction would be

never received any circular (notification) from the state government regarding matters of earthquake safety.

[97] Historically, there has been an earthquake in Kachchh almost every 50 to 60 years. In spite of this, building bylaws were generally not complied with—neither in terms of built-up area, number of floors, or other safety requirements. Permissions were granted for the construction of buildings of ground floor plus seven floors. Source: N. Tewari (personal communication, New Delhi, March 22, 2007).

earthquake-proof or not. The second idea was complete relocation—to relocate the entire city to a new site.[98]

In the case of Bhuj, a 140-hectare site located within a kilometer of the urban center was identified for this purpose and the preliminary planning was done under the initiative of the District Collector, Sundaramurty Jagdisan, the strongest proponent of this idea. According to this plan, the entire *gamtal* (walled city) would be moved to a new location where the government would allocate plots to families. On this new site, houses, services, and social infrastructure would be built according to a plan requiring use of earthquake-proof materials and techniques. The old city of Bhuj would be retained as a "museum," and memorial to those who lost their lives and homes and as a reminder of the devastating effects of an earthquake.

The CEO of BHADA explained why despite initial agreement to undertake complete relocation, the government considered that idea to be problematic:

> There was nothing wrong in that idea. It would have been a new city, a new Bhuj. And this [walled city] would have been a monument for people to visit to see how a severe earthquake would be felt [experienced] by people. But there are always political interests. There were some politically influential groups who wanted to make profit out of it by having the city relocated to their land.[99]

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[98] Sundaramurty Jagdisan, Special Officer posted in Kachchh, was the main proponent of the idea of moving the cities, and he was supported by several secretaries of the state government who were in Kachchh at that time. He was transferred later.

[99] K. B. Thanki (personal communication, Bhuj, August 29, 2006).

The developer lobby in Bhuj strongly favored complete relocation. Developers wanted the walled city to be abandoned. Many of them had already cornered land along the periphery of the city. They lobbied for the government to acquire their land for the development of relocation sites. If the walled city were abandoned without being rebuilt, the demand for private development was likely to go up. The developers would have gotten huge profits immediately, rather than later (due to increased demand for land for housing and commercial uses due to population increase or greater business opportunities).[100]

Funding agencies such as the World Bank strongly opposed this idea. The spokesperson for GUDC explained the bias against relocation as follows:

When people talk about relocation of an area which is impacted, somebody has got impacted and because of which they have been moved, it is seen more as an adverse kind of a situation. Relocation is usually seen as something negative, even the way Bank [World Bank] talks about it.[101]

The idea of complete relocation was also vehemently opposed by inner-city business people.[102] There were also concerns about what would happen to the walled

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[100] B. R. Balachandran (personal communication, Ahmedabad, July 28, 2006).
[101] A. Dhar (personal communication, Ahmedabad, February 8, 2008).
[102] B. R. Balachandran (personal communication, Ahmedabad, July 28, 2006).

city in case the entire city were relocated.[103] The idea of improving the walled city area to make it earthquake resilient therefore emerged.[104]

The Chief Relief Coordinator at Bhuj described why complete relocation was not adopted as a rehabilitation strategy:

This [complete relocation of towns and villages] was more of an elite sentiment. Cities are not built in five or ten years. It is an evolving process. A city is built over a period of hundreds of years. A village culture is developed over hundreds of years. You cannot have a cement concrete prototype structure, build 500 of them, and say that you have built a new city. We could realize it pretty fast that it was not the right approach. Media also started on this idea of relocating everything and that everything would be *pucca* [permanent], earthquake proof. Then one started realizing that it was not possible, totally impractical. NGOs also slowly started realizing it and public opinion started emerging. Ultimately, state government also agreed.[105]

In addition, the World Bank/ADB assessment of reconstruction needs had estimated the cost of rubble clearance in the damaged areas to be one third the cost of constructing new sites and services (WB/ADB, 2001).[106] Therefore, after two months of pursuing a plan to relocate the center of Bhuj to a new site, the state government changed course. In the face of strong opposition   from the commercial interests of the

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[103] In 1956, the town of Anjar, epicenter of an earthquake, suffered most of the damages in its walled city area. Though a *Naya Anjar* (New Anjar) was established outside of the walled city, people moved back later. In 2001, the same area suffered maximum damages.
[104] S. Sawaliya (personal communication, Bhuj, December 28, 2006).
[105] A. Mukim (personal communication, New Delhi, March 21, 2007).

inner city, including public demonstrations, the state government agreed to adopt a strategy of in-situ reconstruction and voluntary partial relocation to decongest the walled city, calling this "a democratic middle way leaving the decision to the people."[107] Those who wanted to continue to live in the *gamtal* area were allowed, and those who wanted to move from the walled city were given that option, too.

In March 2001, the School of Architecture at the Centre for Environmental Planning Technology (CEPT) in Ahmedabad carried out an initial assessment of urban rehabilitation options and made the following suggestions for rebuilding urban areas of Kachchh (Mishra, 2004, p. 156):

1. Improve the layout of settlements and urban infrastructure
2. Establish a local authority for urban areas to offer technical assistance for appropriate construction and monitoring of reconstruction
3. Finalize an approach for the preparation of a Development Plan
4. Adopt Town Planning Scheme (TPS) for re-development of the inner city
5. Widen roads to facilitate movement of vehicles at the time of crisis and development of a hierarchy of streets
6. Reorganize plots of land in order to widen the roads; and acquire plots that are cut more than 75 percent

The suggestions reinforced what many institutional actors were already advocating for: reconfiguration of urban areas using existing planning mechanisms. The executive director of Environmental Planning Collaborative (EPC) explained why

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[106] Debris removal was done in totally destroyed urban areas using heavy equipment, organized or subsidized by big industrial houses and the government. In rural areas, people, salvaged and recycled the reusable materials.
[107] K. B. Thanki (personal communication, Bhuj, August 30, 2006).

his organization advocated for the use of existing planning mechanisms for rebuilding urban areas:

> There were several rounds of discussions on what should be the reconstruction approach to urban areas. ILFS, ADB, UNDP, WB, all of them were involved in these. We [EPC] were also talking to the Secretary of the Urban Development Department. Eventually, we took the stand that ideally you should use the existing legal and institutional framework for long-term intervention. Do a Development Plan which is sanctioned under the Town Planning Act so that it has sanctity over a longer period of time.[108]

As a result of these discussions and continuous persuasion by many organizations, including EPC, the idea to carry out town planning for urban rehabilitation was accepted by the state government. Therefore, to guide and regulate reconstruction and to promote safe future growth of urban areas affected by the earthquake, the government declared the adoption of town planning and revision of Development Control Regulations. The town planning process involved three key elements: 1) a Development Plan for the entire urban area in each of the four earthquake-affected towns of Bhuj, Bhachau, Anjar, and Rapar; 2) Town Planning Schemes for the urban core of Bhuj, Bhachau, and Anjar; and 3) Relocation Sites where the above processes warranted new settlements.[109] In addition, the urban infrastructure would be expanded and upgraded under the supervision of GUDC.

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[108] B. R. Balachandran (personal communication, Ahmedabad, July 28, 2006)
[109] In India, traditionally, development or master plans consist of three components: 1) Land Use Zoning, 2) Road Networks, and 3) Development Control Regulations (DCR). Town Planning Schemes are typically used to reorganize parcels of undeveloped or farm land on the fringes of urban areas (just

Reconstruction of the four towns of Bhuj, Bhachau, Anjar, and Rapar would be based on the following principles (Balachandran and Tyabji, 2003, cited in Murty et al., 2005):

- To build back the city better by encouraging partial relocation and partial in situ reconstruction
- To continue repairing and strengthening the town's existing infrastructure
- To improve building construction quality by incorporating earthquake-resistant technologies and adhering to regulatory reforms
- To assist people in the reconstruction process by helping them understand statutory requirements in planning, building consensus, and framing projects
- To make the planning process as participatory as possible

The Government of Gujarat in consultation with the four area development authorities adopted common Development Control Regulations for all four towns. The urban reconstruction package announced in April 2001 made provisions to reduce development intensity in urban areas by restricting both height of the building and permissible Floor Space Index.[110] Development Control Regulations restricted building height to ground level plus one floor (G+1), thereby taking a conservative approach to minimize damages in case of a disaster. Construction guidelines were also developed for traditional building materials, such as earth.

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outside the urban area) into regular shaped plots with street access, along with the provision of adequate physical and social infrastructure, to avoid haphazard development in the future.

For micro-level planning in urban areas, Town Planning Scheme (TPS)—a statutory planning mechanism used to physically reorganize parcels of land in a given jurisdiction while retaining a small portion of land from each plot to create new streets and open spaces—would be prepared under the provisions of the Gujarat Town Planning and Urban Development Act of 1976.[111] Rather than acquiring land for the expansion of urban infrastructure, TPSs were deemed appropriate to decongest the damaged urban cores of Kachchh in a democratic and equitable manner.[112]

Decongestion of the earthquake-affected urban cores through partial reconstruction and partial relocation necessitated the creation of new sites to house people who could no longer be accommodated in the redeveloped urban centers. This, along with restrictions in building heights and built-up area, implied horizontal expansion of the earthquake-affected urban centers, both during reconstruction and in the future. The collapse of multi-storied buildings and limited availability of land in the urban cores of towns also meant that the residents of such buildings would be given the option to construct houses on new plots. These sites would be developed on government-owned land. ADA was responsible for the identification of land for such sites, development of the site (layout of plots, laying utilities, and building roads), selection of beneficiaries, and monitoring of house construction.

In order to facilitate authorized dwelling units for the urban poor in the context of

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[110] Floor Space Index (F.S.I) is a ratio of the built-up area of a structure to the total land area of the parcel or plot on which the building is situated.

[111] The Town Planning Scheme process is explained in the Appendix I.

overall town planning, the state government announced assistance for occupants of fully collapsed houses. A plot of 50 m^2 (maximum) would be provided with a permissible built-up area of 25 m^2 in a location designated by the government. The financial assistance would beat the rate of Rs. 2,200 per m^2 (maximum Rs. 55,000).

The World Bank provided monetary assistance for the reconstruction of houses in the urban areas under GERRP, while the ADB funded the urban infrastructure development. Housing construction in the four towns would be owner-driven and the beneficiaries would be responsible for organizing the construction process. The government would facilitate by providing technical guidance, material specifications, and technical supervision for building earthquake-resistant buildings (GSDMA, 2001, p. 15).

Having provided an overview of the institutional and policy framework for state-led rehabilitation, I now turn to the rebuilding processes as it unfolded in the urban area of Bhuj and how it shaped the actions of various stakeholders as they coped with the disaster.[113] Rather than looking at the state and its institutions as a single entity, I focus on the state's various representative forms and the interactions among them. Negotiations among stakeholders, including those within the state, are analyzed to achieve a nuanced understanding of the workings of the state, as well as the challenges and opportunities of undertaking urban planning, especially in a post-disaster context.

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[112] B. R. Balachandran (personal communication, Ahmedabad, July 28, 2006).

By examining the narratives of various state actors that were involved in the rehabilitation processes and their mediating experiences, I attempt to understand how compromises between equity, economic well-being, and environmental sustainability were made in the highly politicized context of a disaster that demands a response that is both measurable and visible.

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[113] In India, until 2001, responses to disasters caused by natural hazards were usually confined to immediate concerns of relief distribution and physical reconstruction and did not include any significant long-term planning.

CHAPTER 4

MAKING TOWN PLANNING WORK IN BHUJ

How did the rehabilitation process as defined by the Gujarat Earthquake Reconstruction and Rehabilitation Program (GERRP) unfold in the city of Bhuj, the administrative capital of the district that was worst affected? How did rational planning mechanisms, such as Development Plan (DP) and Town Planning Scheme (TPS), affect the rehabilitation process? How did the particular context of disaster rehabilitation shape the processes of preparation and implementation of the DP and the TPS? What specific strategies were adopted to overcome challenges and to make plans work? In the following sections I explore the nuances of specific practices of physical restructuring that pertain to plans for rebuilding the city of Bhuj, primarily through the narratives of various state actors involved in the rehabilitation of the city.

Development Plan of Bhuj

The last Development Plan for Bhuj, which as prepared in 1976 by the Town Planning and Valuation Department, covered a planning area of 13.58 km^2.[114] The Plan consisted of a land use and zoning map that demarcated areas according to

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[114] The Bombay Town Planning Act of 1954 was amended in 1968 to extend to the region of Kachchh (Gazetteer of India, 1971, p. 486). In the case of Bhuj, for the orderly development of the town, the Town Planning and Valuation Department prepared a Plan during the third Five Year Plan of India (1961-1966). Later, in 1976, the Gujarat Town Planning and Urban Development Act was enacted to

specific land use categories. Since the preparation of this 1976 development plan, the city had grown (urban agglomeration) beyond its limits in all directions, and particularly along the major transportation corridors toward the nearby villages of Madhapar and Mirzapar. Taking these villages into account, the new Development Plan would cover a total "urbanizing" area of 56 km^2 consisting of Bhuj Municipality, Mirzapar village, part of Bhuj village, and part of Madhapar village (see Map 6).[115]

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govern town planning related activities for the entire state of Gujarat. A Development Plan for Bhuj was prepared under the auspices of this Act.

[115] In India, the Development Plan serves as the primary planning instrument for an urban area. Its scope extends over an entire urban area, including peripheral areas that show signs of urbanization.
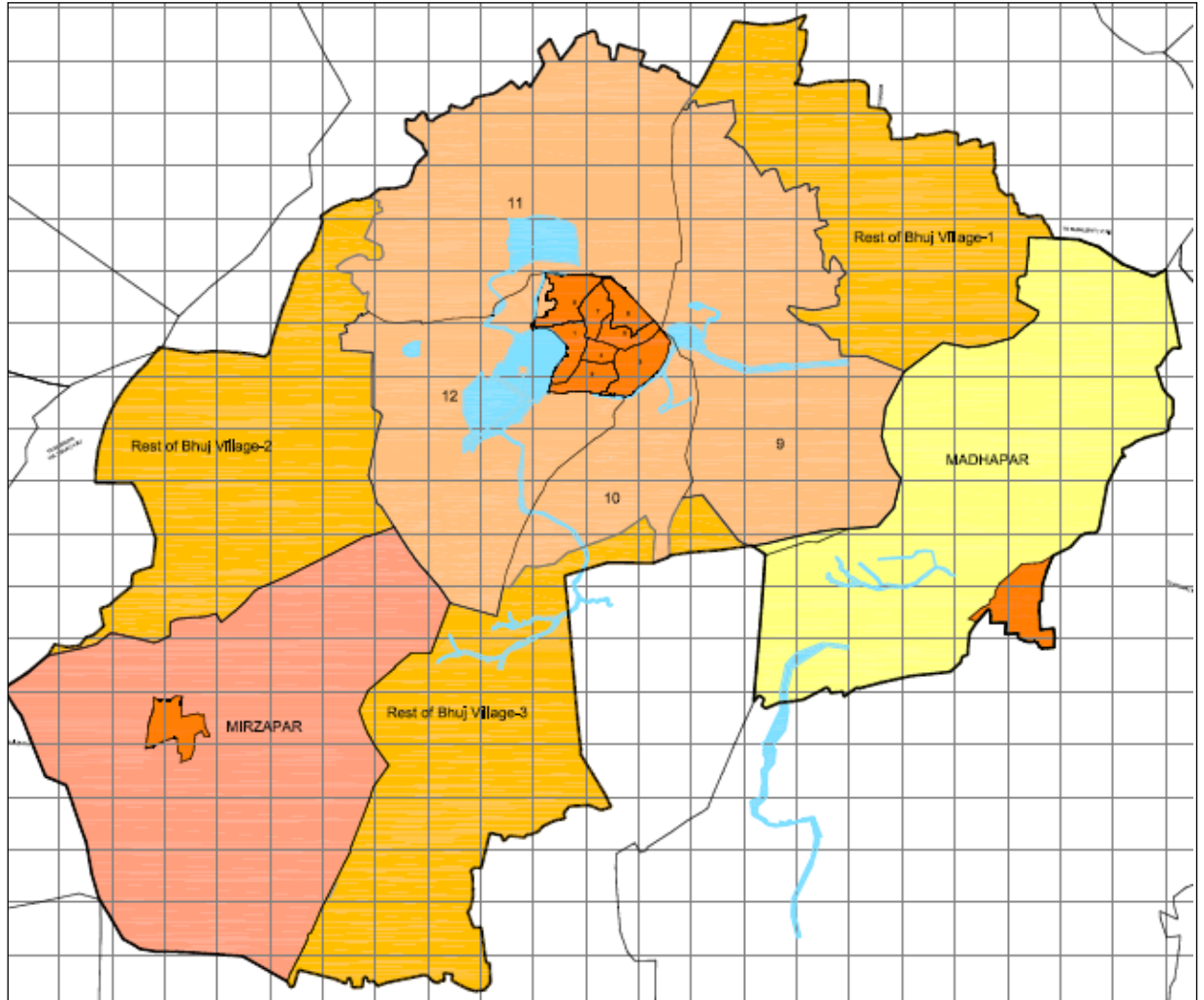
Map 6: Bhuj Area Development Authority jurisdiction (with 12 municipal wards of Bhuj municipality forming the core) (Source: EPC, 2001a)

On May 18, 2001, seven days after the creation of Bhuj Area Development Authority (BHADA), the Town Planning and Valuation Department (TPVD) under Section 13 of the GTPUDA of 1976 notified and published a Draft Development Plan for Bhuj.[116] On the same day, Environmental Planning Collaborative (EPC), a not-for-

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[116] Under Section 13 of the Gujarat Town Planning and Urban Development Act, once a draft plan is prepared, the public is given two months to respond to it. The plan is modified based on these suggestions, and then published to seek public response for another two months. Once the second round

profit organization based in Ahmedabad, was appointed as the Town Planning Consultant (TPC) to modify the published plan based on detailed studies and consultations under the framework of the GTPUDA 1976. EPC had completed a Regional Development Plan for Kachchh, working closely with the network of NGOs, *Kachchh Nav Nirman Abhiyan* (known as Abhiyan). Considering that this was an emergency situation, the Department of Urban Development of the state government directed EPC to "speed up" the process and prepare the plan within six months.[117]

Instead of working with the plan already prepared by the Town Planning Department, EPC started to prepare a new conceptual plan for Bhuj. The Executive director of EPC explained why it was important to create a new plan:

The plan [first version prepared by the TPVD] was unrealistic because it proposed widening of all the roads in the walled city, *all* [original emphasis]. If you widen all existing streets in the walled city then buildings that survived the earthquake would have to be demolished as most of them were next to main roads. There was a huge furor in the town about that, with people saying, "*Jo earthquake ne chhod diya woh tum tod rahe ho*" [What the earthquake had spared, you are demolishing]. If that plan were to be followed, it could have meant demolition of a few thousand buildings. It was called the "second earthquake."[118]

While objections and suggestions were being sought by BHADA on the first

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of suggestions is incorporated, a revised plan is submitted to the Urban Development Department of the State Government for approval. Normally development plan preparation takes a minimum of two years.
[117] D. Parikh (personal communication, Ahmedabad, July 25, 2006).
[118] B. R. Balachandran (personal communication, Ahmedabad, July 28, 2006).

version of the plan, EPC carried out a new mapping exercise to determine plot boundaries and verify standing structures.

Surveying and mapping required for implementing the development and town plans presented challenges. Not all destroyed buildings had been removed by the time the mapping started, and the debris complicated the mapping process by obscuring lot boundaries (Murty et al., 2005). EPC Director explained the repercussions as well as reasons for such discrepancies:

> Our base-map preparation was running parallel with the removal of debris. So when we actually published the plan our base map was not fully accurate. There was a lot of confusion because of that. Road alignments seemed to run over existing housing layouts. It was a problem with reconciliation of ground realities. The overlay was not yet corrected properly. The original maps prepared by the office of the District Inspector of Land Records (DILR) and the City Survey were extremely bad. There were large patches of government land; many of these were encroached upon. So mapping those was difficult. We couldn't make out what was encroachment and what was real.[119]

However, EPC prepared a new conceptual plan based on the new maps, presented it to the public in various meetings, and updated it based on their feedback. When they communicated to the people of Bhuj that the new conceptual plan was entirely different from the one that was shared with them earlier by BHADA, there was a lot of confusion. The first plan helped to reduce the statutory time period that went into the

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[119] Ibid.

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process. The new plan proposed demolition of a couple hundred buildings.[120]

Another problem soon emerged. Property ownership records were found to be outdated and inaccurate and did not reflect realities on the ground.. Land records had been minimally updated by owners as well as municipal authorities in the last 30 years. This was reflective of a systemic problem with regard to land records in Kachchh. In order to avoid stamp duty levied on property sales entirely, most property owners did not get their records updated by the respective authorities when the ownership of their properties changed. Hence, many transactions related to the sale of property were ambiguous. Sometimes an ownership document was just an agreement between individuals but carried no legal validity. Lack of interest on the part of concerned authorities to verify the records also contributed to records being outdated.

In case of rental property, if a tenant protected by the Rent Control Act did not want to stay in the house but did not have the right to sell it, he or she transferred the use rights informally to another by designating them as the power of attorney on all property-related transactions, after receiving money at prevailing market rates. Such informal sales were never reflected in the records, which still had information on the original owner and first tenant. In the case of high-value properties, people ensured that the records were updated.[121]

In order to get such issues rectified and to gain public acceptance for the plan,

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[120] B. R. Balachandran (personal communication, Ahmedabad, July 28, 2006).

EPC sought public participation in the preparation of the plan through community level meetings and discussions with other stakeholders. A note on the planning process and how the plan would affect reconstruction of homes was printed in a frequently asked questions (FAQ) format in Gujarati and circulated. Over a period of six months, the planning team conducted 158 stakeholder consultations, approximately one meeting a day.[122] Once the conceptual plan was shared and feedback sought, strategies were developed by the planners of EPC, first in the form of microprojects in two areas within the walled city, and later in the form of official proposals for rebuilding the social and physical infrastructure.

The plan prepared by EPC emphasized the need to rebuild the city consistent with its historic character and suggested measures for such development. Over the years, the real estate market had mushroomed and eclipsed historic areas. Only the *Darbargarh* area and select neighborhoods in the walled city retained a semblance of their former historic character. Much of the traditional housing stock in the city had also disappeared, and the skyline was threatened by unregulated development. This trend had produced an inconsistent and visually jarring landscape which pitted modern construction against proportionally smaller historic buildings (BHADA, 2001a, p. 130). Hence, Development Control Regulations (DCR) proposed by EPC had a variety of zones for residential use and four types of commercial zones with variations in height and bulk. However, BHADA in consultation with GUDC later replaced these with a uniform set of regulations for the entire urban area. According to the GUDC

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[121] B. R. Balachandran (personal communication, Ahmedabad, July 28, 2006).

planner, such a conservative stance was deemed appropriate for safety considerations since with time people largely tend to forget the earthquake and therefore not follow the safety standards for financial reasons or lack of skilled construction laborers. Hence, it was considered better to indirectly reduce fatalities, even if the buildings were to collapse in another earthquake.[123]

A Development Plan principally addresses the physical growth of a city and is not typically concerned with social infrastructure. However, in the aftermath of the disaster that affected all of the social and economic institutions of the city as well as its physical assets, EPC saw the opportunity to integrate planning for the informal sector, social infrastructure, economic development, environment, tourism, and culture into the city's development plan. In addition to land use and infrastructure strategies, the plan defined 14 strategic social infrastructure projects.[124]

The Draft Development Plan published under section 15 of the GTPUD Act 1976 consisted of 12 components:

    a. Relocation and Rehabilitation
    b. Economic Development
    c. Land Development
    d. Road Network and Transportation
    e. Physical Infrastructure

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[122] D. Parikh (personal communication, Ahmedabad, July 25, 2006).
[123] A. Dhar (personal communication, Ahmedabad, February 8, 2008).
[124] These included: setting up temporary markets; developing new industrial infrastructure; developing wholesale markets and a freight complex; preparing an asset management plan; shifting the bus terminal to the old railway station; town planning outside the walled city; constructing educational and

f. Social Infrastructure

g. Water Bodies and Environment

h. Open Spaces and Environment

i. Heritage Conservation and Tourism

j. Solid Waste Management

k. Informal Sector

l. Institutional Framework and Implementation Strategy.

Bhuj Area Development Authority (BHADA), the custodian of the plan, received 1,542 objections and suggestions and scrutinized them. In December 2001, the modified plan was finalized under section 16 of the Town Planning Act.

During the Development Plan preparation, the Urban Development Department directed the planning consultant to leave the walled city out of the DP. The rationale for this was that the problems that might arise from the contested and complex nature of the walled city could be isolated and handled separately without affecting the DP process. As a consequence, the Development Plan was prepared and implementation initiated before plans for restructuring the walled city were prepared.

Implementing the development plan. Once the Development Plan was approved by the Urban Development Department, development control regulations became legally binding. Land use zoning as well as the road network, the other two key components of the Development Plan, also could not be changed except through

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health facilities and facilities for senior citizens; and encouraging lakefront development, urban water

the statutory process for variations as specified in the Town Planning Act. For any new construction, ensuring compliance with the new regulations was the responsibility of BHADA. However, GUDC would oversee implementation of infrastructure development according to the Development Plan. They worked with BHADA for land acquisitions for road construction and to compensate people whose land was acquired.

The construction of roads would be done in phases. The decision regarding which roads would be constructed is often political. However in the case of Bhuj, since it was part of the post-earthquake rehabilitation process, technical advice of consultants was sought by the government agencies. EPC was asked to assist BHADA and GUDC in the process of demarcating the proposed road layout on the ground.

However, new problems emerged because of inaccurate cadastral maps. The cadastral boundaries which were certified by the District Inspector of Land Records (DILR) were inaccurate. In many cases, buildings that were thought would not be affected by the proposed roads were fully or partially in their way, requiring them to be "cut." Therefore, adjustments were subsequently made during the implementation and these were ratified post facto by varying the DP as per section 17 of the Town Planning Act. These adjustments were finalized by the Town Planner, CEO of BHADA, and District Collector.[125] The consultants were largely kept out of the decision-making process pertaining to such changes.

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harvesting, and heritage conservation (EPC, 2002, p. 7).

Despite its comprehensive nature, not all elements of the plan were considered for implementation. Top priority was given to establishment of the road network, infrastructure development in the walled city and outer areas, and reorganization of plots in the walled city.. Economic development was addressed "willy-nilly," not with focused attention.[126]

Environmental concerns such as dumping of debris that had disturbed the natural drainage pattern and also destroyed the natural system of water bodies were discussed in the Development Plan and proposals for their improvement suggested. Pragsar Lake, which had been previously filled with water, was completely filled with debris. In the absence of perennial rivers, Bhuj relied on extraction of groundwater from aquifer resources to meet its water requirement.

The Hamirsar system was built to utilize the natural drainage and geology to harvest water for the city of Bhuj. The rivulets and canals were designed to bring in water from different areas of the catchment into a central water reservoir.[127] The water bodies of Bhuj, especially the channel to Hamirsar, were repaired by Abhiyan, yet the larger project for reclaiming the natural drainage system of Hamirsar catchment area would not be initiated by GUDC or BHADA. Proposals for heritage conservation and

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[125] B. R. Balachandran (personal communication, Ahmedabad, July 28, 2006).

[126] On the basis of consultations with traders and businesses, EPC proposed an industrial zone in the DP. However, instead of developing this area, Gujarat Industrial Development Corporation built an industrial estate 15 km outside Bhuj. Because of this, there was no demand for the proposed industrial zone. Source: Ibid.

[127] Originally there was one large water body known as the Hamirsar Lake which was later, in the course of development of the city, altered creating three separate lakes: Hamirsar Lake, Chhattedi Lake and Dhobi Talav, with an interconnected water movement (EPC, 2003).

tourism development would also take a back seat. They would be addressed in an ad hoc manner through individual projects, such as restoration of the historic gates of the walled city, as well as a few other heritage structures. Improvement of informal settlements would be relegated for a later time.

Given the discussion on the formulation of the Development Plan for Bhuj, in the following section, beginning with a brief discussion of the "rationale" for the adoption of TPSs, I will examine how they were prepared and implemented in Bhuj by EPC and BHADA under the tutelage of the Urban Development Department through its nodal agency GUDC.

Restructuring the Walled City: Town Planning Schemes

The executive director of EPC recounted his first impressions of rebuilding the walled city as follows: "In the first visit itself, we went for a walk in the old city and I had this instinctive feeling that the only way to rebuild that place was to reorganize land, such a mess – it was just a gut feeling, nothing to base it on.[128]

The arguments for restructuring the walled city of Bhuj were presented by the planning consultants as follows:

> Reorganization of the walled city of Bhuj will significantly enhance safety of
> both residents and visitors. With wider streets, evacuation of the city in any
> kind of disaster would be faster and emergency vehicles could access the

entire walled city area. The infrastructure systems in the walled city which had already begun to deteriorate suffered more damages by the movement of heavy machinery during demolition and debris removal. A complete renovation of the system as part of the reconstruction process would mitigate the risk of contamination of drinking water due to breakages in both water supply and sewer lines that were impossible to trace as well as supply losses due to those breakages.[129]

There was general consensus among the architects of the program that the walled city needed to be replanned. The *real* question was how to achieve this. As most neighborhoods (*falias*) ended in cul-de-sacs, turning the cul-de-sacs into thoroughfares and providing access to individual homes required drastic reconfiguration. The town planning consultant for Bhuj explained why they thought Town Planning Schemes were suitable for restructuring the walled city:

When we did the conceptual plan [for the DP] we had looked at the walled city. We said that the walled city area requires a detailed plan and we said there are two ways of doing it. One is whatever road widening or improvement you want to have, propose it in the development plan and we'll acquire the land required for it and do a s*urgical intervention*. The other option we said is to use the Town Planning Scheme. It will make it more equitable and democratic.[130]

For the first time in the history of disaster rehabilitation in India, a statutory planning mechanism such TPS would be used to reconfigure an existing urban core.

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[128] B. R. Balachandran (personal communication, Ahmedabad, July 28, 2006).
[129] Balachandran and Tyabji, 2004, p. 17.

The planning consultant continued to explain why it was innovative:

> This [Town Planning Scheme] is usually done at the city's edge, as a practical maneuver in converting agricultural plots [in the urban periphery] to urbanizable land [with the provision for infrastructure development], but in the case of Bhuj the legislative instrument has been used as a strategy to re-organize the walled city's morphology. The precise significance of its application lies in the fact that a piece of urban legislation was reinterpreted and applied—in a rather unusual manner—to a city's historic core in its post-disaster reconstruction.[131]

In February 2002, EPC got the contract to prepare the Town Planning Schemes of Bhuj. Though the walled city was 1 square kilometer in area (the area for a typical TPS), owing to the large number of plots (12,000 to 13,000) and an even greater number of owners, designation of the entire walled city as one TPS was deemed unsuitable. This was important because the town planning statute required individual hearings for each and every property owner, who needed to be notified three times during the process. So, for the ease of preparation and implementation, the walled city was divided into eight TPSs coinciding with the municipal wards as indicated in Map 7.[132]

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[130] Ibid.
[131] Ibid.
[132] These are administrative units under the jurisdiction of the Municipality.
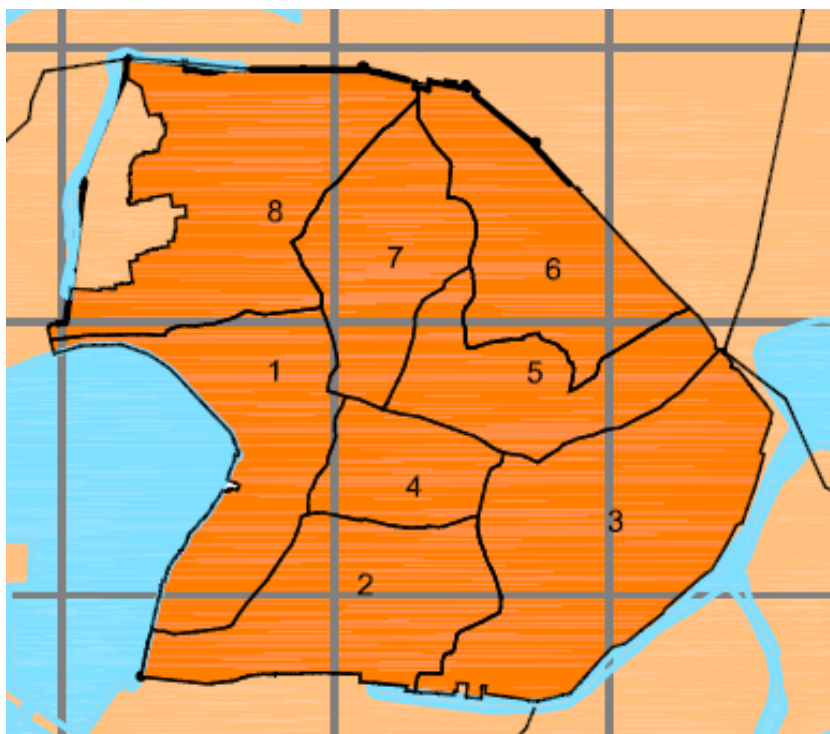
Map 7: Town Planning Schemes in the Walled City of Bhuj
(Eight Town Planning Schemes coinciding with the eight municipal wards)
(Source: EPC, 2001a)

The Town Planning Schemes, prepared under the provisions of the Gujarat Town Planning and Urban Development Act, typically involve three stages:

1. In the first stage, known as the Draft Town Planning Scheme, the Area Development Authority prepares and publishes a plan, seeks objections and suggestions from plot owners, revises the plan in response to their objections/suggestions, and then submits the Draft Scheme to the State Government for approval.

2. Once the Draft Scheme is approved, government-appointed town planning officers, who in their quasi-judicial capacity, give three rounds of individual hearings to all the owners, and finalize the physical layout, known as the Preliminary Scheme/Physical Plan.

3. In the third stage, known as the Final Scheme, the financial details, such as the compensation to be paid to the owners and the betterment charges to be levied on them, are finalized.

As part of the TPS preparation, to make room for the new roads and open spaces, percentage-wise deductions were applied to plots that had buildings in the G-5 damage category.[133] Up to 30% of the total area was deducted from plots of 30 to 500 m^2 area and 35% from plots larger than 500 m^2. No deductions were applied to plots that were less than 30 m^2 in area. Considering the disaster context, to avoid further destruction of homes and other buildings, the government decided not to disturb standing structures (nearly 50% of the pre-earthquake structures) and allocated final plots to the owners in the same location as prior to the earthquake. However, since there were no 12m-wide roads in the walled city before, some of the standing structures were cleared to make room for them. In other cases, buildings were either cut or a complete plot was acquired and owner provided with another plot elsewhere.

The rehabilitation package also specifically mentioned that government properties inside the walled city of Bhuj would be made available for the redevelopment of the walled city. Several government offices were relocated from the walled city, thereby opening up plots for the town planning process. Activities that caused traffic congestion within the walled city such as the Grain Market in the Bhid area would also be relocated to a new site. On the northern side of the city, where the devastation was

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[133] In the case of Bhuj the following deductions were applied to plots: 10% on plots from 30 to 100 m^2, 20% on 100 to 200 m^2 plots, 30% on 200 to 500 m^2 plots, and 35% for plots that are more than 500m^2. In case of plots less than 30m^2 area, no deductions were applied.

extensive, there were considered to be more opportunities for accommodating final plots. Families who desired to move from the walled city to various relocation sites developed by BHADA were given the option to surrender their plots in the walled city and move to one of the three sites. Plots surrendered by those who moved out were used for readjustment of the plots or for open spaces within the walled city.[134]

Preparation of draft town planning schemes. Despite the decision made by the Government of Gujarat to use TPS to reconfigure the walled city of Bhuj, many people including Town Planner of BHADA were unsure of public acceptance of the proposed plans as elaborated below:

> You have say five to seven members staying in a house and 100% [built up area] was allowed previously…now if we say we have reduced it to 30%, how will people react? We were skeptical whether this process could be done in 10 years…because normally TPS preparation takes around, not less than 10 years even in the urban peripheries. Here it was to be done in an area with standing structures.[135]

Nevertheless, the preparation of TPS was initiated by EPC. Planners and administrators soon realized that convincing people to live in smaller plots was the least of their worries.

One of the first steps in the preparation of a TPS is the verification of the layout

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[134] P. V. C. Prasad (personal communication, Bhuj, December 28, 2006).

and property records of all plots in the scheme area. After this an Original Plot (OP) number is assigned. Typically, City Survey records serve as the basis for verification of the physical layout of plots and the built area. Property cards issued by the Revenue Department (which maintains records of property sale transactions) serves as the primary source of ownership information. In the words of EPC's executive director:

> The original city surveys were bad, because according to one of the officials, surveys in Bhuj were carried out by a batch of surveyors who were particularly bad. They didn't make the records properly. Lots of property drawings in Bhuj only had the outer dimensions making it impossible to construct, geometrically accurately at the site.[136]

Yet, existing City Survey records were scanned and digitized. In the case of structures in the G-5 and G-4 categories (determined by the damage assessment survey and noted down for demolition) municipal survey numbers were noted. This was particularly significant because a higher percentage of deductions could be applied to vacant plots obtained after demolition of G-4 and G-5 structures, thereby giving more room for designing the new streets and final plot layouts. Standing structures had to be measured and their damage category verified.

It was found out later that many structures that had been assigned the G-5 category were not in G-5 or even G-4. Several others which might have originally been in the G-4 or G-5 category were repaired by their owners/occupants, which later

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[135] P. V. C. Prasad (personal communication, Surat, January 5, 2008).

[136] B. R. Balachandran (personal communication, Ahmedabad, July 28, 2006); City Survey maps are in

appeared to belong to G-1. However, in the TPS preparation, under the assumption that these plots were vacant (due to removal of totally collapsed or badly damaged or nearly collapsed structures), higher deductions were applied to the plot area and the land was used for widening streets, readjusting other plots, providing open spaces, etc. Many including the Town Planner of BHADA considered the extended time span of the project to be the main reason for such errors:

> Three years is not a small period of time. we didn't have time to take each and every record under such a rigorous exercise…and to ask people under which category it fell, they were not there…they were staying outside somewhere. Even though coordination is there, not perfect coordination, from the records between different agencies…these problems have come up.[137]

To make matters worse, the surveys conducted by EPC also had issues. They were not accurate, particularly in the walled city. The EPC director explains the problem as follows:

> When the surveys were done in the walled city, initially the demolitions were going on. There were bulldozers all over the place. Later, the scenario changed. Buildings which were standing at the time of the survey were not there. Blocks of buildings looked different. The right boundaries were not captured during the survey. It was extremely difficult, as machines couldn't reach some places. When the City Survey maps were compared with our survey maps, they did not fit properly. City Survey maps themselves had

the form of rectangles (just the shape and area) without any reference to the actual location.
[137] P. V. C. Prasad (personal communication, Surat, January 5, 2008).

cumulative errors from frequent tracing over a period of 30-40 years.[138]

Then the second issue emerged: inaccurate records. Property cards had not been updated and hence did not reflect the changes in ownership in the last several years. Revenue records indicating property ownership were very old. In several instances, records had not been updated for five generations. They indicated the original owners' name, while the user was someone else. Plots had been subdivided, and portions of them amalgamated. Ownership had changed hands as well. However, the official records did not get updated; hence, there were plot boundaries and ownership records different from what was at the time of the earthquake.

A third issue came up due to construction outside the limits specified in the city survey records. Building regulations were never enforced, and therefore people had been constructing houses according to their own wills.[139] Common features included staircases in the access roads, balconies overhanging roads, and structures occupying entire plot areas. However, such features were often not included in the official records. These omissions complicated the determination of Original Plots (OP) as well as subsequent allocation of Final Plots (FP).

EPC attempted to resolve such discrepancies by advertising in the local newspaper, asking people to provide photocopies of their records or other documents indicating pre-earthquake plot layout and extent of construction. Out of 24,000

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[138] B. R. Balachandran (personal communication, Ahmedabad, July 28, 2006).

properties (10,000 plots), EPC received only 1,200 records from the owners. Later on, with the help of Abhiyan, eight ward offices were set up, one in each TPS area.[140] At the ward offices people were assisted in filing their objections. Despite these attempts, many of the records did not get updated.[141]

In August 2002, six months after the appointment of EPC as planning consultant, Draft Town Planning Schemes were completed. EPC published eight Draft TPSs, one for each ward, sought objections and suggestions from property owners, and then submitted the schemes to the Urban Development Department for approval. State government approved the Draft Scheme and subsequently appointed eight Town Planning Officers (TPO), one for each TPS, for the purpose of finalizing the Schemes.[142]

Physical plan. In the process of finalizing the Draft TPSs, TPOs played the important role of arbitrating between BHADA and property owner, acting as an interface between the public and the government and interacting with individual owners. They did not directly deal with BHADA, who was both their client and the implementing agency. TPOs had their own offices and maintained separate records. The Town Planner of BHADA acted as the focal point for all the eight TPSs.

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[139] S. Sawaliya (personal communication, Bhuj, December 28, 2006).
[140] Each ward office had a computer with all the forms (including Form F which indicates the OP and FP details) and a designated person to explain the data to the people. They were explained how the OP had changed (due to deductions for new roads), where the FP was allocated, and how they could construct a house in their FP.
[141] B. R. Balachandran (personal communication, Ahmedabad, July 28, 2006).
[142] TPOs are quasi judicial appointees of the State government who report to Chief Town Planner of the Urban Development Department in Gandhi Nagar, the state capital.

As part of the finalization process, TPOs were required to conduct site visits to ensure that the Draft Schemes (proposed plot layout and road network) reflected ground realities, and make suitable adjustments. One of the town planning officers elaborated on the significance of field visits:

Once the draft schemes were prepared, I did site visits. Draft schemes do not show anything about elevation or so. TPS 1 is in the *Uplipad* area. There adjacent plots have level difference of even 10 ft. A road cannot be connected in such a situation. The map might suggest that it's possible. Such adjustments needed to be made. Some of them [owners in the Scheme area] wanted to know where their relatives who lived next door had gotten their FP [Final Plot]. I told them to come back as a group so that adjustments can be made to the location of FP without disturbing their ties as much as possible.[143]

This was also the opportunity for property owners to interact with the TPOs and convey their grievances related to town planning and have them resolved. Even though forms and maps were made available for public response, not many issues were raised by property owners during the finalizing of the Draft Scheme. Plans were still on paper and not yet demarcated on the ground. The TPO explained why problems were not raised by many:

When the process was going on, people did not have any complaints because they did not understand or know what was going on. Later, when the

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[143] S. Sawaliya (personal communication, Bhuj, December 28, 2006).

structures were going to be cut, they started asking why the building where they had been living for decades was being cut. That's when they realized what had happened in town planning. Had they known before, they would have told the TPO that the entrance is being obstructed or that their building is being cut. So mostly people came to know about TPSs when they were being implemented.[144]

Apart from the inaccuracies in the City Survey and property records, other problems emerged because of the peculiarities of house design in Bhuj. For example, toilets were outside the main structure, near the gate. In many cases when the deductions to plots were made during TPS preparation, the spaces previously occupied by toilets were "cut." Another set of problems were due to the small size of the plots, sometimes as small as 1 to 2 m^2 and with multiple owners. In order to resolve such issues, BHADA allocated alternative plots in the walled city using plots surrendered by the families who opted to relocate.

Many property owners did not understand the benefits of town planning, especially the new physical infrastructure that would be built, as well as the appreciation of their property values once the new roads were built. Hence many were hesitant to allow any deductions from their plots. When standing buildings were to be cut or removed to make way for roads (because those buildings were not accounted for in the base maps used for proposing the roads), the government's decision to leave the existing structures undisturbed made it difficult for the TPOs to reconcile with the plan. Often compromises were made regarding road alignments and widening due to

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[144] S. Sawaliya (personal communication Bhuj, December 28, 2006).

these standing structures. The TPO elaborated on this dilemma:

> It's true that we could have done planning a lot better that way [by demolishing some of the undamaged buildings]. We could have cut buildings to make room for new roads; the Act [GTPUDA 1976] has provisions for that. If there is a room in 10 ft, if we cut 5 ft, what can people do in the remaining 5 ft? As far as possible, built-up area was not disturbed. From the ones that had been completely damaged, deductions were made and for others it was done if it was possible to do so without disturbing the structure. One also needed to look at things like location of the main entrance [door – right of way] to the house before finalizing the roads. There was only one high-rise building in TPS1. It had to be cut to make way for a 9 m road. The owner told me to change the orientation, but that would have resulted in more disruption.[145]

The disaster context also imposed additional challenges to the TPOs in finalizing the Draft TP Schemes. TPOs' site visits were always advertised in the local and regional newspapers, and people who owned plots in those areas were advised to be there and supply the required information. However, during site visits conducted to verify complaints filed by individual owners, many of the adjacent houses were unoccupied as the owners/occupants had moved to locations within or outside of Bhuj. Hence site visits to verify the complaints and consult adjacent plot owners to reach a solution regarding plot layouts were often unsuccessful. For houses in the G-5 category (completely damaged) it was impossible to ascertain the nature of the structure that previously occupied the plot. Since the records were not updated, the claims of owners had to be taken at face value with confirmation from neighbors.

Despite the subjective nature of decision-making during the site visits, lack of such visits to verify claims on the ground created further problems.[146] Plots that were indicated as vacant (because the building was in the G-4 or G-5 category) were often allocated to others or used to make adjustments to adjacent plots, only to realize that there were structures in those plots that did not get recorded in the mapping process or were repaired by their owners.

There were several cases where people had their stairs in the *gali* (narrow street) outside the property line. While preparing the plan, many such streets were used for reconfiguration of adjacent plots and given as Final Plot (FP) to another person. Hence, entrances to houses or plots were blocked by other FPs or the newly proposed access roads were inconsistent with the orientation of a building. In many cases, according to the plan, new access roads were proposed at the backside of a building.

There were several small religious structures or trees which did not have any entry in the property cards. Although someone might have been allocated a final plot there, it could not be developed as removing religious structures or cutting down trees was difficult. In some cases, the final plot was given in an adjacent plot that had a standing structure, which TPO could not demolish due to the government order to

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[145] S. Sawaliya (personal communication, Bhuj, December 28, 2006).

[146] TPOs were appointed by the urban development department of the state government. Many of them were unfamiliar with Kachchh and some had no previous experience handling TPS. Many TPOs were also unhappy with the lack of support/ adequate facilities and were frustrated because of being assigned to an extremely difficult task. These feelings were often reflected in the ways in which they dealt with

preserve undamaged structures. Therefore, such households needed to be moved to other locations.

Many such discrepancies that could have been rectified during TPOs' field visits did not take place as some of the TPOs chose not to visit their TPS areas.[147] The planning consultant explained how despite attempts to provide assistance to the TPOs in verifying the claims and making changes without compromising the integrity of the particular TPS as well as adjoining schemes, they were unable to do so:

> Those changes [modifications to the draft scheme] were not political—those were complete stupidity. What went wrong in the process was that when we [EPC] made the plans there were of course problems. But because of the speed at which it was going, we said we'll rectify these problems at the TPO stage. Our recommendation was that we provide a pool [of technical support personnel] to the TPOs. We put up a team or an office, or rather the TPOs use our office as the drafting office. So, when they did the hearings, [they explained] explain to us what changes were needed and we then make the changes, verify it on the ground and then give it to the TPO. They didn't want to be controlled. So they prevailed on the Urban Development Department that, "This is not what we want. We want EPC to provide us an AutoCAD operator because we do not understand AutoCAD, that fellow will take our instructions and modify the drawings." That created a lot of problems with the plot layout.[148]

individual scheme areas. Many saw it as a punishment. Their requests to get transferred to other locations were not granted by the government.

[147] B. Bhatt (personal communication, Gandhi Nagar, March 27, 2007).

[148] B. R. Balachandran (personal communication, Bangalore, March 14, 2007).

However, one of the TPOs attributed the town planning related problems to the lack of interaction between the TPOs and their client, BHADA:

The Authority [BHADA] and the Revenue Department were under the impression that everything would happen as per the wishes of the Authority. It wouldn't be wrong to say that the role of TPO was more or less ignored. They just thought that the TPO would finalize whatever that was prepared. They didn't realize the fact that whatever TPO did would be final. If there were some form of formal interaction between the TPOs and the District Collector, etc. that would have been better.[149]

Meanwhile, EPC had its offices in all eight wards of the walled city. Several residents went to these ward offices to understand the implications of the draft schemes on their property and to raise any issues they had, which could then be presented to the TPO for resolution.

As part of the statutory process, TPOs held three rounds of individual hearings with property owners. Several residents could not be reached at the addresses the local authorities had. New addresses to which notices regarding the hearings could be sent were not available (many people were living in other places within or outside of Kachchh). Advertisements were issued in local and regional newspapers, asking owners of specific plots or areas to attend the meetings to discuss the issues regarding their plots. Even then many owners did not participate in the meetings. People who understood the importance of attending the hearings to get their problems resolved

attended them and were largely successful in arriving at a solution. The TPOs scrutinized some of the issues and then the schemes were announced. To complete all these procedures, the TPOs were not given more than three months' time.

Many in the administration, including BHADA Technical Division Engineer, were less sympathetic to those who could not attend the hearings and therefore could not get their problems resolved. The engineer attributed the lack of participation to the carelessness and lethargy of the residents:

Several residents did not pay attention to what was happening, they were either gone or did not bother . . . *so rahe the* [were sleeping]. They did not care about what was happening to their property. For example, in the case of entrance related issues in each TPS, if they had been raised during the preparation of Draft TPS, the issue could have been resolved. At that time nobody paid any attention. Or if they felt that the compensation wasn't adequate or some other issue. . . . Now that the schemes have been finalized, nothing could be done. So, whatever issues that have emerged after the declaration of the Final TPSs are from those who weren't paying attention.[150]

When asked if it were possible that those who went to stay with their relatives outside of Bhuj did not know what was happening and hence were unable to participate in the hearings and meetings, the engineer disagreed:

That is less likely. Even if I am staying in Bombay, if I own property here, I

[149] S. Sawaliya (personal communication, Bhuj, December 28, 2006).
[150] C. Bhatt (personal communication, Bhuj, February 6, 2008).

would have definitely given the power of attorney to someone here, for example to a care-taker. This is a common practice which you can find even in villages like *Sukhpar* [in the outskirts of Bhuj].[151]

The executive director of EPC narrated how the specific way of functioning of the TPOs and the solidarity amongst residents in each TPS produced different outcomes for the planning process within the walled city:

TPS 8, Soniwad, is the best, because they were the most organized. They interacted on a daily basis at critical junctures. TPSs 1 and 2 came out decently because the TPO was very good. He actually went down to the ground and went plot by plot, checked everything. TPSs 5 and 6 were the worst. The TPOs never went to the ground. In TPS 5 the TPO did not visit the site even *once* [original emphasis] in two years; his assistants were not good. In TPS 4, the TPO never went to the site, but the assistant was good. So it came out well. So the eight TP Schemes fared very differently.[152]

Those groups which were articulate and well organized interacted with the planners or the TPOs to get their problems resolved. Others missed the opportunity. A range of issues from technical errors to lack of site visits, lack of coordination between the TPOs and the local authority (BHADA), and the lack of participation of owners was carried over to the finalized Draft Scheme, also known as the Physical Plan. The Physical Plan gave BHADA the authority to demarcate the layout of plots on the ground and begin infrastructure development, including construction of roads.

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[151] Ibid.

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EPC was asked to demarcate the roads and plot boundaries on the ground. When the demarcation began, there surfaced unresolved problems related to land records as well as new problems created by redesigning of the TP Schemes by different TPOs without being sensitive to the details on the ground. EPC demarcated the schemes on the ground as per the plan.

Of the 12,000 plots dealt with in the Town Planning Schemes, BHADA received 2,000 applications against the changes proposed by the TP Schemes. The BHADA officials classified them into different categories: relocation wanted, but plot allotted inside the city; relocation given, but plot wanted inside; applied for relocation but did not want to go when city developed; land related issues; ownership related issues, etc. If an applicant had a problem with another person, then the other person also had to file an application, which meant many more applications than the original 2,000 received by BHADA.[153]

On one side, construction of roads and other infrastructure began, while on the other side the TPOs continued to make changes to the schemes to resolve the problems in coordination with the Town Planner of BHADA. The Town Planner of BHADA negotiated with individual property owners to arrive at mutually agreeable solutions, although legally it was not his mandate to do so. This process continued for two to three years.

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[152] B. R. Balachandran (personal communication, Ahmedabad, July 28, 2007).

In the case of plots that were not buildable because of the way they had been laid out, or if the owner(s) wanted to subdivide the property and was not happy with the plot allotted as per the Draft Scheme, the Town Planner negotiated and offered individual plots in the relocation site for each household in exchange for the plot in the walled city. Families had to purchase the plots from BHADA at subsidized rates. However, the prospect of getting multiple plots (for each household) in lieu of the single plot in the walled city fraught with legal issues seemed attractive to many. When such plots were surrendered, the BHADA Town Planner directed the TPO to record the changes, and used this to solve other issues or include the change in the list of plots BHADA was entitled to sell as part of the TPS process.

BHADA also organized three *lok darbars* (people's courts), starting on August 29, 2003. Each day, approximately 50 to100 people attended the courts. It proved to be a momentous task for BHADA officials as described by the CEO of BHADA:

> I realized that it's very difficult to address their grievances when they come in such high numbers. If there are five people, I can solve, but if there are 50, even then I can solve only five, maybe less… Manpower available to me was only so much. Mr. X [Town Planner of BHADA] was there. I was the signing authority. So the deciding authority was only one… Even if I cannot solve their problem, I still have to listen to them. I cannot drive them away. They have come to me. I listen to them for three to four hours. But even after three hours if I am not saying anything they will think that the authority is not doing anything. But they do not know the magnitude of work that we were

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[153] P. V. C. Prasad (personal communication, Surat, January 5, 2008).

doing. To see the information of these 50 to 60 people on the computer, even the computer takes some time, right? Looking at the problem is not solving the problem. We had just setup a process to understand the problems, so when we see one, we try to understand it.[154]

He continued to explain how they proceeded with solving individual problems:

Sometimes a few changes here and there could solve the issues. No doubt we didn't have the authority to change the law, but [we did it] in good faith. . . . For example, if someone had an issue with the entry to his plot, because the authority had plots in all corners, we could give the gentleman entry to his plot. There were plots marked for sale for commercial or residential purposes. So if he was rich enough, we would ask him to pay for the whole plot or 20 or 30 m^2. But if he was not, then we would allow 2 m^2 just for the entry. After three *lok darbars* for grievance redressal, we were in a position to know the facts. Later on, some people got their records updated, but wouldn't help no? The TP Schemes were already announced.[155]

According to the planning consultant, despite the fact that there were "horrible" errors in the final plan that was demarcated on the ground, because of their docile nature, people of Bhuj were generally very cooperative in finding solutions or accepting the changes. For the cases that were hard to resolve, the Town Planner often persuaded the owners to surrender their plots in exchange for plots in the relocation sites. In most cases people accepted his offer.[156]

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[154] K. B. Thanki (personal communication, Bhuj, August 29, 2006).
[155] Ibid.

In order to resolve the problems related to town planning, GUDC expedited infrastructure development in the relocation sites to encourage more residents to move to the sites and surrender their plots in the walled city (*gamtal*). GUDC Planner explained how they used the plots in the relocation sites to resolve problems associated with the TPSs:

We had an idea that people would want to shift in case they get that plot [in the relocation site]. So what we did was that while the preparation of TPS was going on we started servicing the land in one of the relocation sites. So, people saw good quality roads, light, water, good schools, etc. which they could not dream of in the *gamtal*. Then people started surrendering their land [plots], which had actually created [made available] a lot of land for other facilities within the TPS. Also, the level of deduction [percentage] that had to be applied to the plots [in the TPSs in the walled city] could be reduced…and so the timing is important.[157]

Even if one were to construct a house within the city, it could not be done unless the government published the Preliminary TPSs. By that time the government had started developing the relocation sites. The resolution of TPS-related problems could have been relatively easy had the relocation sites been developed earlier and people opted for plots there.[158]

In certain cases, dedensification of the old city happened without government intervention. Several private housing colonies arose outside the walled city, along the

[156] B. R. Balachandran (personal communication, Ahmedabad, July 28, 2006).
[157] A. Dhar (personal communication, Ahmedabad, February 8, 2008).

periphery. Many sold their property within the walled city at rates higher than what the government was offering as part of the town planning process and moved to these housing societies. Others moved in groups, as in the case of the affluent business community of *Jains* who built a township nearly 10 km from Bhuj (beyond Madhapar), on land that was purchased even before the earthquake.[159] *Daudi Bohras*, who lived in the northern part of the walled city which was heavily damaged in the earthquake, moved to a new settlement in the outskirts of Bhuj, nearly 8 km from the city center.[160] Such moves, whether community-wide or individual families moving to new private developments, did not always "free up" plots that could be used for solving problems related to Town Planning Schemes. In the northern part of the city, where the devastation was much greater, not much out-migration happened in the case of the Muslim or the *dalit* population, with the exception of tenants who had no property rights.[161] The entire administrative machinery focused its energies on attending to the complaints from the residents so that the Final TPSs could be published.

Final town planning schemes. Once the Physical Plan was prepared and approved

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[158] P. V. C. Prasad (personal communication, Surat, January 5, 2008).

[159] The Jain community had already speculated on the land, before the earthquake. They would have eventually moved there and kept only the businesses in the city. The earthquake gave them a reason to move. In the new settlement called Vardhaman Nagar, there were people from both within and outside the walled city.

[160] Daudi Bohras, the wealthy Shiite Muslim business community, owned shops in Danda Bazaar and in the old market areas of the walled city. Noor Foundation Housing Society has more than 100 houses, a new community hall, and a mosque. The Bohras neither surrendered their land within the walled city to the government nor sold it. Even though they moved to the new settlement, they retained ownership to their land, leaving behind vacant plots in the walled city. A few families moved to the relocation sites. Bohras continue to do business in the walled city. (Source: I. Vora and F. Vora Bhuj, December 26, 2006).

by the state government, the financial details needed to be worked out for each Town Planning Scheme. This involved settlement of compensation to plot owners for deductions in plot area, and calculation of incremental contribution (50% of property value increase due to implementation of the TP Scheme) to be paid by individual property owners to the government based on the Original Plot (OP) and Final Plot (FP) values determined as part of the Draft Scheme Preparation. Typically, the base price was fixed by the Town Planning and Valuation Department, and not by the ADA. But in Gujarat, this was not always the case as explained by the Town Planner of BHADA:

> In Gujarat, the Valuation Department does not have a strangle hold on the valuation process. The Authority [Area Development Authority] can fix its own price. If it is undervalued, then it leads to a scam. But if the Authority makes more money than expected then nobody is going to press any charges.[162]

In each TPS, valuation is done for the entire scheme area. The sales records for the past five years are taken and average of the highest and lowest values is determined. This forms the basis for calculating the final plot values. Individual property values are then be calculated depending on its exact location, types of uses/facilities in its vicinity, accessibility, etc. As a result, property values in a TP Scheme would vary significantly across the scheme area. While such fine tuning of property values was possible, in Bhuj it depended on the TPOs of each scheme.

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[161] B. R. Balachandran (personal communication, Bangalore, March 14, 2007).

The recorded value of property in most places in Gujarat, including cities, was mostly around 10 to 20% of the market value. Prior to the earthquake, the *jantri* value (value based on official land evaluation) inside the walled city was around Rs. 100 to 200 per m^2 for the entire city, whereas the actual values in certain locations were as high as Rs. 10,000 per m^2. Since the values indicated in the sales records were much lower than actual market values, for the purpose of TPS, the government decided to indicate the actual value (100%) on the land records so that the recorded prices were closer to the market values.[163] Hence, the valuation process in itself led to a drastic appreciation of land values of the final plots as laid out in the physical plan.

In order to calculate the compensation to be paid to property owners (in lieu of the deductions applied to their plots) as well as the incremental contribution to be paid by the owners to the government, the planning consultants in consultation with BHADA used previously recorded *jantri* prices as the base price for the Original Plots, but used the adjusted values (that reflected the actual prices) for the Final Plots. This resulted in huge differences between the original and final plot values. It meant, if a property owner surrendered a portion of his or her plot in the main locality, the compensation he or she would receive as per the *jantri* was significantly lower than what BHADA would receive when that surrendered piece of land was sold at rates based on the Final Plot value. Such sales were done through auctions where commercial interests artificially increased the values, thereby letting BHADA make a profit.

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[162] P. V. C. Prasad (personal communication, Surat, January 5, 2008).

Land values established by the auctions were soon reflected in the real estate market, fuelling a significant rise across the city. People who wanted to purchase land adjacent to their property (other than what was allocated as the final plot) for various reasons—including privacy concerns, building a work shed, getting direct access to the street (as the original access to the street might have been lost in the town planning process), etc.—had to pay exorbitant rates.[164] Many involved in the town planning process considered this dramatic increase in land values an inevitable outcome. The town planning consultant for Bhuj explained why it was in the public interest to maximize the values:

You have to feel the market and maximize the benefit. That is also in the public interest to maximize the profit. Suppose you reduce the value saying that people in the locality can only afford a lower value, then how do you set the price, whom do you sell to? I understand the public sentiment. Because if I have a plot and I surrender a portion of my plot as part of the TPS, and then I see a plot created from the surrendered piece of land being sold at a value that I cannot afford, I get angry because that was part of my plot. However, if you look at it from the municipality's point of view, the revenues from the sale of plots have to at least partly compensate for the infrastructure costs.[165]

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[163] S. Sawaliya (personal communication, Bhuj, January 28, 2006).

[164] In the walled city, there was a very strong sense of association of a particular locality with a community that had historically inhabited it. Therefore, people from other communities were not interested in living there or purchasing property in an area perceived to be that of others. These feelings were accentuated by religious sensibilities. Hence the increase in land prices in areas occupied by the economically weaker sections (largely Muslims and lower caste Hindus) did not encourage others to buy them even as a form of investment.

[165] B. R. Balachandran (personal communication, Bangalore, March 14, 2007).

In Bhuj, the revenue from the sale of plots was used to pay the salaries of ADA employees as well as meeting other expenses related to water supply and drainage at the temporary relocation site, water supply at other relocation sites, removal of temporary shelters, and other work related to reconstruction.[166] The money was also used to repay the World Bank loan.

The process of development of relocation sites happened simultaneously with the town planning process in the walled city. These alternative sites were created as part of the decongestion objective of GERRP. Several factors influenced people's decisions to relocate, even when the location of the sites were not known. Many residents did not want to continue living in the same location because of fear of earthquakes. Overall perception was that the walled city was unsafe. Decision to relocate was also driven by emotion. Many did not want to live in the walled city anymore because someone dear had died there. When asked about their desire to relocate, many residents indicated that they would like to move provided they got a space near "their people." Public sentiments about relocation did not suggest clear differences between the higher and lower income groups.[167]

Several residents decided to stay in the city. They had been living there for some time, their friends and relatives lived close by, and theirs was a close-knit society. Another significant factor was travel distance. If people with shops or other commercial establishments within the walled city moved out, they would have to

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[166] S. Sawaliya (personal communication, Bhuj, December 28, 2006).

travel at least 20 to 30 minutes to get to their workplace. However, if they lived within the city they would not have to commute.

Despite their initial hesitance to move farther away from the walled city, due to the complex issues associated with the TPSs, many residents realized that it was easier to rebuild their homes if they chose to relocate. Some moved because their house was going to be demolished and they wanted to act quickly. So the only option was to move to the relocation site. In cases were several households were living in the same house, each occupying a small portion of it, in a joint family setup, if the final plot was too small for all of them to be accommodated in the same place, the families opted to move to relocation sites. By 2006, of the 2,000 complaints, less than 50 remained unresolved and those were to be taken care of in the varied scheme.[168]

In the next section, I examine the processes related to the development of the relocation sites, and the reconstruction of houses by those who moved to these sites.

Relocation Sites of Bhuj

Relocation was to be done on a voluntary basis. In the end of May and early June 2001, in order to determine the extent of relocation, EPC surveyed a stratified random sample constituting 10% of the households of the entire city (including BHADA area), stratified by location (ward-wise) and income.. The questionnaire covered a host of

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[167] B. R. Balachandran (personal communication, Bangalore, March 14, 2007).

socio-economic characteristics as well as desire to relocate and individuals' visions of how the city will/shall change.[169] Since property records typically do not indicate religion of the owner, in each municipal ward random sampling was done for Hindu and Muslim areas. Statistical analysis indicated that approximately 3,500 households were likely to opt for voluntary relocation. The town planning consultant explained how the final numbers were arrived at:

> During town planning, we had to determine the extent of demolition required to accommodate the new roads, infrastructure, etc. 150 plots could not be accommodated even in terms of the Final Plot. Clearly this number was much smaller than the number of households that were willing to relocate. So we took the 3,500 as the minimum number we would cater to in terms of relocation, added a little leeway and decided to go with 4,000 households.[170]

The urban rehabilitation package offered plots at specific relocation sites to both homes and businesses that wished to relocate from the walled city and to those who were affected by the town planning proposals. Town planning activities such as road widening and provision of open spaces required partial or total demolition of several buildings. In case of private housing, owners of fully collapsed (G-5 category) houses or those to be pulled down (G-4 category) were given the option of relocation.

New Development Control Regulations prohibited construction of any structure

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[168] K. B. Thanki (personal communication, Bhuj, August 30, 2006).
[169] When EPC conducted the survey to assess the extent of voluntary relocation, people were asked, "Do you want to relocate or not?" Source: B. R. Balachandran (personal communication, Bangalore, March 14, 2007).

higher than G+1 (ground floor plus one) in the entire area under the jurisdiction of the Area Development Authority. In the case of individual dwelling units under G-5 category, owners were given housing assistance as per the government package and were allowed to rebuild in the same area. In the case of multiple dwelling units or apartments under G-5 category, new Development Control Regulations necessitated the relocation of some dwelling units, due to reduction of Floor Space Index (FSI). This meant that people who lived in multistoried buildings now had to be accommodated either in the existing multistoried buildings that survived the earthquake or in new sites. Due to the extensive damage suffered by multistoried buildings, several households who owned apartments in such buildings had to be relocated.

The Town Planner of BHADA elaborated on the "luring" tactic that was widely employed to convince people to move to the relocation sites:

> If you have 10 m^2 here [in the walled city], why should you go out if you are given 10 m^2 outside [in the relocation site]? So a policy was made, that if you have land up to 100 m^2, you will be given 100 m^2. Even if you have 1 m^2, if you surrender it [to BHADA], you can take 100 m^2 at very subsidized price [in the relocation site].[171]

According to the government package, beneficiaries holding less than 100 m^2 of land were offered 100 m^2 and those holding more than 100 m^2 as well as apartment owners were offered 125 m^2 if they opted for a relocation site nearby, and 150 m^2 in

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[170] Ibid.
[171] P. V. C. Prasad (personal communication, Surat, January 5, 2008).

case they opted for a relocation site that was more than two kilometers from the inner city. Beneficiaries with landholdings greater than 125 m^2 were given the option to buy additional 25 m^2 at market rates (finalized by the district level land price committee) subject to availability.

Plots were allotted to beneficiaries based on the existing *Jantri* plus the development charges at a rate of Rs. 300 per m^2. Land values were significantly higher in the walled city compared to the relocation sites. Those who were eligible for plots in the relocation sites either paid BHADA the difference in price between the plot surrendered in the walled city and the plot in the relocation site, or they were paid the difference by BHADA.

Selection of sites. Identification of sites and assessment of the extent of relocation took place simultaneously. The government package specified that whenever possible government land would be used for relocation. However, identification of government land was difficult because records did not clearly state which lands were public and which were privately owned. Based on the advice of a retired revenue officer, GUDC put total station survey equipment in three or four locations to create an impression (if this was not government land) that the land was being taken by the government, thereby forcing the owners to come forward to establish their claims. Thus, through a process of elimination, government land was

identified in different parts of the city.[172]

From this initial list, possible sites were identified that were large enough to accommodate a settlement layout. During public consultations, people had expressed the desire to move to places where members of the same community or *compatible communities* lived. For example, the Jains would not go to the North because it was inhabited mostly by Muslims and lower-caste Hindus. Brahmins would not go there either. Hence, it was important to identify sites in different locations where people from all communities who wanted to relocate could do so without compromising their communal sensitivities.

Therefore, EPC used seven criteria to arrive at the final list of relocation sites. These criteria were: availability of government land, availability of large contiguous patches of land, community compatibility, availability of water, accessibility, and two vulnerability parameters. On the basis on these, seven separate sites spread across the city were identified. Following this, documents pertaining to all seven were submitted to the government, for the land to be transferred to BHADA for development of the relocation sites (see Map 8 and Table 3 for the details of these seven sites).[173]

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[172] A. Dhar (personal communication, Ahmedabad, February 8, 2008).
[173] B. R. Balachandran (personal communication, Bangalore, March 14, 2007).
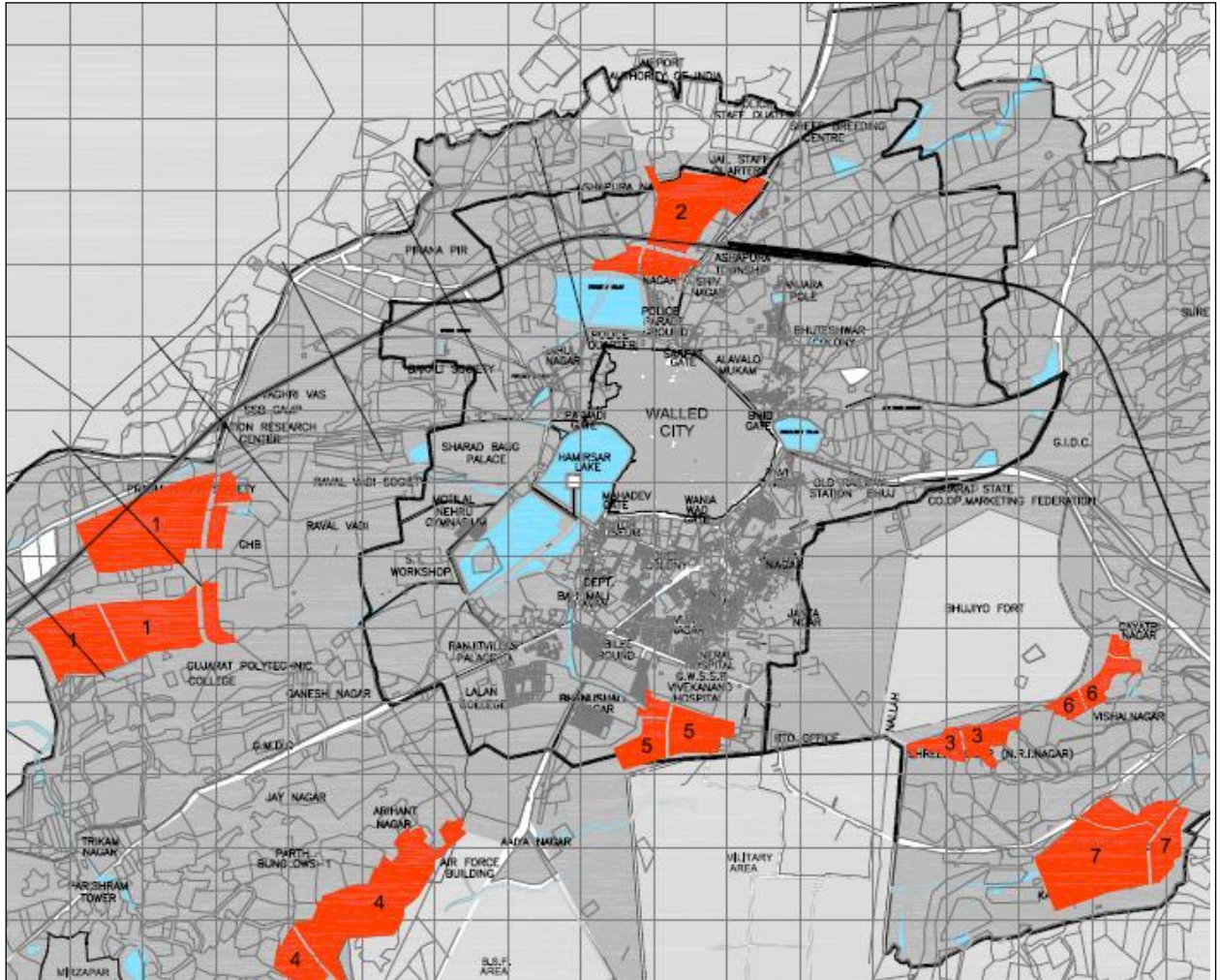
Map 8: Proposed Relocation Sites for Bhuj (Source: BHADA, 2001a).

Table 3: Proposed Relocation Sites for Bhuj (Source: BHADA, 2001a).

	Location	Approximate area (m^2)	Approximate no. of plots that can be accommodated
1	Near Rawalwadi and Kailash Nagar	977,164	3,909
2	South of Bhujio behind the RTO	122,158	489
3	Off the Mundra Road, behind the BSF camp	306,009	1,224
4	South of GEB	143,024	572
5	Between police quarters and jail quarters	321,741	1,287
6	South of Bhujio near NRI Nagar	172,125	689
7	On the Bhuj-Madhapr Road near the military area	498,722	1,995

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From the initial list of seven sites, four were approved by the government, of which only three were developed by BHADA. The CEO of GSDMA explained why only three of the four sites were chosen for development:

The rest were not required, because the northern side has nothing. Northern side, there is not enough space. Western side there is the army cantonment. Eastern side has the airport and Air Force. The city can grow only towards the South. [In the list of four sites there was one in the North] But that [site identified in the North] was very small. It was just pure availability of land. Better and bigger chunks of land were available in the South. Where the army cantonment is present, they also have underground storage facilities . . . so in effect there is very little land available there.[174]

However, the planning consultant had a different story of what happened once the list of seven possible sites for relocation was submitted to the state government for approval:

…something went on in the government and what came out of the black box was that all seven were not possible, you start with these three. These sites were Mundra Road, Rawalwadi, and RTO. There was no site in the North [Site 2 on Map 8] which we were slightly concerned about as a lot of Muslims lived in the north. But that was partly a political decision and they said that the site available on the northern side, south of the airport, had a lot of encroachments, mostly scattered encroachments. If that was the problem

then they could have solved it. But they did not solve it. They said nothing could be done and so we backed out and gave it up. Which meant all the Muslims in the northern part of the city will get readjusted in the city itself. We accepted that and we moved ahead.[175]

The town planner of BHADA attributed Muslims' insecurity after the 2002 Godhra riots in Gujarat (where Muslims were targeted) and their religious practices as reasons why Muslims did not move to any of the three relocation sites, without giving a reason as to why the site on the northern side was not chosen. Yet he too agreed with the planning consultant that had there been a site closer to the walled city on the northern side, many of the Muslim families from the walled city might have relocated. Many had expressed a desire to relocate if the site were within half a kilometer, as they did not want to go any farther (their dependence on the walled city for their livelihood being a major factor). According to the consultant, if alternative locations had been developed, nearly 40% of Muslims would have moved out. This would have been a desirable scenario for the planner as it would have meant more plots available to resolve TPS-related issues. However, the request for an alternative site came from the Muslim community leaders towards the end of his stint at BHADA. Also, by that time the finances available for the development of relocation sites had been exhausted.[176]

Despite all the apprehension about the decision to drop the fourth site, all the

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[174] M. Sahu (personal communication, New Delhi, March 23, 2007).
[175] B. R. Balachandran (personal communication, Bangalore, March 14, 2007).
[176] P. V. C. Prasad (personal communication, Surat, January 5, 2008).

agencies accepted that the three relocation sites would be these: near the Road Transport Office (RTO), Mundra Road (a highway that connects Bhuj with the port town of Mundra in the south of Kachchh), and Rawalwadi.

Development of sites and plot allocation. Once the three relocation sites were finalized, the process of infrastructure development and demarcation of plots began. The sites would be developed based on the concept of township because the estimated population in each of the three sites was greater than 5,000. The total estimated population for the three sites was increased from the initial figure of 40% to 65 to 70% of the walled city population in order to accommodate future growth. The final layouts were prepared by the town planner of BHADA.

In the development of the sites, most of the road alignments were designed to require minimum excavation and filling of land. However, because of errors in surveying contours used in determining road alignments, in some places such as the Rawalwadi relocation site, infrastructure contractors had to cut through a huge hill where the cutting and filling alone cost 4 crores (approximately US $800,000). According to the planning consultant, a little more time and effort spent on that survey could have saved a huge amount of money.[177]

New roads, water lines, and sewers would be laid in all three sites with ADB

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[177] B. R. Balachandran (personal communication, Bangalore, March 14, 2007).

funds. As the infrastructure work progressed, simultaneously, the process of determining the beneficiaries, people who would get plots in the relocation sites, began, and this was followed by the actual allocation of plots.

Once the sites were declared by the government, those eligible for plots in the relocation sites were asked to choose from the three options. Most people opted for the site at RTO because of its higher development potential and proximity to the city.[178] RTO was referred to as gold, Mundra as silver, and Rawalwadi as bronze.[179]

When it came to the allocation of plots to eligible beneficiaries, EPC proposed public outreach in order to inform people of the availability of plots in the relocation sites and the possibility of people moving to them in groups, instead of as individual families. Despite the history of communal living in the walled city, the question of whether to encourage the movement of people in groups posed a serious dilemma to the planners. The executive director of EPC elaborated on this:

> When we were looking into this issue of communal living, the dilemma was like this: If I encourage people to move in groups, then they will move in close-knit communities, which means you are creating homogenous communities. These communities automatically draw a mental boundary around them. So you are encouraging separation of religious and caste-based community groups. If you mix them randomly, then you have a mix of culturally incompatible people living next to each other and creating potential

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[178] P. V. C. Prasad (personal communication, Surat, January 5, 2008).
[179] A. Thacker (personal communication, Bhuj, December 28, 2006).

conflicts in the future.[180]

EPC offered to help BHADA consolidate groups and then do the allocation of plots. They also volunteered to help design sets of plots for each group, so that the layout of neighborhoods of the Walled City could be retained or modified based on the requirements of the group. They suggested that BHADA hire an NGO to do this. Although EPC was asked to design a process that allowed for this, the layout EPC proposed was rejected by the government because of higher costs it entailed.[181] The planning consultant elaborated on why it was a missed opportunity:

> They [state government] didn't like the idea. There was a strong feeling that we [government or consultants appointed by the government] shouldn't get into all this. Sociologically, it was very obvious. You had the *falia*s inside [the walled city] and then you are creating something new [in the relocation sites] which is drastically different from what is inside. There was a possibility of people getting involved in determining what kind of community system they wanted to create. The opportunity was lost. Then we also thought if there is so much resistance to this, why the hell we as consultants should push for it so much.[182]

Cost was cited as the reason for not accepting the layout and the process proposed by EPC. The executive director of EPC continued to explain why it was not just a matter of the cost:

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[180] B. R. Balachandran (personal communication, Bangalore, March 14, 2007).
[181] Ibid.

They [the state government] looked at it [the proposed process and layout for group allocations in the relocation sites] and said it is too costly, we'll do it ourselves. They obviously didn't want to give us an additional contract. Second was that they wanted the allocation power within their control. The earliest official in charge of BHADA, the first CEO followed the process that was adopted in Gandhi Nagar [the state capital] for the allocation of plots which was random through draw of lots. We suggested groups . . . negotiation with groups. Finally what happened was something in between. There was some randomness to it, but also some accommodation of the people who came in groups.[183]

The land was allotted by the drawing of lots, with priority given to families that had to be relocated due to town planning and development regulations. Despite BHADA's indifference to group allocations, requests from many groups (defined by caste or religious sects) were accepted for group allocation of plots. The town planner of BHADA elaborated on the rationale for the change of attitude:

Swaminarayan community [followers of a powerful Hindu sect, most prevalent in Gujarat] got 200 plots, *Rajgor* community is there, they have got some 50 . . . *lohana* community is there . . . they have gotten some 100 to 200. We tried to give first preference to them, because our assumption was that if community comes then the sites would develop. We are not bothered [by] which community. We tried to relocate them in such a way that if land is there they get plots of their choice. Individuals, even if they decide to go [to the relocation site], he might construct [the house], he might not. But when groups move in it will attract more people to move in, too. In every relocation

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[182] Ibid.

[183] B. R. Balachandran (personal communication, Bangalore, March 14, 2007).

site you'll see that certain category of houses that are similar. They belong to the same group.[184]

Despite the "attractive" offer, many residents, including those who were allotted plots in the relocation sites, hesitated to move or construct houses. This was particularly true in the case of relocation sites located farther from the walled city. People were skeptical about the development potential of the relocation sites, and did not want to risk losing their high value property in the walled city for a plot in an area they hardly knew. Hence, many waited to see how the sites developed and if others were moving in.

The pace of development of the walled city was a major factor that influenced the move to the relocation sites. The longer it took for Town Planning Schemes to be implemented, the more people started to consider that moving to relocation sites was a better option. According to the planning consultant, larger plots, location on either the ring road or very close to it, and better chances of future development attracted those who understood what the development plan implied and the economic logic of roads. The new roads were predicted to bring businesses as well as houses outside the city, a planning logic expected to appeal to the mercantile ethos of the residents (Yagnik and Sheth, 2006).

In the case of commercial uses in the relocation sites, the layout plan made provision for commercial establishments in specific locations by designating areas for

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[184] P. V. C. Prasad (personal communication, Surat, January 5, 2008).

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shops. However, there was no specific package for allotting plots for commercial uses in the relocation sites. Although BHADA had set aside land for commercial uses in each site, it did not have the funds to construct the shops. At the same time, the option of auctioning the plots for sale was not considered. Efforts by particular progressive administrators to integrate the development of relocation sites with provision of employment options to low-income service providers were not approved by the state agencies. Suggestions to provide housing for those engaged in such unskilled labor (mostly household work) were also rejected by state government agencies.

Later on, under the initiative of the district collector, following a tendering process, a prominent real estate firm was given the contract to construct shops in all three sites. 250 shops were constructed in each of the three relocation sites, 50% of which would be government-owned and 50% were to be sold by the real estate firm at market rates. These shops were not just meant to service the relocation sites, but to facilitate the decongestion of the walled city by providing alternatives for businesses to relocate. While this worked largely in the case of shops constructed in the RTO site, primarily owing to its proximity to the city center and also its location on a main highway, shops in other relocation sites remained mostly unoccupied even many years after their construction.

Construction of houses. The relocation sites were announced simultaneously, but development of the sites took two to three years. While the allocation of plots by

BHADA began in 2002, the construction of houses took place from 2004 to 2005.[185] In RTO, where beneficiaries were primarily owners from the walled city, housing construction progressed faster. In Mundra relocation site, construction of houses would gain momentum when the religious organization, *Bochasanvasi Akshar Purushottam Swaminarayan Sanstha* (BAPS), an NGO within the Swaminarayan sect of Hinduism, decided to build houses for its followers.[186] Rawalwadi, the farthest from the city center, had the least number of houses. When plots were allotted,, many people were financially incapable of constructing houses.

The government built a temporary relocation site near the Gujarat Industrial Development Corporation (GIDC), known as the *hungami awas*, which continued to house families that did not have the resources to purchase plots or construct houses. In 2003, *awas* had nearly 1,500 families from various communities, mostly economically weaker tenants. The site also housed a number of new immigrants from various slums and nearby villages, plus some communal riot victims from other parts of Gujarat (Theckethil, 2004). They lived in harsh conditions awaiting assistance from the government or NGOs to re-establish their homes and lives. Most low-income tenants did not receive any financial assistance except for their joint check issued by the Chief Minister in the names of the owner and tenant. Many tenants who could not get the owner to reconstruct the house and allow them to continue as a tenant were largely

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[185] P. V. C. Prasad (personal communication, Surat, January 5, 2008).
[186] For accounts of the origin and evolution of the Swaminarayan sect and its class base, see Williams, 2001; Hardiman, 1988.

unsuccessful in finding other housing options.[187] Therefore, they continued to live in the temporary relocation site in the shelters constructed by community organizations and other NGOs.

Owing to the efforts of the district collector, several NGOs, such as Gems and Jewelers, CARITAS, Rotary, and *Kutch Yuvak Sangh* (Kutch youth group), agreed to construct houses at the relocation sites, mostly for tenants and low-income owners, especially in Rawalwadi.

The details of housing construction, completely or partially funded by NGOs, in all three relocation sites and the temporary relocation site (unofficial fourth relocation site) are as follows:

Table 4: Houses constructed by NGOs in relocation sites (Source: compiled with data from BHADA, 2008)

	Donor Name	Type of house	Plot Size	No. of Houses	Funding Scheme	Beneficiary
Rawalwadi	Rotary Rebuild Trust	1 R-K	100 m²	157	Construction cost borne by NGO	Low-income tenants
	CARITAS	1 R-K	100 m²	200	Construction cost borne by NGO	Low-income tenants
	Gems & Jewelry	2 R-K	100 -150 m²	372	Construction cost 50-50 by NGO & beneficiary	Tenants, owners

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[187] For the owners of rental buildings that collapsed, the earthquake was a windfall. The tenants were evicted by default. Many owners did not accept housing assistance, because if they accepted it they would have had to accommodate their tenants in newly constructed building. And they were better off by not doing this.

	Kachchh Yuvak Sangh	250 Sq.ft built-up area	100 m^2	85	Construction cost Rs. 90,000 by NGO	Tenants, owners
R.T.O	BAPS	2 R-K	100 n^2	45	Rs. 75000 to BAPS by beneficiary	Tenants, owners who are followers of BAPS
Mundra Road	BAPS	2 R-K	100 m^2	290	Rs. 75000 to BAPS by beneficiary	Tenants, owners who are followers of BAPS
GIDC	KNNA	1R-K	65 m^2	280	Construction cost borne by NGO	Tenants, owners, informal settlers displaced by Development Plan
	Hindu Samaj Britain	1R-K	65 m^2	92	Construction cost borne by NGO	Tenants, owners, informal settlers displaced by Development Plan

By end of 2006, all the TP Schemes were finalized by the Urban Development Department. GUDC, the agency responsible supervising infrastructure work, closed its office in Bhuj. In 2008, all relocation sites were incorporated into the Municipality of Bhuj, and responsibility of provision of services and maintenance of infrastructure was officially transferred to the municipality.

Table 5: Progress of reconstruction in the relocation sites (Source: BHADA, 2008)

	R.T.O	Rawalwadi	Mundra Road	G.I.D.C	TOTAL
No. of plots created	705	1739	1259	755	4458
No. of plots allotted by BHADA	697	1718	1216	755	4386
Building permissions granted	673	1500	991	372	3536
No. of houses constructed	668	1485	983	372	3508

GERRP provided the overall policy and institutional framework for the post-earthquake town planning processes in Bhuj. Despite GERRP's multi-sectoral approach to earthquake rehabilitation, its focus in Bhuj was on physical restructuring of the city and construction of a road network (along with sewer and water lines). Housing and infrastructure development (primarily the road network) received the attention of the implementing agencies while ambitious efforts of the consultants to incorporate vulnerability reduction of 'natural' environment, heritage conservation, needs of slum dwellers, etc. would remain largely on paper.

The processes of physical restructuring also reflected the political nature of decision-making associated with town planning with regard to relocation or in-situ reconstruction, selection of relocation sites, their allocation, etc. We also find in Bhuj hesitation of state actors to engage with the social realities of the earthquake-affected population, whether in the rejection of a relocation site in the northern part of the city or in a mixed response toward facilitation of communal living in relocation sites.

Poorly maintained land records and outdated property ownership records along with inaccurate damage assessment, which served as the basis for the plan preparation, would severely challenge the application of rational planning mechanisms for earthquake rehabilitation. Yet, the urgency to rebuild faster, along with deadlines mandated by the Town Planning Act and the overall program, did not allow for rectifying such "mistakes." It would take extra-legal problem solving to bring down the number of applications filed against town planning.

It required initiatives of particular administrators at BHADA— the district collector (by inviting NGOs to build houses in the relocation site of Rawalwadi, and expediting service provision at the site to attract people to move there) and the town planner—to resolve problems created by town planning and hasten the pace of housing construction. Allocation of plots in the relocation sites at subsidized rates, in exchange for plots in the walled city, served as the greatest "bargaining chip" held by the administrators.

Having given an overview of the town planning processes in Bhuj, specifically the preparation and implementation of Development Plan and Town Planning Schemes, the next chapter explores the dynamics of decision-making pertaining to post-disaster planning and implementation in urban areas such as Bhuj. It asks if disasters offer a window of opportunity to implement rational planning measures, and it then examines the strategies adopted by various state actors in implementing a

program. Negotiations between stakeholders, including those within the state, are analyzed to get a nuanced understanding of the workings of the state as well as the challenges and opportunities of undertaking urban planning in a post-disaster context.

CHAPTER 5

POLITICAL PROCESS OF URBAN PLANNING IN BHUJ

Does the technical and legal nature of town planning mechanisms, such as development plans and town planning schemes, offer the planners and administrators in charge of their implementation immunity from political processes at play? Do disasters offer a "window of opportunity" to undertake otherwise hard-to-implement projects?

The following quote from the planner of GUDC suggests that disasters do not automatically lead to adoption of innovative ideas by governments or non-governmental actors; and in the case of Bhuj, it was the lack of awareness of the difficulties involved in the application of town planning mechanisms in a disaster-affected town that made formal adoption by the Urban Development Department possible:

> Luckily I feel we were not aware of the sector [urban]. So we got into it and we did not know or did not have the experience. Had we gotten the same experience which the other departments already had, we probably would have had our own resistance, knowing that the sector is complicated. We did not know that. So we jumped into it. We did not know the consequences. Slowly we realized the consequences.[188]

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[188] A. Dhar (personal communication, Ahmedabad, February 8, 2008).

Planner of GUDC, the nodal agency responsible for the infrastructure development under GERRP, disagreed that the disaster context made the process easier: ". . . government honestly will be interested for three, four, five months. Beyond six months, you have 1,000 other work to do . . . and at the highest level you cannot monitor everything very closely . . . so yes, initially for sure . . . but after sometime, the interest dilutes."[189]

Bureaucratic procedures involved in processes were time-consuming, so that even when measures were adopted in principle, it took time to produce visible results. In the case of projects as extensive as GERRP, where several institutional actors were involved, nothing happened on the ground for the first six to seven months. Hiring a contractor to implement the infrastructure project or a planning consultant to initiate preparation of the development plans took several months. Yet there was a lot of pressure to hire a contractor and for work to be seen on the ground. In the case of GERRP, since almost a year was spent in planning, questions were raised about what the government was doing, whether progress was being made, whether anything was actually being accomplished. Human suffering associated with the earthquake put a lot of pressure on state agencies responsible for the implementation of proposed interventions to produce fast results.

In general, after disasters, there is initial impetus to adopt innovative solutions, but fear of failure often impedes adoption of atypical measures or ones without

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[189] Ibid.

precedents. Disasters do not always lower resistance to change, especially among state actors who are usually in charge of disaster response and long-term rehabilitation. Many people in the Town Planning Department of Government of Gujarat were opposed to the adoption of Development Plans and Town Planning Schemes in the urban areas for earthquake rehabilitation. They considered the longer duration taken for the implementation of these as a threat to the project.[190]

Any radical change meant more responsibility and a lot more risk. A higher price would be paid for "failing" because of the humanitarian as well as the political implications of the task, as elaborated by the GUDC Planner:

In government, failing means charge sheeting. There is nothing like failing. If you have not done it on time, within the time, you'll be charge sheeted and hanged. So it's more risky if you are actually moving on an innovative path. Innovation, people in the government are always scared of, and innovation can happen only when someone at the highest level is driving it; and unfortunately people at the highest level always keep moving [getting transferred to other departments or ministries (with or without a promotion)].[191]

The urban context of the disaster also made many government offices take a back seat. Line departments, such as Roads & Buildings and the Civil Supplies Board, were asked to implement GERRP in urban areas. However, these departments were largely unwilling to do what they were asked because they considered their mandate to be

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[190] Ibid.

broader than the urban sector. Many within the government were hesitant to get involved. They considered the urban sector to be complicated owing to high land prices and its already well-developed state, which would render physical restructuring complex and highly contentious.

Despite the reluctance of other departments to take up GERRP, the Urban Development Department (UDD) spearheaded the urban component of the program. Humanitarian implications of a program that would reduce physical vulnerability of urban areas of Kachchh to future disasters as well as the opportunity to upgrade its infrastructure encouraged the UDD to get involved. This decision was also influenced by a lack of awareness of the complexities of such an exercise—especially in a post-disaster context where swift recovery is the highest priority.

Challenges to the Implementation of Plans

After the earthquake, there was great pressure to release funds to the disaster-affected, rebuild houses, and create new infrastructure as quickly as possible, as indicated by the following quote:

> "There is a serious pressure. It is a very palpable pressure to do things fast, to finish buildings, to finish roads, to act as fast as possible, and the media also contributes to that. Everybody is party to creating that pressure. People think that cities are being viewed by the foreign media, there are all kinds of hidden

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[191] Ibid.

issues here and there and unresolved problems, may be local governments have not been that efficient. You want everything to be cleaned up and finished in a year. And this was the responsibility at which their [bureaucrats and technocrats] political masters were after.[192]

Working under pressure. Pressure to act swiftly also came from donors such as the World Bank and the Asian Development Bank, which were financing housing reconstruction and urban infrastructure, respectively, in the form of their demands to release financial assistance to the disaster-affected households and infrastructure contractors as quickly as possible even when the plans were not ready or had not been communicated to the public. The authorities at the state level also pressed for a more rapid disbursement of funds.[193] This led to the release of housing assistance to the earthquake-affected even before people took possession of land to construct houses, space was cleared, and the policies regarding reconstruction were clearly understood.

TPS plans were not finalized, and therefore people did not know by how much existing roads would be widened, where new streets would be built, and how much land would be deducted from their plots. It was very confusing for the people of Bhuj.[194] People often ended up building where they were not supposed to, undermining the fundamental idea on which the rehabilitation was centered: reconstruction based on improved standards of earthquake resistance and according to

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[192] N. Tewari (personal communication, New Delhi, March 22, 2007).

urban planning principles.

With regard to the larger policy framework, there were pressures about whether to rebuild and whether to relocate. These were handled at various levels by various people. But once the policy was made public in April 2001, what mattered was how well it was executed. The fast and early formulation of policies helped minimize further manipulations. The chances of manipulation could have been greater had the deliberations on policies been prolonged.[195]

Questions were also raised about the duration of the program. The multilateral donors saw it as a three-year repair and rehabilitation program. However, such a short duration would have been inadequate to undertake planned rehabilitation that reduced future vulnerabilities to disasters. GUDC Planner elaborated on why it was unrealistic to implement GERRP as a three-year program:

> If you are defining a program which is of three years, under the ADB contract, it would mean that we need to do a DTR [Detailed Technical Report], detailed engineering survey, etc. which itself would take up to one year . . . you do detailing, you do surveying . . . it will take one year and then you float a contract which will take at least two months and then approval and all . . . so by the time the contractor is in place, it is almost 1.5 to 2 years. For doing a project of this kind, may be putting a cap of three years would

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[193] Kesubhai Patel, then Chief Minister of Gujarat, would call up local administrators to ask why money had not been released and give strict instructions to do so before *Diwali* (the important Hindu festival). Source: Ibid.

[194] N. Tewari (personal communication, New Delhi, March 22, 2007).

[195] Ibid.

have meant they would already be putting pressure on closing [finishing the project] . . . so if people were approaching us with issues, [and if more time was spent to resolve them] the project will not be seen as something very effective, because a three-year program went to six years. They see that the process has been delayed.[196]

While deciding to go for a long-term program, the state actors (including government agencies and departments, and consultants) imposed very strict timelines on themselves. In the words of the GUDC Planner: "It was like challenging yourselves . . . and we know that it's not realistic . . . but still we challenged ourselves and decided 'let us do it'.[197]

Working with multiple agencies. Disasters, in general, tend to draw a large number of governmental and non-governmental actors with the mandate or desire to undertake activities ranging from immediate response and relief distribution to reconstruction and long-term recovery. Therefore, one of the key challenges in a post-disaster situation is to establish mechanisms for coordination among the various actors for effective response and recovery.

During the initial days of rehabilitation in Bhuj coordination at the district level was of three types: 1) among different agencies working in the district 2) with external agencies other than government agencies and 3) with state and central governments. During the relief phase, the key priorities were getting regular reports from different

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[196] A. Dhar (personal communication, Ahmedabad, February 8, 2008).

parts of the district, channeling assistance to areas that needed the most help (to ensure that assistance did not get concentrated in a particular location but got evenly distributed throughout the district), and finding out the problems faced by people in remote localities and trying to immediately address those. Daily meetings were organized with government departments and agencies such as Health and Family Welfare, Roads and Buildings, Public Distribution System (PDS), Gujarat Electricity Board, Gujarat Water Supply and Sewerage Board and Transportation. Regular interactions were also maintained between the district administration, and the state government, central government, multilaterals such as the World Bank and ADB, UN agencies, etc. Information regarding the progress of response and relief distribution was also disseminated through the media.[198]

For long-term rehabilitation of earthquake-affected areas, coordination mechanisms (formal and informal) were established between the actors involved in GERRP. In Bhuj, BHADA operated under the directives of the Urban Development Department and GSDMA. On matters related to infrastructure development, including repairs and reconstruction, it worked with GUDC. GUDC facilitated coordination among various departments, agencies, contractors engaged in infrastructure development, ADB (which funded urban infrastructure), and GSDMA (which acted as the clearing agency for funds).[199] Coordination among these agencies also took place

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[197] Ibid.
[198] Beginning February 2001, the district administration held daily meetings with the media.
[199] A. Dhar (personal communication, Ahmedabad, February 8, 2008).

through meetings of BHADA's governing body.[200]

Micropolitics of coordination. The context of disaster rehabilitation with its broad humanitarian objective of vulnerability reduction allowed for openness as well as flexibility in communication among various agencies. Because it was an emergency, "doors were more open and officials bothered less about protocols."[201] However, the rules of engagement were not always the same. Channels of communication among various agencies and actors were often created out of necessity. Interactions were unavoidable when implementing agencies needed clearance from other agencies or departments as part of the statutory or bureaucratic process associated with GERRP. Despite the state government's implicit endorsement of the superior quality of work done by GUDC and the consultants, "processes needed to be followed." Plans not only had to be accepted by the ADA as per the Town Planning Act, they also had to be sent by the ADA to the district collector to be forwarded to the state government for final approval.

Proximity to power or power by virtue of association (with the decision-makers at the highest levels of state government—whether politicians or bureaucrats) not only allowed specific agencies to dictate the rules, but also make sure that the desired

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[200] The governing body included Secretary of Urban Development Department, Managing Director of GUDC, Senior Town Planner of Rajkot, Chief Town Planner of Gandhi Nagar, District Collector, District Development Officer, and CEO of BHADA. This body had 21 meetings till February 2008. Though in the initial stages of GERRP implementation meetings were held frequently, in the later stages such meetings were held to discuss specific issues, as and when they arose. Source: C. Bhatt (personal communication, Bhuj, February 6, 2008).
[201] N. Tewari (personal communication, New Delhi, March 22, 2007).

outcomes were achieved. This power allowed agencies like GUDC to elicit cooperation from officials of other departments and agencies that were fearful of being "shunted out (or transferred)" if they did not cooperate.[202]

At the local level, the newly created BHADA wielded power over local agencies and departments engaged in urban planning and infrastructure development and elicited their cooperation, primarily owing to the urgency of the project at hand. In the case of town planning, BHADA interacted mainly with the Land and Revenue Department, City Survey, and District Inspector of Land Records (DILR).[203] Because of its role as the nodal agency at the local level (mandated by the Town Planning Act) and in charge of the implementation of various plans, BHADA required line departments to consult with it on all aspects of implementation. This newly conferred power was a consequence of the particular circumstance of post-disaster planning where there was greater pressure to produce fast results. It was also the result of the complex nature of implementation in Bhuj that emerged from the state of land and ownership records.

Local administrators had to make decisions at a very fast pace, sometimes without consulting their higher-ups and sometimes diverging from decisions made earlier. Such actions were unavoidable due to the time constraint. Whenever there were changes from what had been decided by higher-level bureaucrats or politicians in Gandhi Nagar, the community liaison person of the Collectorate, who was appointed

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[202] A. Dhar (personal communication, Ahmedabad, February 8, 2008).

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to be the GSDMA camp officer, assisted the CEO of BHADA in communicating the ground situations with GSDMA and other state agencies.[204]

In Bhuj, GSDMA had its own independent mechanism to monitor the activities of the local authorities. Bhuj was an important place for the administration. A GSDMA camp office was set up in Bhuj for the state authorities to be informed of the happenings in the field. Inputs were regularly sought from NGOs as well as local communities. These were then communicated to the office in Gandhi Nagar. This mechanism proved to be helpful in fine-tuning earthquake rehabilitation policies based on ground realities.[205]

When urban rehabilitation plans needed to be changed for "practical" considerations, donors allowed the implementing agencies, such as GUDC, to make those decisions as long as they delivered the agreed results. The GUDC Planner used the analogy of an auditor to explain the extent of scrutiny done by donors with regards to details of plans:

> As far as ADB was concerned, they were more interested in the progress. They were not interested in the procedure part of it, the system part of it. To ensure that irregularities did not happen, contractors were appointed through the standard procedure . . . an auditor sees a few things in a report and he'll know whether the report is right or wrong . . . Same way ADB also reviewed three or four points at critical stages and I think they were very comfortable

[203] C. Bhatt (personal communication, Bhuj, February 6, 2008).
[204] B. Bhatt (personal communication, Gandhi Nagar, March 27, 2007).

with us . . . they supported us. Because, basically the end for both us and them was delivery. And we have delivered.[206]

For the delivery to be successful, it was crucial to have someone to drive the process in accordance with the plans and ensure its implementation. In other words, having the "right" officer was as important as the effectiveness of the plans themselves.

Having the "Right" Officer

Many attribute the success of Bhuj's rehabilitation process to having the right officer at every stage of the process. Officers were handpicked at the state level and appointed to key positions, such as District Collector of Kachchh, CEO of ADA, Town Planning Officer of BHADA, whether they desired it or not. The GUDC planner elucidated the politicking involved in one such handpicking process as follows:

Mr. Z [Town Planner of BHADA], he was fixed actually . . . it was not that he walked into Kachchh and said, "I'll bell the cat." All the positions, whether it was X, Y or Z, those decisions were taken in GUDC . . . they were identified in GUDC, and transfer orders were issued from GUDC. Mr. Z . . . when the first order came in, he went to the Minister as well as the Chief Minister and said that he didn't want to work here [in Bhuj] . . . he was in a lucrative position in another city. He said he didn't want to go. So the appointment file came back from the Minister. Minister asked, "Why Z and

[205] M. Sahu (personal communication, New Delhi, March 27, 2007).
[206] A. Dhar (personal communication, Ahmedabad, February 8, 2008).

why not someone else?" We altered his decision through the Principal Secretary of UDD. She went to the Minister and told him, "Nothing doing! Only Z and just Z." We told him that if he wanted to win the election, he would have to get that person.[207]

Among the key factors that made planned reconstruction of urban areas possible were the Principal Secretary of the Urban Development Department's familiarity with the urban context and difficulties in addressing urban issues due to lack of funds, her long stint in the department, and her openness to do something more than repair and rehabilitation. Her powerful position and the visibility that the reconstruction program offered the government allowed her to influence the state government's decisions on implementation of GERRP, including selection of the "right" officers.

Despite the formulation of policies, implementation is strongly affected by changes in the governance context. With the passage of time, some officers are transferred and the focus of the government shifts to other areas. At the state level, especially with respect to the Urban Development Department, which oversaw the entire town planning and infrastructure development, having the "right" officer meant someone to drive the entire process, someone who understood the complexities of urban planning and governance mechanisms.[208] Knowledge of urban issues and continuity in officers were critical for successful implementation of the plans.

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[207] Ibid.
[208] Principal Secretary of the Urban Development Department, Government of Gujarat had been in that position from 1997-2000.

What did it mean to be the "right" officer in the context of earthquake rehabilitation of Bhuj? Implementing the plans required assertive officers who could drive the process at the local level, be pragmatic enough to solve "the mess," be tactful enough to handle adversaries who might sabotage the process of implementation, and yet be sensitive enough not to estrange the public. The "handpicked" officers not only had to be able to handle the enormous work involved in disaster rehabilitation, but also be honest and not interested in earning a name for themselves.[209] The level of commitment required was enormous. It called for several personal sacrifices, including staying away from family and dear ones for a very long duration and working long hours.[210]

During the initial days of the implementation of GERRP's urban component at the local level, the District Collector, the highest-level administrator at the district level, did not have a significant role to play. The processes were entirely controlled by the UDD. On the ground, there was absolute lack of clarity as to who was doing what, along with a total lack of ownership of the process by all the implementers. The GSDMA camp officer who worked closely with the District Collector before assuming the role of the camp officer elaborated on the situation as follows:

Nobody really owned it [the process]. ADB took 10 months to setup their

[209] N. Tewari (personal communication, New Delhi, March 22, 2007), P. V. C. Prasad (personal communication, Surat, January 5, 2008), and P. Sharma (personal communication, Rajkot, January 10, 2008).
[210] Public disasters like floods, earthquakes, epidemics, and droughts almost elicit high dedication and outstanding work from civil servants—more "noble" than their everyday work—new albeit temporary

office there. It is the usual government procedure. They worked under the Urban Development Department. The planners had no business facing the community and the District Collector had no role to play. District Collector did not control the Urban Development Company [GUDC] which was doing major infrastructure development work. He was considered just one of the actors . . . not really in charge of anything.[211]

Yet these local administrators, especially the District Collector who was also the Chairman of BHADA, were in charge of implementing the plans and policies. The real breakthrough came in 2002 with the appointment of the new district collector. Though he was in that position just for a year, the new Collector brought an urban focus. First and foremost, he asked the Infrastructure Design Consultants to make a presentation to the media and to the Collector himself because they had not even done that. The Collector's office also pressured the consultants to bring the information on town planning to the public since people in the city were completely clueless. Although the housing assistance package offered a maximum of 1.5 lakhs (Rs. 150,000), most people did not understand the different stages of its disbursement or the eligibility criteria for each tranche.

GUDC still continued to enjoy a near-autonomous role with respect to urban infrastructure development and the district collector was involved minimally. In 2004, the District Collector influenced the Government of Gujarat to make him the Joint-Managing Director of GUDC. This allowed him to have greater say in decisions

power and dignity. Part of the high performance during times of emergency emerges from something more akin to a burst of adrenaline than to sustained capacity for good work (Tendler, 1997).

related to infrastructure development, including expediting the development of the relocation sites in conjunction with the town planning processes. While district collectors by virtue of their power dominated the local decision-making process, they adopted various methods to incorporate local concerns, sometimes explicitly, while other times in consultation with specific local actors.[212]

Risks were taken collectively, especially when it was expected to solve the problems created by town planning. This, along with the sense of sympathy towards the earthquake-affected, helped the local administrators transgress the boundaries of legality (with the tacit approval of the state machinery) when it came to implementation of plans. They were told: "Whatever you want you do it, we want solutions, we don't want problems."[213]

The humanitarian implications of GERRP drew many officers to Bhuj, even those who did not agree with the specifics of the intervention. The first CEO of BHADA explained why, despite his dissatisfaction with the implementation of TPSs to reconfigure Bhuj, he agreed to work there:

When I came to Bhuj, 95% of the plans had already been prepared. My relationship [with the state government and the consultants] was neither good nor bad. I had decided not to interfere in their process. *Jo bhi sahi, galat*

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[211] N. Tewari (personal communication, New Delhi, March 22, 2007).
[212] Housing assistance package for tenants was crafted as a result of discussions in the NGO coordination meetings; allocation of plots for low income tenants and informal settlers in GIDC was arrived at in discussion with local community leaders.
[213] P. V. C. Prasad (personal communication, Surat, January 5, 2008).

karna hain, karo. [Whatever right or wrong, do it.] I worried only about the people of Bhuj. I was supposed to carry out [implement] only . . . two things were important . . . first I have to do it as quickly as possible...second, whatever was assigned to me should be done. This was the most important thing; whatever I was doing should be for the good of the people of Bhuj. It was a very difficult task because around 13,000 to14,000 properties were lost. Debris was not entirely cleared. If I had started opposing then, I would have been thrown out in the very beginning. So I thought let them do their work, I tried to fix the mistakes later.[214]

The officers often pushed their limits of power, sometimes making powerful enemies in the process. As long as they stayed within the larger framework of the program and made sure "things happened" they were given leeway. But their powers did not go unchecked. Their appointers possessed a powerful tool to make sure that they did not stray too much: the power to transfer officials.

While being considerate of the needs of the public, many officials found it important to maintain distance from the people, including influential groups or individuals at the local level. This distance, along with powers delegated by the state government and the trust of the people, were considered important by these officials in being able to perform their roles effectively.[215]

If the implementers were carefully chosen and controlled, the "file pushers" were equally crucial to the project (Weber, 1947). Files related to town planning and

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[214] B. Bhatt (personal communication, Gandhi Nagar, March 27, 2007).

infrastructure development projects were very closely followed up by GUDC. Rather than leaving it to the system to get clearance, they used their influence or power by association to expedite the approval processes. The humanitarian cause attached to the decisions often lowered the resistance from approvers.

Protecting the Project from Local Politics

Proponents of decentralized governance claim that greater proximity of local government makes it more vulnerable to citizen pressure and makes it easier for citizens to become more informed and hence more demanding of good service (Tendler, 1997, p. 144-45). But what if the local government itself was considered responsible for the problem at hand, here the earthquake-related damages to the houses, infrastructure, and the people from uncontrolled physical development that led to a city highly vulnerable to earthquakes? The state government preferred to have complete control of the earthquake rehabilitation program in order to reduce the power of patronage by people in the municipality. BHADA, the newly created body, was given the responsibility to grant building permits. When the area outside the municipal boundaries (within the jurisdiction of BHADA) got urbanized, requiring extension of services and their maintenance, the municipal limits would be extended to include it within the Municipality. When this happened, BHADA was to be dissolved and the responsibilities handed over to the Municipality.[216]

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[215] P. V. C. Prasad (personal communication, Surat, January 5, 2008).

The GUDC Planner elaborated on why it was important to keep municipal officials out of the process of earthquake rehabilitation:

Typically municipalities are responsible for decisions pertaining to identification of how much of area is to be taken for water supply, which road is to be taken first, etc. . . . that councilor [elected representative from each municipal ward] will say my area is very poor, somebody will say this area . . . somebody will say that area . . . so that area will never get finalized. Or even if it gets defined, it gets defined confined to interest groups. Then there are lots of conflicts as well. So in those conflicts, if even one person doesn't agree with the other four, the project does not get identified. That is one. Second is . . . they [the governing body of the municipality] have all the local contractors . . . Influential people, all contractors and builders or those associated with the contractors. . . . Public interest gets defeated in the process. Though it is good to give autonomy, if the intentions are not right, whatever happens, it will all go to waste.[217]

Many state agencies adopted obscurantism as a strategy to ensure that local politicians and other interest groups did not interfere with or influence the urban infrastructure development and town planning processes.

This is what was told to us as a joke, informally . . . don't project yourself high, keep a very low profile as if you are not doing anything . . . so we always kept a very low profile . . . we never got intoxicated by power. . . so in the process we never became a target, never got into a cross-fire. So nobody identified me till the entire thing [allocation of projects to contractors] was

[216] S. Sawaliya (personal communication, Bhuj, December 28, 2006).
[217] A. Dhar (personal communication, Ahmedabad, February 8, 2008).

over, four years.[218]

Agencies safeguarded information about the people responsible for approving projects and determining areas for infrastructure development in order to minimize political influence over the appointment of contractors. The roles and responsibilities of agencies such as GUDC and GSDMA were unclear to most people. By the time various individuals figured out the details, 90% of the contractors were identified and contracts issued.

Despite all these attempts to keep politics out of the equation, local actors wielded influence in ways that undermined public-minded goals of equity and efficiency. Though the same political party was in power at the local and state levels, factional politics within the party at the local level created problems for the administrative machinery in charge of town planning.

One of the members of the State Legislative Assembly declared in a meeting in the walled city that town planning was not going to happen and that people could start reconstructing their houses. Although they lacked substantive power or the resources to prevent town planning later on, such actions affected implementation of policy decisions by encouraging public behaviors of inaction and non-participation. Many residents started rebuilding homes, often without adhering to the new regulations. Some of these homes were later removed to make room for new roads. It required a

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[218] Ibid.

strong intervention from the District Collector himself to check such misleading announcements from the local politicians in the future. However, when town planning process was initiated, other aspects of local politics entered the picture.

Many local politicians were real estate developers or owned real estate agencies. As elected members of the municipality, they had access to government records regarding areas where development was likely to take place. That allowed many of them to buy land near these areas at a cheaper rate and reap the benefits later. This often happened in collusion with corrupt government officers who could make easy money from such land deals.[219]

Planning consultants found themselves in the midst of the very politics of land that they thought their technical process was protected from. Various tactics were used to stop or stall the planning process, especially if a particular plot was going to be affected by a new road or if a building was about to be cut, entailing huge losses to the owner. In one such instance, individuals got together and attempted to sabotage the first public meeting organized by EPC, as explained by the executive director:

I had just started my presentation. They stormed in with some 10 other people, grabbed the microphone from me and said, "These guys are all bogus. There is a lot of politics behind all this. They are showing all these just to fool you, the decisions have already been made. All of you should get up and walk out," and they all got up. The entire audience stood up. I didn't know

[219] N. Upadhyay (personal communication, Bhuj, February 4, 2008).

what to do. Fortunately some other fellow from the audience took the microphone back and said, "What's wrong in listening? If we don't like it there are other methods to fight." People sat down and I finished the presentation. [220]

There were several layers to these political protests. Depending on the situation, people with specific interests got together and attempted to influence the process to their personal advantage, though on the surface many such acts were camouflaged as other issues, including communal ones. Most times it boiled down to politics of land.[221]

At the local level, there were two camps within the right-wing party, the BJP. One camp was always suspicious that town planning favored the other camp, although no interest in the planning process was shown. However, once the Development Plan was published and changes were made, there were demands to make specific changes. Such pressures were dealt with by the Town Planner of BHADA with assistance from the planning consultant, as explained below:

> … to his credit, he [Town Planner of BHADA] was as fair as possible. What he did was he came to EPC, he used the projector. We covered the wall of the conference hall with white paper and projected the plan onto it. We projected the AutoCAD plan. Then he would stand on one side and I would stand on the other, and we would discuss the alignments and solve issues . . . "if we do it like this we can take more government land." We took those decisions and

[220] B. R. Balachandran (personal communication, Bangalore, March 14, 2007).
[221] Ibid.

those decisions got implemented as we discussed. The AutoCAD fellow made changes to the maps. Then we went through several rounds. He said, "Don't ask me why but this has to be done like this." I said okay. At that time there was a limit to the number of battles one could pick up.[222]

The EPC Director recounted how changes were made to the road alignment outside the walled city to favor particular individuals:

I cannot pinpoint any [changes], I just know it from back-door conversations. At least in the case of the Development Plan, we were out by then. That's when all these changes happened. To justify those changes they often blamed the mapping exercise we did as part of the DP preparation. So the errors in the mapping served as a convenient excuse to hide behind. In some cases the mapping genuinely had issues: lots of little things like adding one road or removing one has happened without any basis because somebody was getting affected and had sufficient influence to get that road removed from the plan. Those were variations and there is a provision in the act that provides for variations.[223]

Despite their efforts to have a clean process, the donors found themselves caught up in the politics. The GSDMA Camp Officer gave an account of one such instance in Bhuj:

The World Bank didn't have much to do with the urban areas. They helped the housing compensation. Now, ADB had a serious problem. What had happened was that, a lot of people on the Hospital Road had written to ADB

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[222]B. R. Balachandran (personal communication, Bangalore, March 14, 2007).

Manila, so it was a problem for their local office. It was a problem in the
sense that, in today's world anybody can write to anybody. These donors
overreact. So if there is a complaint about corruption in their local office and
if it reaches their head office, they go crazy, which is what happened and the
entire process was very messy, at least for donors. If you want everything to
be neat and clean, it is difficult. At least the town planning, it was very
messy, very hands-on and very messy. And there were actual corruption
cases also. I don't know what ADB could have done about it rather than
ignore it.[224]

Politically powerful local actors continued to influence every step of the planning
process. The extensive infrastructure development associated with town planning
offered huge incentives for people to influence the processes. Builders who wanted
plots to be allotted next to the new roads so that they could use it for commercial
purposes were willing to pay Rs. 5-10 lakhs to "get that done."[225] The GSDMA Camp
Officer narrated how these played out during the TPO phase:

It [political influence] was there in all these decisions about which plot to cut
and which not to cut. So there were these eight people, the eight TPOs to
finalize the TP Schemes. So if you are a serious landowner, you definitely
had access to them especially if you desired to influence them and some of
them must have been influenced.[226]

Dealing with communal politics. In 2002, while urban rehabilitation processes

[223] Ibid.
[224] N. Tewari (personal communication, New Delhi, March 22, 2007).
[225] B. Bhatt (personal communication, Gandhi Nagar, March 27, 2007).
[226] N. Tewari (personal communication, New Delhi, March 22, 2007).

were gathering momentum, Gujarat was engulfed in one of the worst communal riots in the history of India.[227] Bhuj and other parts of Kachchh were much more peaceful than most other settlements in Gujarat. Historically, there had been little conflict. However, as demolition of structures began for the implementation of the Development Plan and associated infrastructure works, communal feelings manifested. There were accusations from both sides. The Rashtriya Swayamsewak Sangh (RSS) accused planners of specifically targeting temples and avoiding mosques (*mazjid*), mausoleums (*dargah*), and graveyards (*kabristan*). The Muslims made accusations that planners were deliberately targeting their religious structures and graveyards.

The CEO of BHADA explained how it was unavoidable to demolish religious structures peppered all over the city:

> There were so many small temples everywhere and several of them were coming in the way of our roads. We avoided demolishing many, but when there are so many everywhere, we could not help removing some. Then the Hindu organizations came up saying, "You being a Hindu, how can you remove our temple?" Our road alignments have equally affected the *dargahs* [mausoleums] and *mazjids* [mosques]. We have demolished that also. At least 50 to 60 *dargahs* were removed.[228]

The executive director of EPC explained how they dealt with such allegations at

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[227] See Varadarajan (2002) for compilation of reports on the riots
[228] K. B. Thanki (personal communication, Bhuj, August 30, 2006).

the planning phase:

> We had to document and actually show both communities how many religious facilities were getting affected. We had to justify each and every case. It was a very touchy [sensitive] issue. We tried to avoid all religious structures as far as possible, but where we had to, we did it. But the point is that when the demolition started we sensed it that here were lobbies that cut across lines of religion. The whole communal politics was just a façade to other interests.[229]

BHADA encountered opposition from other communal groups as well. Certain caste groups, such as the *nagars* and *lohanas* who were legally sound and politically strong, vehemently protested the demolition of part of the gateway to their temple. One of the ring roads within the walled city required demolition of part of the temple gate. Despite the strong protests, under the initiative of the then CEO of BHADA, protesters were convinced of the significance of widening the road and the gate was rebuilt after setting aside room for road widening.[230]

Except for one altercation between the police and protestors, most of the demolitions happened calmly. The CEO of BHADA explained how this was dealt with by the administration:

> There was a little bit of issues here and there when we started [demolitions]. It is definitely the people of Bhuj . . . but it was also the boldness [of the

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[229] B. R. Balachandran (personal communication, Bangalore, March 14, 2007).
[230] B. Bhatt (personal communication, Gandhi Nagar, March 27, 2007).

district administrator]. We never tried to deviate from the decision to demolish. We called the people, and with their help removed it. And people have cooperated . . . they didn't do much protest. . . . Anywhere else if *dargahs* are removed, communal riots happen. But here so many were removed . . . we were also giving them alternatives. When we demolish a temple, we even asked donors to construct temples in the new location . . . in fact those structures are much better than the previous ones. So they used to accept it. . . . It's not by book that we have followed. Along with persuasion, we had to be practical.[231]

Dealing with various community groups was considered a very "sensitive" issue to be avoided by all means. The Chief Relief Coordinator explained why one should refrain from getting involved in such politics:

One should not get into social issues too much, because it leads into other issues like caste issues . . . So it's better that one deals with issues in a very professional way . . . the problems one has to address and the practicalities of implementation. People started to realize it and it was much easier to implement it too with the same quality of results. . . . In our discussions such references (about community groups with strong negative sentiments towards each other) were avoided. People also realized it and they never got into such discussions. Subconsciously everyone thinks about it, but in terms of expressing it, they were quite restrained from discussing it.[232]

However, despite the local administration's efforts not to explicitly encourage community-wise relocation, one of the consequences of town planning was a

[231] P. V. C. Prasad (personal communication, Surat, January 5, 2008).
[232] A. Mukim (personal communication, New Delhi, March 21, 2007).

reification of community as defined by caste (in the case of Hindus) and other subcategories (in the case of Muslims and Jains). The GSDMA Camp Officer elaborated on how that happened:

One thing that happened was that people stuck to their communities. When they relocated they relocated in groups, so some kind of a ghettoization as one might say took place. So in their *sheri*s [street/neighborhood], they were mixed, now there is only one caste living. So there was a caste as well as a religious angle to it. Muslims ended up relocating less and less as they were not happy with any of the relocation sites. They also wanted to stick together, really wanted to be together. Even the riots happened during that time. So it made them stick together even further.

But to the relocation sites, people moved in groups. Their lottery was done and the allotment software also allowed for that kind of group moves. It was through a lottery that it was decided which would be your plot. These people went in groups and they could decide among themselves who wanted to take which plot in that group. They were given settlements together. So that changed a lot. I am not making any judgments, but it changed the city.[233]

Strategies for Successful Implementation of Plans

Based on the narratives of various state actors engaged in the implementation of town planning processes in Bhuj, we find that disasters do not always make it easier to adopt urban restructuring projects even if they are meant to reduce vulnerability to

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[233] N. Tewari (personal communication, New Delhi, March 22, 2007).

future disasters.[234] Despite the initial political commitment and flow of funds, processes such as town planning in Bhuj require long-term financial and administrative support to make them work. The pressure to produce fast visible results after a disaster poses a significant challenge in preparing plans for rebuilding when those affected are trying to recover. Hence, decisions were often made in haste, and the problems associated with hasty decision-making "fixed" later. While the extent of damage caused by the earthquake and the objective of vulnerability reduction helped justify the adoption of planning mechanisms, their implementation often curtailed the processes of recovery of the intended beneficiaries.

In Bhuj, the context of disaster rehabilitation with its broad humanitarian objective of vulnerability reduction did allow for openness as well as flexibility in communication between various agencies, as channels of communication were often created out of necessity. Proximity to power or power by virtue of association not only allowed specific agencies to dictate the rules, but also make sure that the desired outcomes were achieved. Implementing the plans required assertive officers who could drive the process at the local level, pragmatic enough to solve "the mess," tactful enough to handle adversaries who might sabotage the process of implementation, yet sensitive enough not to estrange the public.

Individual problem-solving was an important aspect of the success of town

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[234] Once people have settled back into their lives, initiatives to improve the cityscape often slows down, just as attempts to prepare Tokyo for a major earthquake have not made much progress in spite of the devastation of the Great Hanshin-Awaji earthquake in Kobe (Hein, 2005).

planning in Bhuj as most of the problems were a creation of town planning itself, largely owing to outdated land and ownership records. The "handpicked" officers not only had to be able to handle the enormous work involved in disaster rehabilitation, but also had to be honest, not interested in making a name for themselves, quick in decision-making, sympathetic to earthquake victims yet be able to distance themselves from local politics, and not invite unnecessary public attention or get into conflicts. Many chose to keep a low profile or sometimes maintain anonymity.

It would require more than just persuasion of residents and a techno-managerial approach of disaster rebuilding to make town planning work in Bhuj. We find that politically powerful local actors continued to influence every step of the planning process, including allocation of plots. Despite efforts to keep local politics out of the program, in Bhuj we find that local land lobby and commercial interests exercised their influence from early on in the planning process. Various strategies, such as preparation of plans away from the public domain and obscurantism, were adopted by the state actors to "protect" the program from the influence of local politicians and other locally elected representatives, as well as to preserve the technical integrity of their projects.

Risks were taken collectively, especially when it was expected solve the problems created by town planning. This along with the sense of sympathy towards the earthquake-affected helped the local administrators transgress the boundaries of legality (with the tacit approval of the state machinery) when it came to

implementation of plans. The humanitarian implications of the work drew many officers even those who did not agree with the specifics of the intervention. The officers often pushed their limits of power, sometimes earning powerful enemies in the process.

Following Lipsky, policies were "made" by implementers of town planning who interacted directly with the "client" populations (Lipsky, 1980). In Bhuj, they expanded the general policies to address issues of differential access to resources and unfolding of multiple resiliencies. As far as they stayed within the larger framework of the program and made sure "things happened" they were given leeway. But their powers were checked by their appointers using the power to transfer officials.

In the next chapter, I examine how the post-earthquake town planning processes engaged with the people of Bhuj and allowed for a "participatory" process by eliciting public opinion on various aspects of recovery and rehabilitation as well as seeking their active involvement in decision-making pertaining to town planning. Beyond bureaucratic procedures mandated by the Town Planning Act, what forms did public participation assume in Bhuj? How did those influence the recovery of the earthquake-affected?

CHAPTER 6

PARTICIPATORY PLANNING IN BHUJ

In Bhuj, what forms of participation were considered legitimate and therefore permitted by the state? How did the specific context of post-earthquake urban planning for vulnerability reduction (where decisions were to be made faster than usual and those affected were in a hurry to rebuild) interact with the socioeconomic and political context of Bhuj and Kachchh in shaping the notion of participation, as well as the forms of it? In the following sections, I examine what participation entailed in the town planning processes in Bhuj, the factors that shaped it, and the forms it took.

Factors Shaping Forms of Public Participation

Implementers of the earthquake rehabilitation program in Bhuj considered the processes of urban planning to be one of the most participatory examples of post-disaster reconstruction. They portray town planning mechanisms of Development Plans and Town Planning Schemes as democratic processes intended to further the public good, i.e., planned development of the urban area to minimize losses from future earthquakes. Other than the public hearings legally mandated by the Town Planning Act, these techniques of physical restructuring typically offer very little room for deliberations or interactions between planner and property owners.

For the state actors engaged in town planning in Bhuj, public participation carried different meanings and posed different challenges. Consider the following quotes on public participation from three important actors in the preparation and implementation of post-earthquake town planning interventions:

Public consultation . . . yes, it should happen . . . it should happen in a positive way, it should be a continuous process . . . should not be consultants coming and going, making 20 public consultations . . . that will not work . . . let the consultant be there, put their spies around, let people barge into their offices . . . individually or in groups . . . let them [consultants] have a difficult time . . . let them [the public] say all kinds of things that they have to say, but that is how the public consultations should happen. But, public participation requires time . . . more time spent on decisions would also mean greater political interference.[235]

In my opinion, public participation is very important. When people are involved and they know what's happening, there would be greater cooperation. I don't think it is possible to have public participation in decision-making processes right after the disaster because if there are 1,000 people there will be 1,000 ideas/thoughts/opinions. Another possibility is to have a body of representatives who can take part in the decision-making.[236]

When town planning was happening, we [state actors] never imagined that there will be so many problems. We didn't do much [about communication]. It had to be done very quickly. So I never allowed a single person in the city to discuss it [details of town planning] with us. I used to tell the consultants

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[235] A. Dhar (personal communication, Ahmedabad, February 8, 2008).
[236] C. Bhatt (personal communication, Bhuj, February 6, 2008).

that if anybody knew about this TP [town planning], I will hold them responsible. If we start meeting people, time will be wasted. Everybody will try to protect their interests. So, you finalize it and then we'll ask the people, but not during the process.[237]

As the above quotes suggest, the purpose of public participation (to solve problems through interactions between plan makers and the people or to seek cooperation) and its form (communication, consultation or participation in decision making processes), were perceived differently by different actors. Another added, "one cannot wait for participation, you have to act in good faith and if people come along…good…"[238]

All four agreed on the need for participation in decision-making processes to varying degrees. It should be an ongoing process where there is opportunity for constant interactions between the planner and those for whom the plans are made. However, the duration and the timing were considered important parameters: "Too much time spent" on ensuring public participation as well as getting the public involved in the planning/plan preparation process were not considered wise, indicative of the tension between the need to make faster decisions and the time required for active public participation. These quotes also resonate with the concern raised by those who oppose public participation—that it complicates the process by delaying it, overemphasizing the interests of active publics, and usurping the role of elected officials (Pearce, 2003, p. 218). Hence, decision-makers often acted in "good faith."

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[237] P. V. C. Prasad (personal communication, Surat, January 5, 2008).

Pace, technical integrity, and sustainability of town planning. In the case of GERRP, the state government appointed planning consultants who gathered information and ideas from the people of Bhuj necessary for the preparation and implementation of plans. Their role was to understand the needs of those affected by the earthquake, and then "separate the emotional from the technical" to arrive at a proposal. Their onsite presence was deemed necessary to share information as well as to gain public acceptance of plans. The proposals consultants prepared had to be technically sound, had to fit in the overall context of the program (GERRP), and also cater to the government's interests. These requirements necessitated formal and informal interactions with residents, local leaders, and representatives of various stakeholder groups. However, as the opening quote of this chapter indicates, the plans were made public only after they were prepared and that, too, as per the mandatory requirements of the town planning act (or sometimes to circumvent the requirements of the act). People were largely kept in the dark regarding the intricacies and the timelines of the processes.

Even the communicative aspect of participation did not come into being until the District Collector asked for it as elaborated by the GSDMA camp officer who worked closely with the District Collector:

The entire urban planning brought in professionals who didn't really have

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[238] P. Sharma (personal communication, Rajkot, January 10, 2008).

any inclination to engage with the public or the community or even the district administration. They were planners and professionals who worked in their own way. They wanted to be protected from the entire political sphere. They spoke in a language that was not intelligible even to the District Collector. You are talking about plans and maps that are not conveying anything on their own, you have to explain them. So I remember even the District Collector used to say, "It's confusing" and the institutional framework was also very complex.[239]

In rural areas, the District Collector and the District Development Officer (DDO) were in charge of the process. The DDO was more familiar with the rural context. However, in the urban areas, because of the creation of the ADAs and the huge role played by GUDC in the infrastructure implementation, there was a complete lack of ownership at the district or town level.

In Bhuj, the processes of seeking public responses to the Plans as required by the Town Planning Act and reconciling the Plans with the ground realities (problems arising from inaccurate damage assessment, mapping or land and ownership records) took place simultaneously. The state government made the plans public at various stages of its development. However, the versions that were shared with the public did not incorporate earlier suggestions. This resulted in massive confusion and a sense of disenfranchisement arising from the feeling of "not being heard," discouraging many people from taking part in future meetings or discussions.

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[239] N. Tewari (personal communication, New Delhi, March 22, 2007).

The entire town planning exercise happened because of the earthquake, but as many residents pointed out, it was sometimes bigger than the earthquake. For most residents, town planning meant new roads, for which the planning authorities would deduct a small percentage of land from their plots. Once it was over they would rebuild or repair their houses and move back if they wanted to be in the walled city or move to a relocation site. But the reality was far from this. They were unaware of what would happen to their plots in the reconfiguration or the implications of using incorrect records for the preparation of plans.

Town planning limited what people could do with their plots, their houses, or their housing assistance. Owing to the pace of town planning processes, the multitude of agencies involved, lack of understanding of the technical and procedural aspects of town planning along with processes of social, economic, and psychological coping distinct from physical reconfiguration, people of Bhuj often found it difficult to understand the changes that were brought about by town planning. Many could not fathom why their houses were being cut. Because the relocation sites were not ready, it was very difficult for them to decide what to do, whether to move to a relocation site or stay in the walled city. Even if they wanted to move to one of the relocation sites, they were often unsure about which site to go to; they also wondered whether they should decide individually or in groups. These were very trying times for the people of Bhuj, especially those who lived in the old city.[240]

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[240] N. Tewari (personal communication, New Delhi, March 22, 2007).

Despite an understanding of the challenges town planning processes imposed on the recovery of affected households, it was practically impossible to get feedback from all the residents, as narrated by the planning consultant:

It's not reasonable to expect to get feedback from people when they were in different locations and did not come back for different reasons. It was known that not everybody would be able to participate. It was not possible to locate each and every current resident or the property owner . . . from where do we find that out? There is no record, municipal records were bad [inaccurate and outdated], and city survey records were bad too.[241]

Because of the sense of urgency and availability of resources, there was pressure from the state government to complete the task and "not to drag it." Where there was not much response or feedback from the residents on plans, the deadlines for various phases of the process (as dictated by the Town Planning Act) as well as the need to maintain technical integrity of the TP Schemes (all the TP Schemes had to be done together to maintain the continuity of roads and the integrity of the road network) rendered it impossible to give more time to the public to understand the implications of the plan and provide feedback. It was considered unwise to wait, from both a technical as well as an administrative standpoint, as explained by the planning consultant:

If you don't do the TP Schemes together then how do you get continuity in streets? The plot configurations and the streets were together [changes to

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[241] B. R. Balachandran (personal communication, Ahmedabad, July 28, 2006).

plots would impact street pattern and vice versa]. I don't think it would have been wise to stretch the process. Stretching the process would have meant deploying the resources of the government over a period of time and that was not sustainable. The entire Town Planning Department was put on this. Everybody was working on the four earthquake-affected towns of Kachchh. It would not have sustained even a few months longer than what it took. This did a lot of damage to the rest of the state. The entire state machinery was focused on Kachchh.[242]

Constraints were imposed and decisions made among the consultants and their clients (the Urban Development Department and GUDC) regarding when to involve communities or their representatives in the decision-making:

We are forced to find solutions; people are forced to compromise. . . . When architects sit down to design, you cannot design unless you impose constraints . . . very often the design emerges from exclusion as much as from inclusion. So that applies to most of this sort of situations. If you don't impose constraints and you say "let's be creative, get the community together and let them think," *Nothing* will ever get done. *Nothing* will get done. By putting the artificial constraints of time, resources, pace, and safety, you are forcing solutions. That helps to move ahead. You are forcing everybody to make choices. Anyway you have to do it faster, you make your choices much faster. These are all tradeoffs, you do your best to be an honest broker with due diligence.[243]

Since the construction of houses could begin only after the plans were prepared,

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[242] Ibid.
[243] B. R. Balachandran (personal communication, Ahmedabad, July 28, 2006).

there was greater urgency to finish the plans and "fix the problems later."[244] In addition, strict timelines mandated by the Town Planning Act as well as those imposed by state agencies in charge of urban rehabilitation, and the need to prepare all the TPSs together in order to preserve the integrity of the overall plan did not allow the planning consultants to wait for input from residents who could not be contacted. Fear of manipulation of plans by local politicians encouraged state actors to keep the details of the processes away from the public purview until they were finalized.

Ineffectual local protests. When the state government announced its intention to undertake town planning, veteran politician Kundanlal Dholakia launched a fast in Bhuj to protest town planning.[245] He demanded that indiscriminate demolition of people's homes should not be carried out for town planning purposes and that if houses needed to be demolished, it should only be done after alternate arrangements were made.[246]

As an immediate response, the government announced that town planning would be suspended until further notice. Also, the Gandhi Nagar Committee for Rehabilitation, consisting of 10 prominent residents of Bhuj including the Member of Parliament (MP) from Kachchh, was formed. However, most members were uninformed of town planning processes and associated problems, and hence could not

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[244] In order to claim the housing assistance home owners were required to present their property title. In case of town planning, the titles would be given back to the owners only after the plans were finalized (after changes were made to the plots).
[245] Former Speaker of Gujarat State Legislative Assembly and a highly revered political figure.

contribute substantively towards shaping the town planning and rehabilitation interventions.

In the absence of a clear understanding of what town planning entailed and its implications for the recovery of residents of Bhuj from the earthquake, articulation of coherent protests against specific aspects of the intervention or ability to engage in conversations about possible alternatives were limited. To make it even more difficult, there was a lot of uncertainty around whether the plans would ever be implemented or not.

Many residents attributed the absence of local voices in post-earthquake rehabilitation processes to the "culture of inaction" characteristic of Kachchhis, as expressed below:

> We Kachchhis are docile and laid-back. Here the mentality of people is such that if there is a government regulation which does not have positive effects on everybody, people will not oppose it. I'll think "*mujhe kya, bajoo wala karega*" [what do I care? The next person will do something] . . . he'll think a third person will do something...so there is no awareness or thinking about understanding the effects [of government rules and regulations] on individuals and what needs to be done to prevent the negative impacts. Today's rules would be valid for 10 generations. But people do not think about its implications . . . *chalta hain . . . kya karega?* [it goes, what could be

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[246] K. Dholakia (personal communication, Bhuj, July 25, 2007).

done?][247]

Others attributed this 'inactive' nature of the resident Kachchhis' to lack of effective political leadership, absence of history of mass mobilization, and streams of migration of the enterprising Kachchhis because of the tumultuous nature of land and lack of economic opportunities.[248] A resident noted:

In Kachchh there are two kinds of people. The ones who were enterprising left for Bombay or someplace else, because of lack of water, and there weren't any industries . . . the ones who stayed back were completely inactive. Kachchh never had any good leadership. Whatever leadership has been here has come from outside. It's people from outside who have developed Kachchh. Those who migrate to other places do good work, but the very same people wouldn't do anything here. All the efficient ones are NRIs [Non-Resident Indians or people of Indian origin living in other countries] now; those who are inefficient are here.[249]

Another resident of Bhuj illustrated the inability of Kachchhis to protest:

There was a big banyan tree near the *pavdi* [diving platform on the periphery of Hamirsar Lake]. There was a small temple too. These people [BHADA] cut down the tree overnight. It was more than a 100 years old. Kutch Mitra

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[247] X. Y (personal communication, Bhuj, August 18, 2007). The name of the person is undisclosed for anonymity.

[248] The Jadeja rulers were firm believers of hereditary kingship. Public life was seldom organized in the state. Neither was there any noteworthy effort on the part of the rulers to encourage public participation in the affairs of the state. Impact of transformative politics of India's national movement characterized by mass mobilization under the leadership of Gandhi had no particular influence on Kachchh. Hostility of the ruler to demands for popular government had resulted in a ban on inter-communal mass organization (Gazeteer of India, 1971).

[249] H. Dholakia (personal communication, Bhuj, July 3, 2006).

[the regional newspaper] even published articles on it. There was even an agitation. There was no Collector here at that moment. The District Development Officer (DDO) was in charge. I saw the group of people. They were about to take out a protest rally. It was lead by MP [Member of Parliament] of Kachchh. A few of my friends were there. They told me that they were going to protest the cutting of the tree. I joined them. We gave the memorandum to the DDO. The MP of Kachchh told the DDO that we were not opposing the move, but just wanted to communicate our feelings about it and that it shouldn't have been done. This is the way people protest here. If it were some other place, it would have been violent.[250]

For most residents of Bhuj, the government-appointed officers and consultants were part of the state machinery consisting of outsiders who lacked local understanding or sensitivity and who had no interest in involving local actors in the processes. Others attributed the absence of public participation in town planning processes to the state and local government agencies' decision not to stipulate greater participation of local people in the processes as well as the inability of local political leaders to demand it. The editor of Kutch Mitra elaborated on this as follows:

In my opinion, it doesn't matter whether people come from outside. It's mostly political people who make a big deal of it [the insider-outsider debates]. I think whether people come from outside or not, if they want to, they could involve local people in the process . . . it's the responsibility of the government to make sure that it happens . . . if outside organizations or people are required to do it, they will have to . . . and if we think more about this, ultimately it will come down to the fact that there is no effective leadership in Kachchh. . . .

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[250] M. B. Khatri (personal communication, Bhuj, January 10, 2008).

Often when such a huge calamity occurs, leadership emerges . . . but here that didn't happen . . . it did happen in small villages with 30 to 40 houses . . . people had gotten together under their leaders. That didn't happen in towns or cities . . . there are several reasons for it—political, community-related, religious, and several such factors that resulted in lack of leadership.[251]

If the docile nature of Kachchhis and their lack of strong leadership led to the absence of effective participation, town planning reduced the larger project of urban restructuring into individual problem-solving, limiting collective articulation of problems. Many residents attended the early meetings on how to rebuild their city and later frequented the ward offices set up by the consultants in the walled city to understand what was happening to their plots, to voice their concerns about the changes to their plots as per the new plan, and to resolve issues arising from incorrect land and ownership records.

Even as they tried to resolve problems related to town planning, often they did not know which agency was in charge of solving a particular problem, suggesting that the obscurantism tactic mentioned by the GUDC Planner was successful: "Here the administration was faceless . . . if you approach the Collector he will ask you to go to BHADA, Gandhi Nagar will say the grant is from the central government . . . so everything was faceless. . . ."[252]

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[251] K. Khatri (personal communication, Bhuj, July 21, 2006).

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One of the key responsibilities of BHADA officials was to solve each individual "case" without compromising the plans that had already been finalized. There were very difficult cases that could not be resolved. Owners of such plots as well as people who were not happy with the changes to their plots as per town planning were given the option of surrendering the plot in the walled city in exchange for plot(s) in a relocation site. Most problems were solved this way. As the Town Planner of BHADA noted:

> It's making people accept the solutions themselves using *saam* [act of pacifying]*, daan* [charity or offering incentives]*, bhed* [act of dividing], or *dand* [punishment or threat of retribution].[253]

Finding solutions to the problems in more than 2,000 applications required administrators to be highly sensitive to the needs of people, especially because many of these problems were created by the town planning process itself and had an adverse impact on the recovery of the earthquake-affected. GDSMA along with BHADA organized several rounds of grievance-redressal sessions for each TP Scheme area in Bhuj. The GSDMA Camp Officer pointed out how despite such efforts problem-solving was not always done in the most sensitive manner:

> . . . this was something that was not very neatly done. We are talking about very high order counseling skills, not just counseling skills but PR and

planning skills and that's where it didn't work and there must still be those open wounds.[254]

In Bhuj, due to the long onsite presence of the planning consultants, many residents had the opportunity to understand how the plan would impact them, and their responsibilities and rights with respect to the plan.[255] Conflicts between individual good and collective good played out in every case. The educational backwardness of the region acted as an impediment to effective communication between the residents and the implementers of the program and to the understanding of the legal processes associated with town planning. Lack of finances, loss of family members, being forced to live in a far off place, and other concerns also affected the extent of participation in the town planning processes and resolution of problems at a later stage. [256] Failure of the state to communicate the benefits of town planning to the public also contributed to the large number of problems.[257]

State-Approved Public Participation

In the aftermath of a disaster when people are in a state of shock and are more concerned about meeting their immediate needs, the articulation of public opinion in response to various plans and policies is extremely difficult. In Bhuj, for such a

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[253]These are the four diplomatic principles according to Hindu scriptures (*Srimad Bhagavatam* 7.5.19): *saama*, the process of pacifying, *daana*, the process of giving money in charity, *bheda*, the principle of dividing, and *danda*, the principle of punishment.

[254] N. Tewari (personal communication, New Delhi, March 22, 2007).

[255] A. Dhar (personal communication, Ahmedabad, February 8, 2008).

[256] N. Tewari (personal communication, New Delhi, March 22, 2007).

[257] P. V. C. Prasad (personal communication, Surat, January 5, 2008).

discourse to take shape, a strong understanding of the legal and technical aspects of town planning mechanisms was critical. Committees formed after Dholakia's fast did not prove to be effective in the long run as they were advisory committees without any decision-making power and lacked adequate technical knowledge. There were no other fora where local people with expertise in these areas could organize and analyze the options. Yet it was important for the state government, consultants as well as donors, to gain local acceptance for their plans and also have them ratified in accordance with the Town Planning Act.

Despite the large number of NGOs that came to Kachchh for earthquake rehabilitation, their presence was very limited in long-term rehabilitation of earthquake-affected towns such as Bhuj.[258] The GUDC planner elaborated on why NGOs did not get involved in urban rehabilitation:

> [In urban areas] people are educated, therefore the influence is more. The land prices are high. If it is a village, I have 20 acres of land, if you take a corner, I have no problem, if you take a whole area for a road or a highway, I still won't have a problem, whereas in an urban area, even a few centimeters of their land get affected, people would protest.[259]

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[258] While urban areas were being rebuilt, houses were reconstructed in rural areas within a year after the earthquake with the help of NGOs. The availability of funds immediately after the earthquake, smaller size of the projects, as well as absence of town planning laws that restricted rebuilding in urban areas gave NGOs greater freedom and flexibility in undertaking rural housing reconstruction. In the initial days of rehabilitation work, the government encouraged NGOs to work in rural areas because donors and state agencies feared that rural areas might be sidelined. It was also important for the administration to produce visible signs of the rehabilitation program, especially since urban rehabilitation was going to take longer because of town planning.

According to the Town Planner of BHADA, it was the greater flexibility and visibility offered by rural areas that attracted NGOs to get involved in rural reconstruction:

> In a village if you construct 100 houses, you can do it marvelously and everybody will commend you. Whereas inside the city, lots of buildings were standing and everybody won't be coming to you for houses, to reconstruct them. And even due to the complexity of the situation [institutional, legal, and technical issues associated with town planning in urban areas] they [NGOs] cannot convince people. So they were not willing to take it up. There are people who have done good work, but they were not truly interested in the city.[260]

In urban areas, reconstruction was mostly owner-driven, which meant NGOs played a facilitator's role.[261] High land values and politicization of the town planning processes by vested interests complicated processes such as beneficiary selection, allocation of land, procurement of building permissions, etc. which were crucial for reconstruction of houses. Lengthy bureaucratic procedures associated with reconstruction of houses could not be avoided since approval of plans as well as verification of records and supporting documents could only be done with the involvement of the local government. In the later stages of urban rehabilitation, when some of the local NGOs expressed interest in getting involved in the process they received a lukewarm response from the local administration. There were concerns that

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[259] A. Dhar (personal communication, Ahmedabad, February 8, 2008).
[260] P. V. C. Prasad (personal communication, Surat, January 5, 2008).
[261] S. Iyyengar (personal communication, Bhuj, February 5, 2008).

if government allowed NGOs to intervene in urban areas as well then they would have nothing to their credit.[262]

The involvement of Abhiyan, the local NGO consortium, in the rehabilitation of villages was seen as a threat by many government officials. Their power to influence the state and central governments earned them the enmity of many decision-makers and implementers of GERRP, especially those who wanted to have control over the entire process. Many bureaucrats saw them as an entity "parallel to the state."

In the absence of NGOs acting as intermediaries between the government and the public (a role that NGOs have traditionally played), possible fora for public participation in town planning were: 1) town planning meetings conducted by the consultants during the preparation of the plans, and 2) public hearings conducted by the TPOs in the eight ward offices in the walled city for the implementation of Town Planning Schemes, as mandated by the Gujarat Town Planning and Urban Development Act.

Town planning meetings. EPC, the planning consultant, acted as the interface between the government and the people. They organized meetings in each ward to resolve issues related to TPSs. The public was informed of these meetings through the local and regional newspapers. However, one had to be educated to read these announcements and attend the meetings, let alone get problems resolved.

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[262] S. Virmani (personal communication, Bhuj, January 9, 2007).

Despite various meetings, more often residents felt that their opinions or concerns were not incorporated in the plans and that the meetings were a sham. The editor of Kutch Mitra shared this public sentiment:

> The planners earlier said that they will consult citizens and then decide on the course of action, but except for meetings "just for show" I don't think they took into account people's opinions. They'll have photographs and video clips of meetings and then show to the government that they have consulted with people. Sometimes they have conducted meetings, but I don't think they ever made any changes to plans based on people's opinions . . . they had already decided on the plans and they didn't change them. I don't think in the process of town planning there was any participation of people.[263]

During the preparation of the Development Plan, planning consultants conducted two meetings during the initial days of plan preparation to "share" ideas with the public and get response. Later there were meetings with specific interests groups to prepare individual aspects of the DP. When it came to Town Planning Schemes, which had greater impact on residents, especially in the walled city, EPC set up ward offices to share the plans with the public, verify records, and make subsequent changes to the plan. This was followed by public hearings conducted by the Town Planning officers (TPO) for each TP Scheme.

An important aspect to remember is that none of these meetings was conducted to

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[263] K. Khatri (personal communication, Bhuj, July 21, 2006).

debate the use of Town Planning Schemes or to deliberate on various options. Indeed, those decisions were made early in the process among a selected few state actors (primarily, Urban Development Department, GUDC, and the consultants). The meetings in the ward offices entailed communicating the plans to the residents and rectifying the inconsistencies and inaccuracies in the plans because of the outdated property records and incorrect damage assessment surveys.

Hence, for most residents, meetings were about proving the legitimacy of their individual claims in the context of the plan rather than challenging the plan itself. Even then, people who were uneducated often did not understand what could be done if they were allocated a plot that they did not like or that was of smaller size. They did not raise their concerns in the meetings that were held in different parts of the city or make use of the ward offices to resolve town planning related issues. Many lost money in corruption.

According to a community leader who ran a relief camp for poor Muslims in the walled city, people's participation in town planning meetings was very limited. It was mostly the educated people who attended meetings; others had absolutely no idea what was happening. They had different priorities, including getting relief materials.[264] An associate of EPC explained why there was very little participation by residents in various meetings:

As far as the common man is considered, there were conflicting priorities. Participating in the plan preparations was not his top priority. He had lost quite a few things in the earthquake. Restoring livelihood was more important. So, people who had definite views or strong opinions might have participated once or twice and then realized that it was going to be a long process and not something that would be done in one or two meetings. There was a group of people who continued to participate. Others did not participate primarily because of conflicting priorities.[265]

People often had very little idea about the role of TPOs in the process and the significance of their decisions. They were also largely unaware of the implications of the town planning processes to their plots and houses and also the procedures associated with it. In the legally mandated hearings for individual TP Schemes, many owners signed the forms next to the line that said "No Objection," without knowing its legal implications.[266] Many residents who left the city after the earthquake had given the power of attorney to fulfill the town planning related requirements to a relative who then attended the hearings on their behalf. Others were unaware of the importance of attending the TPO hearings to verify if their plot had been demarcated correctly and get any problems resolved. Those who did not attend the meetings came to know about the changes to their plots (whether it had been cut or if allotted someplace else) when they got their property title (*sanat*) back after preliminary TP Schemes were prepared.

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[264] Bhuj being the chief transportation node received all relief supplies first. Source: I. Ghanchi, personal communication, Bhuj, December 20, 2006).

[265] D. Parikh (personal communication, Ahmedabad, July 25, 2006).

During consultation processes, concerns raised by residents mostly pertained to individual plots. If someone's entire plot or part of it was taken up and assigned as a reserved area (for sale by BHADA or open space or public purpose), or if there was an existing structure and that was being used for public purpose, the owners often raised objections. In most cases, BHADA offered property owners plots in relocation sites in exchange for those in the walled city that were used for town planning purposes or had problems that were hard to resolve, and most residents preferred to be in the walled city or near it. Hence, residents spent their energies in resolving their own problems rather than taking part in consultations regarding city-wide plans.

Individuals also feared retribution from local authorities if they voiced objections or opinions regarding town planning. Even if they did, efforts were made to put pressure on them by further delaying resolution of their individual problems. So, people were largely apprehensive about voicing strong objections to the citywide processes that were unfolding. An elderly resident of Bhuj and office bearer of a local NGO explained why having a file on one's plot with BHADA restricted people's ability to question or challenge decisions about town planning:

> My advantage was that I had no financial interests; I didn't have a file that needed to be approved. Even for my ancestral property in Soniwad I was not going to approach CEO, even though he was a good friend. Only then I could voice my concerns. But if they were to adopt dirty tricks, even I would quit. Citizens were under duress. Nobody will come forward against the authorities. In meetings people will say things, but to do something in

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266 N. Upadhyay (personal communication, Bhuj, April 4, 2006).

concrete, nobody came forward, they were all afraid. A citizen's council would have been able to do a little better.[267]

Meetings with donor agencies (World Bank and ADB) within the walled city to discuss problems faced by people were always done in the presence of local administrators. Hence, even when citizens wanted to express their disagreements, they feared retribution. Many felt that the earthquake-affected were being used as pawns to implement plans that the government found appropriate.

Attempts were made by local NGOs such as Bhuj Development Council (BDC) to organize residents *falia*-wise. In a successful case of participatory planning process, residents of the Soniwad area, the worst-affected area within the walled city, organized under a *falia samiti* (committee) to make their recovery process faster.

The Soniwad case. In the Soniwad area of the walled city, where two fault lines intersected, the damage was extensive. More than 300 people died in the earthquake and the vast majority of the houses suffered significant damages. Despite this, Soniwad was one of the first areas to rebuild. BDC Vice President and a key figure in the Soniwad rehabilitation process narrated the story of Soniwad's faster recovery:

Though the entire area was devastated, people would come in everyday morning and evening to see their house, plot or something else . . . We talked

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[267] N. Upadhyay (personal communication, Bhuj, April 2, 2008).

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about a collective response . . . people were very excited about *falia samiti* and they would come for the meetings. The idea of land banking was suggested in one of the meetings—to consider this as a family disaster and rebuild without any government help. All plots would be pooled in and rebuilt as row houses using 75 m^2 plots. Those with 300 m^2 can keep 150 m^2 and the make the remaining 150 m^2 available to those with less than 75 m^2 for purchase . . . then a uniform building design could be adopted and depending on the family size people could have more than one plot. It was communicated to the government, but they did not approve it.

Though the idea of land banking was not accepted, we had decided to hire a single architect and a single structural engineer, buy materials in bulk and also take turns in doing supervision . . . since the plots were different we had to have different plans . . . but we hired one architect and during a time when architects were charging Rs. 20,000, we could get it done with Rs. 6000.

When the town planning proposals were prepared by EPC, *falia samiti* members sat with them to discuss its implications on the community. Through the Soniwad *falia samiti*, people were able to raise their concerns, including the sense of disorientation and lack of connection with their own city if it were to be drastically reconfigured. The idea to retain the center line of older streets emerged out of these interactions in Soniwad.

In Soniwad, the entire rebuilding process happened quickly because residents were well-organized, they understood the process, and they had all the required documents ready. Because they had similar plans for house reconstruction, they obtained building permissions quickly. They also had a strong leader who not only

educated them on various aspects of town planning but also organized them. He helped them arrive at solutions given the constraints imposed by town planning.

Though Soniwad *falia samiti* played a significant role in organizing people and giving them a platform to engage with the planning and rebuilding processes, other *falia samitis* created following the Soniwad model were not successful. [268] The local and state government agencies did not grant formal recognition to these people's bodies. In an attempt to formalize *falia samitis* as a credible organization in the government's eyes, a Registered Trust for the Soniwad committee was created, Rs. 5000 collected from each family, and the money remitted in a bank account.

When the request to grant some form of legal status to the *falia samitis* was not heeded by the government, leaders of Soniwad *falia samiti* suggested that the government at least call the press and communicate to them that the *falia samiti* was a good initiative through which a lot of problems could be solved, and that the town planning process recognized the *samitis* as credible sources of data. Even this was not acceded to by state and local agencies. Without state recognition, the *samitis* began to lose credibility even among residents.

Therefore, *falia samiti*, a neighborhood association, with the mandate of representing the households in a particular locality in interactions with the planners and the ADA and in ensuring that the plan for an area reflected their concerns and

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[268] Such as Khatri Chakla falia samiti, Panchhatdi falia samiti, etc.

interests, fizzled away. The lack of formalization of the *samitis* was a missed opportunity as echoed by the planning consultant:

To try and create this [the *samiti* or such people's organizations] in a post disaster situation takes more energy and effort than if you already have it. So tomorrow if there is another earthquake in another part of Gujarat, the walled city fares the same way in Bhuj and if we were to go in there and do the same process, we would face same problems. Because we are wiser, we would know what problems to anticipate.[269]

Even with official recognition, it is uncertain whether *falia samitis* would have been able to influence decision-making or handle pressure from strong interest groups.. However, in the absence of any other forum for voicing their opinions or getting guidance in the town planning and reconstruction processes, it seems more likely that *falia samitis* would have played a significant role in aiding residents in their recovery from the earthquake as testified by the Soniwad case.

According to the planning consultant, the problem of inadequate participation is an institutional issue, arising from the lack of institutional structures in urban areas. In a rural setup, the unit of participation is the *gramsabha* or the general body of the village, constituted by voters of the village. With approximately 60% of the population being voters, the number of people participating in decision-making in a rural community is of the order of 3,000. However, in an urban settlement (with population

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[269] B. R. Balachandran (personal communication, Ahmedabad, July 28, 2006).

equal to or greater than 5000), the voting population for the equivalent body in a typical urban ward is nearly 50,000. With such large numbers, another legally mandated sub-unit of about 3,000 to 5,000 people would be necessary for genuine participation.[270]

In Bhuj or any other urban area of Kachchh, the absence of such legally mandated units left no space for the active participation of residents in the town planning processes. However, as people struggled to resolve individual problems related to town planning, based on the strong recommendations of public-minded local leaders and inputs from the field staff of agencies such as the GSDMA, efforts were made by the state to provide some recourse in the form of the City Resource Centre or *Swajan*.

City Resource Centre. In a joint venture, BHADA, GSDMA, and the local NGO, BDC, created the City Resource Centre (CRC) or *Swajan* to assist the citizens of Bhuj in resolving problems related to town planning. CRC assisted people who could not construct houses by facilitating loan applications, linking them with NGOs for house construction, and addressing town planning related grievances with BHADA. They were also able to assist people in getting plans prepared at subsidized rates and with filing various applications. They provided guidance regarding documents necessary for plan approval and many times expedited the approval process

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[270] Under the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) there is a mandatory requirement that every state, that wants to get funds under that program, has to create a structure for participation, proposed something called Area Sabhas, urban equivalent of gramsabha. Source: B. R. Balachandran (personal communication, Ahmedabad, July 28, 2006).

by BHADA.[271] CRC also organized a few *melas* (fairs) in specific relocation sites to disseminate information related to house construction and housing loans.[272]

Getting housing assistance for tenants and gaining equal status for people who were affected by town planning as others affected by the earthquake were breakthroughs achieved by the CRC. As a consequence of the latter, people living in unauthorized settlements that came in the way of the Development Plan received compensation.[273]

Originally, CRC was conceptualized as a collective endeavor involving BDC, Abhiyan, Kutch Mitra, and EPC with the objective of informing citizens of the town planning processes and providing them with a platform to get involved in the overall development of their city. However, owing to its late creation, this partnership did not materialize. CRC's focus was also narrowed down to finding solutions to individual problems due to town planning. Though some of the City Resource Centre staff was deputed from the municipality, the municipality never owned the centre. It was considered as an experiment initiated by GSDMA with BDC and BHADA. BDC, which was the active member of CRC, did not have the organizational or financial capacity to extend CRC's mandate to build the capacity of the municipality to assume similar roles in future. Within two years of its formation, CRC was dissolved.

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[271] C. Bhatt (personal communication, Bhuj, February 6, 2008).
[272] N. Tewari (personal communication, New Delhi, March 22, 2007).
[273] Ibid.

Caste-based organizations. While caste-based community organizations played a significant role in temporary rehabilitation of the earthquake-affected, they often lacked the technical know-how and financial resources to assist members in long-term reconstruction.[274] Typically, most caste-based organizations (*samaj*) organized religious or cultural events, mass weddings, and sporting events, and provided educational assistance and medicines to poor families in the community. The nominal membership fee paid by members was not sufficient to support such activities, and assistance was largely dependent on contributions made by affluent members of the *samaj*.

Many of the caste-based organizations were effective in organizing their members in the establishment of temporary shelters. However, these organizations often lacked the financial resources or understanding of the bureaucratic procedures involved in town planning to assist their members in the rebuilding process. Yet, rehabilitation processes often reified or reinforced caste separations by identifying caste-based organizations (*samaj*) as the legitimate representative bodies of people belonging to a particular caste. This resulted in greater segregation and lesser tolerance among communities which earlier lived together in *falias*.[275] BDC Vice President and a longtime resident of Bhuj explained how the emphasis on caste and religion was brought about by the implementers of the rehabilitation process:

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[274] It is widely documented that ethnic associations can perform any modern functions (Varshney, 2002, p. 42).

It was made prominent by these people [implementers of town planning]. They started organizing people based on caste. Before [the earthquake], social activities were organized by community organizations. Other than that prior to the earthquake these organizations were not prominent. But when you [state agencies] took rehabilitation in that direction, calling up the community leader for everything, even the dormant ones became prominent. This has been a fallout of the policy. Everybody just called community leaders for everything about rehabilitation. No one seems to have quite thought of the future repercussions including disintegration of society . . . [276]

Apart from the emphasis on caste-based community leaders as legitimate representatives for solving problems related to earthquake rehabilitation and town planning, one finds intensified spatial segregation. Religious organizations such as BAPS built houses for their followers, creating pockets of homogenous groups based on religion and caste. If earlier in the *falias* people from various socioeconomic, religious, and cultural backgrounds lived together, after the earthquake with the emphasis on community-based relocation, people belonging to the *rajgor*, *salaat*, *lohana*, *darji*, and other caste-based groups created homogenous pockets, especially in the relocation sites. They now live amongst people from the same community, restricting interaction with people from other backgrounds.

BDC had suggested that the festival committees in each locality (such as the *garbi mandal* and *eid* committees) be brought to the discussion table as these committees are

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[275] The meaning of the state activities, forms, routines and rituals has consequences for the constitution and regulation of social identities, ultimately of our subjectivities (Corrigan and Seyer, 1985).
[276] N. Upadhyay (personal communication, Bhuj, February 4, 2008).

not segregated so much on caste. This could have helped retain the social structure of the falias, without being segregated based on caste.[277]

Successful group moves to relocation sites, of families belonging to the same caste, were not always mediated by their *samaj*. In the case of *rajgor* community, 200 families in khatri chakla area of the walled city (owners whose houses were in the G-5 damage category) formed a committee after the earthquake. Though 20 families left the committee, the remaining 180 decided to stay together in one site and chose the RTO relocation site because its proximity to the city. Through their collective efforts they were able to figure out the procedures for surrendering their plots and getting new ones in the relocation site, resulting in faster allocation of plots by BHADA. Today they live in RTO relocation site, in four adjacent lanes, making them the single largest group in the site.

Reliance on public-minded individuals. The District Collector and the CEO of BHADA were often responsive to people's needs and concerns. The Collector in particular used his authority and power of persuasion to expedite decision-making even in the face of stiff opposition from various interest groups. But there were few attempts to create fora for public participation in local decision-making processes. In the absence of a system to elicit public opinion and protect their interests, problems related to individual property or the implementation of DP- and TPS-related infrastructure work were resolved due to the personal initiatives of the CEO and the

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[277] Ibid.

District Collector.

A resident of Bhuj, also a social worker, explained why it was particularly important to have local participation in post-disaster planning and implementation processes:

> Once a disaster has occurred there is not much time to study and go into the details. The necessary reach to the database and understanding that the officers should have had, that sort of data was not there. In any place where a disaster occurs, this sort of information can only be provided by the local people who have lived in this region for quite a long time. And every place has its own experts. In the case of Bhuj, there were 35 to 40 engineering professionals who had been working in the area of building design and planning. But they were not utilized; they were kept on the side.[278]

Absence of effective means of local participation had consequences for the project. Several mistakes were made in infrastructure development such as inadequate drainage facilities or rain water outlets for roads. Many areas prone to flooding during monsoons were built up, information that any longtime resident would have been able to provide to the implementers (based on their understanding of the drainage patterns of the city). Lack of utilization of local building professionals including architects, engineers, and masons in the monitoring and supervision of town planning related infrastructure projects at the local level also led to such "omissions" by the subcontractors, thereby affecting the quality of the newly developed infrastructure.

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[278] N. Upadhay (personal communication, Bhuj, February 4, 2008).

There were other issues arising from the distribution of commercial uses in the city and the differential pace of its development by the government. While most of the commercial spaces built on the new 36m-wide ring road lay vacant, in Bhid area where there was a need for shops, not a single shop was built by the government. These reinforced the significance of tapping into local knowledge and seeking active involvement of local actors with such understanding in the planning and implementation processes.

Public Participation in Post-disaster Urban Planning

Earthquake rehabilitation in Bhuj through town planning is touted by state actors engaged in the process as one of the most participatory processes in post-disaster planning. Many attributed the absence of demands for greater participation of local actors in town planning to a long history of lack of political mobilization in Kachchh, absence of effective leadership (migration of entrepreneurial Kachchhis), lack of education, inherent docile nature, etc. Among the state actors engaged in town planning, we find varying notions of participation ranging from communication and consultation to getting information (sometimes covertly) to help implement policies and plans.

Efforts to institutionalize public participation through committees, as a response to protests against town planning, did not prove effective in shaping the planning process because of committees' lack of decision-making power and unfamiliarity with

the technicalities of town planning processes. Despite the partial success of Soniwad *falia samiti* in communicating the needs of residents to planners, and also facilitating faster rebuilding of their homes, this could not be replicated because of lack of official recognition. Many attributed the success of Soniwad *falia samiti* to the able leadership of a vocal social worker who was also an engineer and writer and had good leadership qualities. Such leadership did not emerge in other cases. Despite repeated attempts to get some form of formal recognition for *falia samitis*, the strong resistance from state agencies like the GSDMA reflected fears of the "mob" taking over the process and delaying it.

While efforts like the *falia samitis* and City Resource Centre were partially successful in "bridging the gap" between the planners as well as implementers of town planning and the residents of Bhuj, rehabilitation processes often reinforced caste divides by identifying leaders and representatives of caste groups or caste-based organizations (*samaj*) as the rightful spokesperson of the particular group. This resulted in greater segregation and lesser tolerance among communities which earlier lived together in *falia*s. While community groups played a significant role in temporary rehabilitation, they often lacked the technical know-how to get involved in long-term rehabilitation processes.

To be successful in long term rehabilitation of the disaster-affected, it is extremely important to locate spaces for deliberation and decision-making close to those whose vulnerabilities are being reduced. This linkage between the grassroots and

the administrative machinery is very crucial, beginning with the distribution of relief. In Bhuj, there was no recognized body that linked the locally elected representatives (councilors) and the Mayor with the District Collector and other departmental heads. When such a linkage exists, policies are more likely to reflect local needs. In villages NGOs acted as a bridge between the state agencies and the people. However, in urban areas like Bhuj, the absence of NGOs due to owner-driven nature of reconstruction, complex bureaucratic processes associated with rehabilitation, delays in town planning related decision making, high land values, and the higher levels of education of the urban beneficiaries who wielded more power over the NGOs in comparison to their rural counterparts, contributed to the absence of effective fora for interaction between the state and the public.

We find in Bhuj, a strong resistance from the state to formalize public participation in decision-making processes—along with the tendency to involve the public as and when required, without making any formal commitment to institutionalize such interactions. In the absence of NGOs or other organizations, in Bhuj, their appointers (from the Urban Development Department through GUDC) entrusted the planning consultants with the responsibility of acting as intermediary between the government and the public. During the town planning process, the consultants conducted meetings across the city that allowed many residents to verify their ownership records and resolve problems related to plot demarcation. Most people did not understand the implications of town planning until they got their land titles back after the preliminary schemes were approved by the state government and

infrastructure work began.

Literature on public participation in development projects identifies participation as the means to achieve economic efficiency in development projects where non-participation of citizens is an operational barrier, requiring a financial, educational, technical or administrative correction (Chinsinga, 2003). For others, participation could lead to open-ended development (Mohan, 2001), convergence of participatory development and participatory governance due to the transformational qualities of participatory approaches (Hickey and Mohan, 2004). It could also lead to democratic governance (Fung and Wright, 2003; Chavez and Goldfrank, 2004).[279]

In the planning literature, discussions on participation emphasize the role of communicative rationality in collective problem-solving through democratic deliberation.[280] Some have pointed out the disconnect between substantive and procedural aspects of planning in the discourse, calling for a re-evaluation of planning practice using the notion of justice, yet failing to articulate how a just city can be achieved in actual political practice and process (Fainstein, 2000). In reality, few people will be satisfied with process alone, just as few people will believe that outcomes create themselves independent of political and planning processes.

In Bhuj, the consultants who prepared the plans believed that the desirable

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[279] For a critique of participatory techniques as used by unjust and illegitimate interests see Cooke and Kothari (2001).

[280] See Healy (2009) for a review of pragmatic tradition in planning thought; also Forester (1999, 1989)

outcome of a planned city with new infrastructure and disaster-resistant houses could be achieved independent of political processes, as long as they incorporated the needs of various interest groups in their plans. Participation did not entail a process of democratic deliberation for problem-solving in the traditional sense of the term.[281] Yet, the planners interacted with local leaders, social workers, and community representatives to allow local needs to be reflected in the plans.

For the administrators in charge of implementing the plans, mandatory requirements of public hearings associated with the regulatory mechanisms (such as Development Plans and Town Planning Schemes) and negotiations with residents to solve individual problems related to Town Planning Schemes constituted public participation. Public debates and negotiations were consciously avoided by the implementers of the program.[282] Concerns about the inability of participants to envision the future beyond their immediate needs also discouraged them from allowing for public participation in town planning debates.[283]

In a post-disaster scenario, there is great political pressure to both expedite preparation of policies and plans pertaining to recovery and reconstruction and to

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[281] In this model of democracy, citizens discuss a problem together and attempt to persuade one another that the solutions they propose are the best, in the sense of most just, most effective, least costly, and so on (Hunold and Young, 1998, p. 86).

[282] For discussion on dialogue, debate and negotiation as sub-processes of participation, see Forester (2009).

[283] Master or Comprehensive Plans are prepared for 10 to 20 years. Very often individual concerns dominate discussions, especially in situations where there have been no prior experience of collective problem-solving. Groups that are better organized, articulate, and powerful often dominate meetings and shape decisions that were intended to be reached through a process of deliberation among all participants.

produce immediate, visible results. Many have argued for faster formulation of plans if rebuilding efforts are to be successful in reducing future vulnerabilities of urban areas (Hein, 2005; Schwab, Topping, Eadie, Deyle, and Smith, 1998). For the architects and implementers of the earthquake rehabilitation program, the need for faster decision-making with minimal political interference from various interest groups presented itself as the reason for excluding local actors from initial discussions.

Proponents of sustainable hazard mitigation have argued that for disaster planning initiatives to be effective in reducing future vulnerabilities, they should be built on community-based planning principles that allow for public participation in decision-making processes (Mileti, 1999). Community-based planning as a decentralized form of planning calls for combining problem-solving with greater involvement of various interest groups, especially the residents of a community, through a process of consensus building. However, communities are neither homogenous nor static (Harvey, 1997). Also, exclusion is inherent in defining a community (Balibar, 1994).[284]

In the context of disaster rehabilitation, community-based local decision-making could also perpetrate or reproduce social structures of exclusion and inclusion (Geipel, 1981). In Bhuj, implementers of the earthquake rehabilitation program called for community participation in planning processes where community was defined on the basis of caste and religion. Such a definition of community influenced spatial

restructuring of the city along caste and religious lines and along the lines of existing social relations among various groups.

Participation in decision-making processes requires voices to be heard, so it requires engagement in dialogue. In these discussions, the disadvantaged should be insulated from the powerful or provided extra support (Hunold and Young, 1998). For this to occur a space is required, and so are tolerance and persistence, and qualities beyond techno-speak, policy promises, and pretty drawings (Blauert, 2004, p. 6). Trust, emotional safety, and language can act as "carriers" for an effective communication and dialogue to occur (Blauert, 2004, p. 7).

While it is extremely important to include existing representative bodies at the local level, such as municipalities and elected representatives, in discussions pertaining to policies and plans, alternative institutions in urban areas—sub-units that allow for greater citizen involvement—are crucial for effective participation in decision-making processes. It is equally important for representative neighborhood level bodies to exist prior to the disaster to be effective in getting involved in post-disaster planning activities.[285]

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[284] Suggests multiple ways a community can be defined (Pearce, 2003) thereby shifting the focus from categories themselves to the processes of categorization (Pierik, 2004).

[285] In Kobe after the 1995 earthquake, neighborhood planning organizations formed prior to the earthquake, called *machizukuri kyogikai*, played an important role in the reconstruction process, particularly in the land readjustment and redevelopment areas (Olshansky et al., 2005). Such an approach has also been blamed for the prolonged implementation of plans in the affected neighborhoods (Communication with Executive Director, EPC).

Post-disaster rehabilitation using urban planning tools, such as the Development Plan, Town Planning Schemes and Development Control Regulations in Bhuj, demanded understanding of the technical aspects of these measures in order to be able to engage in a meaningful discussion with the planners and the administrators regarding their adoption.. While local committees formed by the state to elicit public opinion regarding disaster rehabilitation had neither adequate technical knowledge nor decision-making power, inclusion of local architects, engineers, masons, and urban planning professionals could have allowed these fora to inform discussions pertaining to urban planning of local conditions, building practices, and needs.

The state could constitute local technical bodies of professionals who could not only provide technical support to post-disaster urban planning and policy formulation but could also play an important role in quality assurance of housing reconstruction and infrastructure development projects. Since the local populations rely on the expertise of these professionals for building construction, their involvement in urban planning processes could have a positive impact on adherence to newly adopted measures in future. They could also perform the ancillary function of capacity development and advisory-services provider for the local municipalities who have a mandate to regulate the built-form and maintain the infrastructure (by granting building permits consistent with the regulations and plans and by approving infrastructure projects).

Given the preceding discussions on varying notions of participation in post-

earthquake town planning processes and forms of it or the lack thereof, I now turn to how changes to the physical form brought about by town planning influenced recovery of the earthquake-affected. The next chapter provides a brief overview of the unfolding of multiple resiliencies in post-earthquake Bhuj, seen through the perspective of residents. Given the institutional, technical, and sociopolitical aspects of town planning, the chapter tries to capture the important factors that shaped re-establishment of homes and other aspects of recovery in post-earthquake Bhuj.

CHAPTER 7

RESILIENCE AND THE REARTICULATION OF BHUJ

How does a city recover from a disaster of great social and physical magnitude, and what exactly does it recover? Earthquakes do not just shake buildings and infrastructure—the physical city. There are often multiple reverberations ranging from political and economic to social aspects of the city (Davis, 2005). And cities are not just built environments: They are composed of people, social, and political institutions, and economic activities with histories and symbolic meanings. They generally are internally differentiated in social and spatial terms, so that different parts of the city often host different concentrations of these attributes or activities (Harvey, 1997; Massey, 1992) rendering the city vulnerable to different risks as well as unfolding of different processes of recovery (Davis, 2005; Kirshbaum and Sideroff, 2005).

In Bhuj, struggles related to procurement of housing (or the re-establishment of it) represented modalities of coping in a highly uncertain and unequal setting after the earthquake, largely set forth by the ensuing town planning exercise. What did the massive rehabilitation program which many refer to as "the second earthquake" mean for the residents of Bhuj? How did they experience post-earthquake town planning while re-establishing their own homes? Given the overview of town planning processes in Bhuj, this chapter looks at the multiple resiliencies associated with the physical restructuring of the city.

Traditional use of the term "resilience" implies a fast return to "normalcy" after a devastating event. The faster the return, the more resilient a place is said to be. However, there are multiple facets of the return to normalcy: restoration of livelihoods, reconstruction of homes, re-establishment of institutions of governance, emotional and cultural recovery, and more that have different yet mutually intersecting trajectories (Kirshbaum and Sideroff, 2005). In the following sections, I begin with a brief discussion on the perceptions and experiences of residents with regard to post-earthquake town planning and then proceed to elaborate on the processes of recovery associated with housing reconstruction and the factors that shaped it. I then look at some of the key aspects of changes to sociocultural and economic spaces in the walled city and its surroundings, in an attempt to understand how they influenced the processes of recovery.

Earthquake as Blessing in Disguise

Many people saw the earthquake in 2001 as a blessing—not only for Bhuj but for the entire district of Kachchh. Town planning would not have happened without the earthquake. Many remarked, "Bhuj has now become a real city," mostly in reference to the extensive infrastructure development, especially the new road network. An elderly resident of Bhuj elaborated on the advantages of the new road network and its implications for property values:

The road network, now you can get out of Bhuj in 10 minutes . . . if I want to go to the airport or railway station I can get there without any traffic. Roads were built for the next 50 years. The new roads have increased property values. People do not always understand the significance of roads. Those who lost half of their property in road cutting now have their prices quadrupled. The properties on roadside have a very high demand and hence have high prices, too.[286]

Despite the new infrastructure, such as the road network and utilities, the ability to rebuild homes in their original locations or move to relocation sites was dependent on the resolution of ownership-related problems with siblings (or other family members in case of ancestral properties). For many, the earthquake was a blessing in disguise. Where there had been irreconcilable differences between siblings or family members, the government policy to financially compensate or provide plots in relocation sites in exchange for plots in the walled city proved to be a great opportunity to go separate ways in an economically beneficial manner. Yet not everyone could reach an amicable settlement. The government policy required all owners of a plot to make a joint application to the local planning authority (BHADA). So in cases where siblings could not agree, the opportunity to claim multiple plots could not be realized.

Many young women (daughters-in-law) expressed the desire to move out of joint families to have their own nuclear families. Although some were deprived of the support they received earlier from family members for childcare and other household

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[286] A. Thacker (personal communication, Bhuj, January 8, 2008).

activities, they considered the new-found social and economic freedom and greater decision making power with regards to matters of family and children worth the additional burden.[287]

Property owners who had rented out houses and shops to tenants for several years at extremely low rents (rates decided several decades before) could now reclaim their properties because the rights of tenants ended when buildings collapsed (or were in the G-5 damage category).[288]

The housing assistance package for tenants allowed many who could not afford to buy land in pre-earthquake times to become homeowners. Several NGOs constructed houses in the relocation sites for tenants and low-income homeowners, thereby creating a permanent asset for these families. Many who owned apartments before the earthquake could "fulfill the dream of having an independent house on the ground," as they qualified for a plot in one of the relocation sites if their apartment building had collapsed or was badly damaged. People who owned property in the walled city but lived in dilapidated, old ancestral homes, sometimes as small as 20 to 30 ft^2, benefited from access to new infrastructure and homes rebuilt to withstand future earthquakes.

Most of the residents in relocation sites expressed a greater sense of safety due to the openness, wider streets, and stronger buildings. "It is very quiet and peaceful

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[287] In contrast, displacement and distance from one's native land may provide necessary ingredients to perpetrate gender power structures and patriarchal relations and ideologies (Moghissi, 1999).
[288] The tenants were protected by the Bombay Tenancy and Agricultural Lands Act of 1948.

(*bahut shaanti hain*)," they said. Others enjoyed the double advantage of getting away from the haunting memories of the earthquake and getting a bigger plot in a better location.

Most residents agreed that the implementation of TP Schemes had resulted in better circulation and more open space in the walled city. If another earthquake occurred, people could get out of their houses to the new wider streets with ease. The new ring road system also helped to reduce the flow of vehicles through the walled city and its vicinity.

Recovery through Housing Construction

Town planning exercises did not engage directly with the reconstruction of houses other than by the approval of house designs by the planning authority, BHADA. However, the physical restructuring exercise along with institutional aspects of urban planning intersected with strictures of land ownership and tenancy to determine if, when, and how people could re-establish their homes, a significant aspect of recovery after the earthquake. The processes of earthquake rehabilitation were situated in complex interagency interactions, and technical and administrative procedures were often obscure and incomprehensible to a vast majority of the local population. In urban Bhuj, such processes challenged residents' abilities to deal with uncertainty and change. The restoration of homes was influenced by financial constraints, the nature of land tenure, and type of ownership.

Financial constraints. All new construction built after the earthquake had to comply with the improved Development Control Regulations (DCR). This meant use of stronger earthquake-proof building materials and construction techniques in a reduced built area. Homeowners found the housing assistance provided by the government to be insufficient to pay for even the labor charges.[289]

In the case of several of the low-income tenants from the walled city, after a long period of waiting, houses were built by a few NGOs either for free or through a cost-sharing mechanism. Many residents resorted to sale of property or other tangible assets (including jewelry and household articles), took loans from banks, or borrowed from acquaintances, friends, or relatives. Many used the death compensation of their family members. Although loans were made available by several banks to the earthquake-affected to build houses, those who owned small businesses or worked as daily wage laborers and therefore did not have a regular source of income (which was important to be able to pay the monthly interest) found it hard to access such loans. Documents such as receipts of property tax payments were necessary for procuring loans for house construction. Economically weaker families who had not been paying taxes before the earthquake could not qualify for such loans.

The timing of the housing assistance installments also affected the ability of

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[289] Maximum of Rs. 1,50,000, and decreased proportionately based on the built area.

households to rebuild their homes. Government housing assistance was provided in three installments for each phase of construction, spread over a long period of time. The government released the first installment in 2001, before town planning was announced, and the next in 2002 (to those who met the requirements). Economically weaker families spent the first installment on subsistence needs, including food, with the hope that when the government gave the next installment they would be able to build their houses. However, because of their inability to meet the conditions associated with the first installment, they were unable to claim subsequent installments, and therefore could not construct houses with the money. Even the housing assistance many received came with the price of bribes to government employees, including those in BHADA to "push" the file.

Among the earthquake-affected, government employees fared better. The security of their jobs made it easier for them to apply for loans. Even in cases where they were economically weak and had used their first installment of housing assistance for sustenance, they could still get loans which could then be used to construct up to plinth level to be eligible for subsequent installments.

Many people who were in a state of shock because of the loss of their dear ones did not fill out forms or claim compensation within the deadlines. While availability of resources was a major factor determining one's ability to rebuild, the nature of land tenure, and whether one was an owner, tenant, or an illegal occupant affected the process in significant ways.

Land tenure as a determinant of recovery. In post-disaster planning and reconstruction, the nature of land tenure and ownership determined one's ability to take advantage of government housing-assistance packages. How one fared in the entire rehabilitation process including the reconstruction of houses was dependent on whether one was an owner, tenant, illegal occupant, or squatter. In addition, the nature of ownership agreements determined whether one was a legal property owner or not.

Owners. In general, owners who had title to a piece of land as well as permissions to build on it were in a position of relative advantage. They had more options to choose from in available housing locations, either in the walled city or the new relocation sites. Though one could either construct a house or purchase one, housing assistance could be used to purchase a house only if it had been constructed after the earthquake. However, it would be incorrect to say that all owners were equally advantaged.

There was an implicit push towards de-densification of the old city. Hence, those owners who desired to move to one of the relocation sites received greater support from government officials who expedited the process. This was not always the case with those who desired to stay back in their previous location in the old city.[290] The slower implementation of Town Planning Schemes further complicated this process of

rehabilitation in the old city.

At the level of individual plots, despite the desire to rebuild fast, nobody could build until the Preliminary Schemes (Physical Plan for a TP Scheme) were approved by the Urban Development Department of the state government. Many believed that the delay was intentional, as indicated by the following quote from a long time resident of Bhuj and a social activist:

> They kept the planning of the inner city for later. They played with the psychology of the people and conveyed a feeling that it might take five years. And they did it slowly, saying that it was very complicated and all that. So, most people went outside to various relocation sites.[291]

Residents of the walled city, who wanted to continue staying there, faced several challenges with regard to resolution of problems with their plots. They often felt that they were being penalized for their unwillingness to move to the relocation sites and thereby somehow interrupting the overall planning process. Many times, despite their desire to continue living in the previous location, town planning left them with fewer options, as described by this walled city owner:

> I was going to live here [in the walled city]. But the plot that was given to us after the cutting was of such a shape that it was not possible to construct a house there. That is the only reason why we decided to surrender the plot;

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[290] This differential treatment towards those who wanted to stay back was expressed by several owners in the walled city.

otherwise I would have never left that land.[292]

As part of the reconfiguration exercise in the walled city, people who were allotted plots away from where they used to be, conflicting with their religious and social sensibilities, often surrendered their plots to the government in exchange for plot(s) in a relocation site.

Among owners, many could not take advantage of the option to surrender their plots in the old city and move to a relocation site. One of the contributing factors was the nature of land ownership and title of the plot. In the case of joint ownership among siblings, BHADA required all the owners to make a claim jointly to be eligible for plots in the relocation sites. If the joint owners had subdivided the plot (even when they all lived under the same roof) and had had it recorded in the City Survey records (the government agency that maintains records of land parcels within the city boundary) each one was eligible to make a *claim* for a plot (Winchester, 1992).[293] However, if the division of property was not documented and City Survey records were not updated to reflect the joint ownership, the entire plot was considered as one for town planning purposes. This meant that the deductions to the plot as per the town planning norms would be applied irrespective of the subdivisions, resulting in uneven

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[291] N. Upadhyay (personal communication, Bhuj, February 4, 2008).

[292] A. Ajani (personal communication, Bhuj, October 25, 2006).

[293] For joint families, if each household had a separate kitchen and ration cards, even if the title deed was in the name of the father, the sons could make separate claims provided the City Survey records indicated that the property had been subdivided. Even if they hadn't subdivided it at the time of the earthquake, if they could prove that there were separate households living in the same house with their own ration cards, then BHADA allowed them resurvey the plot, legally subdivide it, and make separate claims.

deductions across subdivisions. Even if the owners decided to surrender the plot, they were eligible for only one plot in the relocation site, although the difference in prices would be paid to the owners.

Owners who had rented out their multistoried houses at the time of the earthquake faced a unique dilemma. If they were to claim housing assistance and reconstruct the house, they had to accommodate all the tenants or reach an agreement regarding monetary compensation, as the housing assistance check was issued in the names of the owner and the tenant(s). At the same time, if the owner had to abide by the revised building control regulations which forbid construction beyond two floors and enforced new setbacks, it was practically impossible to accommodate all the tenants. The housing assistance was often not enough to reconstruct the house to accommodate a few and then compensate the rest. Several such owners did not rebuild their houses for many years.

Tenants. At the time of the earthquake, 40% of the residents of Bhuj were tenants. If the houses in which tenants had been living were badly damaged in the earthquake (G-4 or G-5 category), their right to continue living there ended. Although policy recommended that tenants should be accommodated in the reconstructed house, it was entirely up to the owner to rebuild the house or allow the tenants to live in the rebuilt house, since it was not required by law.[294]

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[294] According to the Tenancy Act, the tenant rents the structure/building and not the land. So if the structure is destroyed, then the tenants' rights cease to exist. In cases where the owner rebuilt the house with assistance money, yet did not allow the tenant to live there, if a tenant wanted to establish his/her

After town planning, BHADA gave possession of the plots back to the owners as per City Survey records and did not want to be involved in verifying who the tenants were. If the landlord of a house in the G-5 damage category decided to avail himself of the government's housing assistance and rebuild a damaged house, the tenant had the right to continue living in the newly constructed house for a marginally increased rent. The outcomes of this requirement were two: 1) several owners decided not to receive the government housing assistance for the fear of having to accommodate their previous tenants in the newly constructed houses, and 2) owners and tenants jointly received the compensation and reached an agreement according to which the tenant would not make claims for continued residence in exchange of a monetary compensation. In Bhuj, a majority of the owners did not give possession of rebuilt houses back to their previous tenants.

If the owners and tenants failed to reach an agreement and therefore did not claim housing assistance, then the money stayed with the government. If the tenant wanted to rebuild the house using housing assistance from BHADA, he/she could not get the money without the owner's approval. Getting approvals from original owners was difficult because in many cases the tenants or caretakers did not have the contact address of the owners (especially those who had left the houses with caretakers several decades earlier).

claim, the tenant was asked to settle the matter in court and not through BHADA. The litigation was a very lengthy procedure and often would take a minimum of five years, although on rare occasions the judgment was made quickly. BHADA did not get involved in such cases.

In order to assist tenants whose landlords did not give them back possession of their houses, the allocation of plots in relocation sites was extended to these tenants. They could purchase plots at a subsidized rate (slightly higher than the rates for owners) in one of the two relocation sites, Rawalwadi or Mundra Road. Later this was extended to the fourth relocation site at GIDC. The tenant was responsible for constructing the house (either using their own money or loans), although in certain cases NGOs came to the assistance of lower-income groups.[295] They could also purchase or rent another house in a desired location. However, in that case they were not eligible for any assistance from the government.

As indicated in the previous section, most tenants paid nominal rents set several decades earlier that were grossly non-reflective of market prices at the time of the earthquake. Before the earthquake, the majority of tenants, despite continued insistence by their landlords to vacate their houses or pay higher rents, had refused to oblige and were protected by the Rent Control Act. At the time of the earthquake, some of the tenants even had houses elsewhere in the city that had been rented out. Others had purchased land illegally on the periphery of the city through transfer of land title of an illegally encroached area or an area authorized for agriculture (that does not have the right to be built upon) and built a small house.

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[295] Some NGOs catered to specific social groups, as in the case of beneficiaries of Hindu Samaj Britain. They built 92 houses in GIDC primarily for Hindus but later extended these to others as they did not have enough beneficiaries who met all the requirements.

While some people constructed houses in informal areas on plots without legal land title (purchased before or after the earthquake), others moved to houses they already owned in an informal area, rented one, or encroached upon an area and constructed houses.[296] These choices have not been static. Even during the period 2003-2008, people resorted to one or more of these options, which one depending on changes in their economic status, overall development of the city after town planning, distance to work place, social affinities, communal relations, and other factors.

Informal settlers. Despite the fact that over 40% of the urban population of Bhuj lived in slums and provided labor to the city, the earthquake rehabilitation and reconstruction processes did not adopt any measures for the improvement of these informal areas. However, considering the large number of informal settlers in Bhuj, state actors agreed to extend housing assistance to the occupants of illegal houses that were damaged in the earthquake (G-5 category). Since structures in most informal settlements in Bhuj were mostly single storied and much smaller in size, the extent of damage was significantly less than the damage to the high-density formal settlements in the old city.[297]

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[296] The last of these was least common.

[297] In 2001, the total slum population was estimated to be approximately 70,000, or 42% of the projected urban population of 165,000, primarily in municipal wards 9-12. There is a wide variation in density of the settlements. Densification of older settlements is taking place as well, especially where there is no vacant land in close proximity. They are often segregated on the basis of religion and caste. Houses vary from *pucca* (permanent), semi-pucca to *kachchh*a (temporary) mud houses. Most of the houses are single storied with one or two rooms per house. Most of these settlements have access to good peripheral roads. The internal roads are often unpaved or *kachchha*. They lack adequate water supply, sanitation, sewerage, and garbage disposal systems. Most of the households have a metered system of electricity. Source: BHADA, 2001a.

If occupants of informal settlements whose houses had been damaged presented proof of residence, such as utility bills or tax receipts (if they have been paying taxes), they were eligible for an assistance of Rs. 40,000-50,000 (approximately US $800 to 1,000). However, in reality, this assistance was extended only to those whose houses stood in the way of roads proposed by the Development Plan and had to be demolished. Occupants of such houses were eligible for plots in the fourth relocation site in GIDC that functioned as the temporary relocation site after the earthquake (known as *hungami awas* or temporary abode). Abhiyan, a regional NGO based in Bhuj, constructed nearly 100 houses, while Hindu Samaj Britain built and gave away 92 houses free of charge. However, many of the beneficiaries did not move into the new houses or stayed there for a little while before going back to their previous locations.

The non-occupancy of houses constructed for lower-income groups some distance from their original places of residence posed an ethical dilemma to the NGOs. On one hand, the legal title to a house reduced economic vulnerability of the beneficiary. On the other hand, there was a question of the appropriateness of creating new housing which might not reflect actual demand. Stigma attached to sites where low-income groups were being resettled posed additional challenges.

Beyond the officially "mediated" process of relocation and rebuilding as part of the earthquake rehabilitation project, there were other processes of physical rebuilding. After the earthquake, many people encroached on vacant government land

and built permanent or semi-permanent structures; people also moved to existing informal settlements.

There was also significant in-migration after the earthquake. Some of the migrant laborers continued to live in the temporary shelters vacated by others in various sites. Others moved into existing informal settlements. Yet the option of making land available at affordable rates to those who had a legitimate interest in living in the city was not considered by the government. The town planners were hesitant to allot plots to them as indicated below:

> Current residents of these houses [temporary shelters in the fourth relocation site] are mostly people who have come from outside or staying on rent, who do not have anything in Bhuj. They are demanding the allocation of plots but do not have any legal status to make such a claim. We have given plots to tenants, apartment owners, and encroachers, but these people do not fall into these categories. There are even people who have come to live in Bhuj for employment. They have to vacate because this was a temporary arrangement and we have already allotted plots to those who are legally entitled.[298]

State actors feared that if the government provided plots to economically weaker sections of the population (including migrant laborers) it would spur further in-migration. Setting a precedence of extending land ownership to "non-residents" was avoided to eliminate the possibility of similar demands in future.[299]

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[298] C. Bhatt (personal communication, Bhuj, February 6, 2008).

After the earthquake, there were several demands from informal settlers to get land regularized. The Chief Minister of Gujarat during his visit to Kachchh promised ("gave his word in writing") that those living in slum areas, even those unaffected by Development Plan roads and other rehabilitation projects, would be regularized in-situ, once all other earthquake rehabilitation projects were implemented. However, even in 2008 no such initiatives had begun.[300]

Despite their willingness to pay for the land (and also property taxes upon regularization) in exchange for legal ownership and extension of basic facilities, most people lacked the technical know-how or financial resources to go through the lengthy procedure. Such households were largely dependent on their community leaders or political representatives to facilitate the process. Individuals with financial resources went to Gandhi Nagar, the state capital, and got their land regularized.

The government's earthquake rehabilitation program largely stayed away from addressing the problems faced by informal settlers. Encroachment encouraged by economic interests was another deterrent.[301] Those who were affected by DP roads were given the option of purchasing land at subsidized rates in GIDC relocation site,

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[299] A. Dhar (personal communication, Ahmedabad, February 8, 2008).

[300] M. Pandya, Founder and President of Bhuj *Chhoppadpatti* (slum) Action Committee (personal communication, Bhuj, January 20, 2007).

[301] In many cases, businesses that needed space to store their stock used existing structures (or even built new ones with help of encroachers) in the informal settlements instead of purchasing land from the government and constructing a storage facility. The informal settlements also had a thriving real estate business patronized by several affluent people who constructed buildings or houses in slums and rented them to others. This was seen by these "developers" as an easier way to make profit without the hassle of developing a formal housing society and then collecting installments from the residents. (Source: Ibid.)

even when they had illegally encroached upon government land.

Socioeconomic Changes in the Walled City

In the preceding sections of this study, using the parameters defined by the state —such as damage category, type of tenure, and legality with regard to landownership—I discussed the multiple resiliencies of residents of Bhuj in re-establishing their homes under the earthquake rehabilitation program. There are also other, less tangible aspects of recovery contingent upon processes of physical restructuring of a city—such as economic, social, and emotional recovery. Efforts to re-establish one's home were dependent on other forms of resilience associated with the physical city, the sociocultural lives of its residents and institutions, its economy, and its institutions of governance. These processes of resilience were shaped by both the earthquake and the planning exercise that followed, often referred to by the residents as the "second earthquake."[302] The following sections look into some of these processes of recovery, which were equally as important as the rebuilding of houses.

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[302]Many residents used the term "the second earthquake" to refer to the post-earthquake town planning process implying its disruptive nature as well as the lack of control and state of powerlessness they experienced.

Changes to the walled city economy. How did post-earthquake town planning and city-rebuilding processes interact with the walled city economy, on which the livelihoods of most residents of Bhuj were dependent?

As policy-making and planning processes unfolded, economic rehabilitation was addressed separately from the development of housing and infrastructure.[303] While plots were given and housing loans made available to the earthquake-affected, urban rehabilitation was devoid of livelihood options. Also, restoring the regional economy was prioritized over the local economy.[304]

The market areas of the walled city occupied a significant position in the socioeconomic fabric of the city. In Bhuj, prior to the earthquake, the main markets supplied agricultural products to the entire region of Kachchh.[305] Nearly 20,000 to 25,000 military personnel in the city also contributed to the customer base. Non-residents Kachchhis, living in Europe, America, and other parts of the world, during annual visits to their ancestral homes (in different parts of Kachchh including the 24

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[303] The government built approximately 350 temporary shops in two locations for shop owners as well as tenants whose shops had been fully damaged (G-5 category) and gave the use of them free of charge. However, owing to their inappropriate location, far away from all major residential sites, the shops were not utilized very well. Shoppers who used to go to the old market did not go to the new location just because the businesses moved there. Therefore, while most owners kept these shops, as far as possible they rebuilt in the old location whenever they could. The temporary shops were demolished later by the government (BHADA).

[304] During the Meiji Restoration of Tokyo, according to Carola Hein, "Governmental policy was to create first and foremost those buildings and urban structures crucial to industrial development and modernization—such as factories, ministries, and infrastructure—leaving most of the city, particularly neighborhoods and the homes of ordinary citizens, relatively unchanged or only transformed under the influence of private investment" (Hein, 2005).

[305] The markets were regularly frequented by people from neighboring villages to buy produce and consumer goods. Bhuj had a floating population of approximately 30,000.

villages surrounding Bhuj) frequented the markets, contributing significantly to the local economy.

Decongestion of the walled city. The pre-earthquake urban fabric (along with its population distribution) actively preserved a local economy, the restructuring of which had detrimental effects on small businesses and craftsmen financially unequipped to adapt to changes brought about by town planning processes. Decongestion of the walled city following the development of new residential sites led to a drastic decline in clientele.[306] Several government offices were relocated from inside the walled city to make room for land reconfiguration and de-densification efforts as part of town planning. This meant a loss of clientele for small businesses around these offices as well as nearby markets.

Delays in finalizing the town planning schemes in the walled city led to disruption of businesses. This, along with the emergence of new commercial centers in other parts of the city, significantly challenged the viability of many of the businesses in the old bazaars of the walled city. Several of the gold and silver shops, banks, sweet meat shops, paint shops, as well as shops selling luxury goods, shifted to more lucrative locations such as the Hospital Road. With several new and bigger shops on the main thoroughfares outside the walled city, people from the nearby housing societies (as well as the relocation sites) did not have any incentives to go to the old markets when

the same products and services were available in closer proximity. Shoppers from nearby villages who used to arrive at the bus station on the western periphery of the walled city before proceeding to the old markets now preferred to go to the big stores on Hospital Road or *Vaniawad* or the new ring roads.[307]

Shops in the bazaar that were reduced to make room for town planning needs suffered loss in business from the reduction of shop size.[308] Others were allocated plots far from the original location of the shop as part of the Town Planning Scheme reconfiguration exercise, even when plots were available adjacent to the original ones.[309] Certain businesses, such as medical suppliers and pharmacies, moved outside of the walled city to the new shopping center constructed in one of the relocation sites.

Effects of the new road network. The new road network altered the viability of businesses based on their location with respect to main roads. While shops located on the new ring roads or radials saw a tremendous increase not only in property values but also its clientele due to better access, those located away from these and those towards the northern side of the city struggled to keep the businesses running. The

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[306] It was mostly people from the four municipal wards who used to shop in the old markets, the same wards that suffered maximum damage in the earthquake and were subsequently decongested as part of town planning.

[307] Vainiawad area, located along the southern part of the walled city, is dominated by the trading community of Jains.

[308] Due to delays in arriving at the Final TP Scheme layout (where property values and compensations are finalized), many owners who had their shops cut for widening roads did not get compensated for a long time.

[309] Due to the dramatic appreciation of property values of plots adjacent to the main roads and their commercial potential, people with political clout or financial resources often pressured the local level

shifting of the wholesale grain market from the *Bhid* area in the northern part of the walled city to a new location outside of it led to loss of clientele for the old bazaars nearby as people from neighboring villages no longer came to the walled city to purchase grains. After the earthquake, since Bhuj was completely destroyed, many wholesale businesses moved to less affected places such as Naliya, Nakhtarana, and Mundra, and they set up shops there.

Within and around the walled city, construction of new roads as well as widening of existing ones encouraged commercial use along them. Dramatic appreciation of property values, an indirect outcome of the implementation of town planning schemes, made property on the new roads affordable only to wealthy businesses. Real estate on the new ring roads now constitutes prime commercial property in the walled city area, resulting in a significant change from residential to commercial uses. People with plots next to the ring roads saw property values skyrocket after the re-evaluation of property values as well as construction of new roads. Many found it economically beneficial to construct shops and rent them to wealthier businesses who could afford the high rents.

Government assistance to businesses. Under the 60-40 scheme, government gave loans with a 40% subsidy to shop owners and tenants whose shops were categorized as G-5. These subsidies were offered in order to start businesses. There was no assistance, however, to rebuild shops. A tenant's rights were terminated after

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state machinery or the TPOs to get such plots in lieu of their original plots located somewhere in the TP

the earthquake and the possession of the property reverted to the owner. So if a shopkeeper who had operated a business from a rented facility wanted to resume business in the same place, he/she had to reach an agreement with the owner. The other option was to purchase a shop at any of the relocation sites on a 99-year lease.[310]The higher costs of these shops and their location away from the main market areas discouraged many people from buying them.

Despite the availability of a special assistance package for trade and commerce, small businesses could not benefit from it. There were charges of corruption in the beneficiary selection and allocations of funds. Many small businesses, especially those that operated from rented facilities, did not get any of the loans and therefore had to take high interest loans just to keep their businesses going. Others who could not get loans adapted to the dire financial situation by shifting to the sale of lower-value goods, shutting down their own businesses, working for others, or seeking other forms of employment that paid less than what they were used to.

Vulnerabilities and resiliencies of walled city businesses. The earthquake also exposed certain hidden vulnerabilities of small enterprises engaged in gold and silver jewelry making. In the case of gold and silver craftsmen (*karigar*), the merchants used to leave gold or silver (undocumented, referred to as "black") with the

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Scheme area.
[310] The possession of the property will be with BHADA. In the case of properties on lease, there is no sale, but just the transfer of lease. BHADA will be the owner of the property.

artisans.[311] When the earthquake hit, most artisans found their precious metals stolen or they were unable to retrieve it from the debris. Merchants insisted that the gold or silver be returned to them before they would give the craftsmen more work. Since most gold and silversmiths failed to do so, they were unable to procure any more work. In the absence of economic help, many could not re-establish their businesses and in turn their employees often had to become daily wage laborers or return to their villages.

While restoration of livelihoods could have been expedited by making commercial spaces available faster and by resuming businesses in the markets before individual issues were dealt with, due to the unrealistic deadlines for the completion of urban rehabilitation work efforts to re-establish the markets and the livelihoods did not succeed.[312] Some who were "fortunate" to enjoy the patronage of beneficent administrators were successful in re-establishing their businesses after a long struggle. Many who ran businesses from rented facilities or informal temporary shops or cabins around the street corners on government land or public streets could not purchase the piece of land which they had earlier occupied or something adjacent to it. They could buy a shop in one of the relocation sites or a commercial plot in the walled city (where the rates were lower) or illegally occupy public land. In the new town planning scheme, there was no room for such small businesses.

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[311] N. Joshi (personal communication, Bhuj, May 29, 2007), and D. Pomal (personal communication, Bhuj, May 31, 2007).
[312] N. Tewari (personal communication, New Delhi, March 22, 2007).

The economic recovery of the walled city was also influenced by the prominent business communities. Despite their move to the Noor Foundation housing society, Bohras continued to do business in the walled city. On the other hand, Khatris, a Sunni Muslim community engaged in the craft of tie and dye, or *Bandhani*, largely stayed back in their pre-earthquake locations or moved to locations north of the walled city (formal and informal housing colonies). Shops selling *Bandhani* (tie and dye) mushroomed, especially along the ring roads. There has been an influx of other communities into the business. Despite the initial slowdown caused by the earthquake, these artisans received significant exposure to an international market. But while their clientele expanded from the pre-earthquake days, most families who were in the business before the earthquake hardly catered to the local market. The *Bandhani* artisans recovered faster from the earthquake since they did not require tools or machinery like other craftsmen.

Although the wholesale grain market moved from the Bhid area, many claimed that it was cheaper to run business from the Bhid than from the new, distant location.[313] Despite setting up shops at the new site, businesses belonging to the *Lohana* community of Hindu traders, with its monopoly over the wholesale grain business, began resuming their business in the Bhid bazaar.[314]

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[313] Under the initiative of the District Collector, land was given by government for setting up the wholesale market at a rate of Rs. 800-900 per m². Shops were constructed with individuals' own money on 50, 100 and 200 m² plots. Some were reserved for businesses from the old city market.

In the absence of data regarding changes to the economic performance of walled city businesses, it is premature to conclude that the commercial significance of the walled city will come to an end soon. Despite indications of reduced commercial activity in the older markets, certain segments of the old market area, like the Bohri/Danda bazaar, continues its dominance in the supply of certain goods. Many referred to Danda bazaar as the "backbone of the market." Its faster recovery and continued operation have contributed to the economic viability of nearby businesses.

Alteration of sociocultural spaces. What implications did the physical restructuring of the city have on the sociocultural spaces and the relationships embedded in them? Consider this quote from a resident who lived in the walled city prior to the earthquake:

Makaan tau ache bane hain… sadkein ache bane hain, lekin dil alag ho gaye [good houses have been constructed, good roads have been built, but hearts have grown distant]…*falia sanskruti* is completely lost. If you go to Soniwad today…everyone would be sitting in their own homes, no one would talk to their neighbors…[315]

The reification of caste-based communities by the town planning processes influenced the *falia* culture (neighborhood culture), as narrated by a long-time resident of Bhuj:

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[314] 20-25 tenants who ran businesses from shops owned by the *Memon* community (Sunni Muslim trading community) prior to the earthquake are rebuilding the shops with their own money with consent from the *Memon* Community Trust. A. Memon (personal communication, Bhuj, June 21, 2007).

In a *falia*, right from entering the major street into one's *falia*, one would know each and every person of the *falia*, his economic status, his family business, his vices, and his poverty. Everybody was part of a larger family. Now that *falia* culture is gone. What cardinal mistake they [government agencies] committed was, in the relocation sites they encouraged to go community-wise, though in the *falia*s all communities lived together. It was the fabric of the city. Now what has happened is that again people are living just in their own communities, observing the same rituals and customs. Earlier Muslims and other communities were there. Now communities have been compartmentalized. This has far reaching implications for the character of the city.[316]

In the walled city, public areas were of utmost importance as they were essential to maintaining the quality of life in a neighborhood and to the way in which people perceived and identified with their community and neighborhood. They often took the form of open *chowks* (squares) and/or community halls. Families belonging to a particular community used to have their communal gatherings, wakes, weddings, and other festivities in their community halls or open spaces in the *falia*/*sheri* (neighborhood/street).

Elements of the built form like the courtyards and *otla* (sitting platforms adjoining the compound wall or the building façade) were part of a hierarchy of social spaces that allowed for different levels of interactions with members of the family, community, and neighborhood. Festivals like *Navratri*, *Diwali*, and *Muharram* often

[315] A. A. Munshi (personal communication, Bhuj, January 11, 2006).

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involved rituals of public participation. The *falias* and *chowk*s brought otherwise separate individuals into a common civic space.[317]

One of the key decisions made by EPC, the planning firm, was to provide street access to each and every house. Since there had been no planned development in the city, the streets were extremely congested. As part of the town planning process, a significant number of traditional gathering places (many *garbi* grounds) were used to decongest neighborhoods and make way for new streets. [318] In Bhuj, "*deli*" (cluster) type of construction was very common. Each *deli* had four or five houses with a common entrance and a courtyard. In order to widen streets, EPC also used the courtyard in *delis*.[319] An elderly resident of Bhuj explained why it was important to have these communal gathering spaces:

> Removal of *chowk*s poses a great danger to society. Community activities have gone astray now. The kids used to play there. When such spaces disappear kids and youngsters start getting engaged in other activities. The structure of society has been altered. Now Bhuj has become a society with all independent houses. The 400- to 500-year-old culture of the city has been destroyed in town planning.[320]

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[316] N. Upadhyay (personal communication, Bhuj, April 2, 2008).
[317] Yet they can also be the focal points for group assertion, communal disputes and sectarian contestation, reflective of existing intergroup cleavages or intragroup divides (Varshney, 2002, p. 181-182).
[318] This is a traditional dance form performed by both men and women during *Navratri*, a Hindu festival, which brought together people from all walks of life, across communities and religions, into the neighborhood space.
[319] This in turn led to another set of problems, particularly with regard to entrances. Sometimes entrance was given through kitchens. Some lost staircases to make room for the entrance, etc.

With the implementation of Town Planning Schemes with their regularized plots, many of the neighborhood spaces have been eliminated, and new spaces reserved for public use were demarcated. Some of these were used to resolve issues related to TP Schemes, while others were sold by BHADA. Many residents expressed concerns about how the land readjustment with the reorganizing of the housing layout, street network, and hierarchy of semi-public and public spaces has torn up "close-knit communities." In several cases, new streets crisscross earlier residential precincts (*falias* and the *sheris*), reducing them to a collection of houses from a vibrant cohesive community. It is mostly the middle-aged and the older generations who miss the social interactions offered by the *falia*, strong ties, mutual support, and security that it afforded.[321]

Dispersal of neighborhoods. De-densification of the walled city carried out by the state under the rubric of post-earthquake urban planning and rehabilitation processes led to dispersal of families and neighborhoods to various relocation sites as well as other settlements in the city. This had significant social and economic implications for people's abilities to interact with extended family members and neighbors, earlier afforded by the dense urban form of the walled city, as indicated by

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[320] N. Upadhyay (personal communication, Bhuj, July 7, 2007).

[321] In the context of recovery and rehabilitation, sociologists (Bolin and Stanford, 1998) cultural-anthropologists (Oliver-Smith, 1986; Oliver-Smith and Hoffman, 1999; Torry, 1986; Turton, 1977) indicate the positive role of social and community interactions and associations in community recovery. Recovery, adjustment, and sustainability of communities after natural disasters are all founded on a very deep sense of place attachment and meaning (Altman and Low, 1992; Marcus, 1997 as cited in Macatol, 1999).

a resident of one of the relocation sites:

> Earlier when someone died or if there was a wedding in the family, one could go around the neighborhood and inform others, whereas now you'll have to hire an auto-rickshaw or use your own vehicle to inform people. With everybody dispersed, you'll have to go all over the city and that has become a very time consuming and expensive ordeal.[322]

Despite the physical distances and the exorbitant costs involved, individuals and families are bound by social obligations, the sense of "*jaana tau padega*" (have to go). However, the demand on time and financial implications of traveling to distant locations restrict their participation in community gatherings. In the relocation sites, residents negotiated with their changed circumstances, as indicated by the following quote from a resident of Rawalwadi relocation site:

> Socially, it's very different from how we used to live before the earthquake. Everybody lived next to each other; there was the *chowk* [neighborhood square]…*kya kar sakte hain? Jo mila hain usse jeena tau padega na?* [what can we do? We would have to live with whatever we got, right?] We cannot leave this place and go. It's definitely not like what it used to be in the *falia*. But there are facilities here, roads, water, light, gutter lines. Inside *gam* [walled city] where we used to live, these facilities were not available. Water wouldn't come, there was no gutter connection . . . roads were not there . . . these facilities are available here.[323]

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[322] Resident of Bhuj (personal communication, Bhuj, January 28, 2007).
[323] Resident of Rawalwadi relocation site (personal communication, Bhuj, August 28, 2006).

Residents of Bhuj dealt with the changes to the built form and the social fabric in various ways. Older men and women who felt "attached" to the walled city frequented it to interact with their old friends, relatives, and neighbors, as well as to buy materials in bulk from the old city's markets. Many left their homes in the relocation sites in the morning and returned in the evening. Despite the city bus service that connected the relocation sites with the walled city, regular trips turned out to be expensive for lower-income families and retirees.

From the youth, there was a mixed response to such changes. Many missed the sense of togetherness and support that most *falias* offered. Younger men who used to gather after dinner in their neighborhoods now rode their motorbikes to meet up with old friends who moved to different parts of the city after the earthquake. Among residents of the relocation sites, those who had been living outside the walled city prior to the earthquake did not share the same sense of isolation as those who had previously lived in the walled city. Many were optimistic that with time the adaptive nature of human beings would allow those who moved from the walled city to overcome their sense of isolation and that new forms of association would be created in the relocation sites.

Despite his faith in people's abilities to deal with changes to their socio-cultural lives, a resident of RTO relocation site and retired government employee explained why it might take a while before stronger social ties are established between residents of the new relocation sites:

Now it's hard to have that kind of emotional attachments. Now here we have to create our own circle. But in order to create new relations, you need time, there must be trust. Here our neighbors who are of our own caste and might even be relatives, there is not the same kind of attachment. Also this is a housing colony. Here, when the gate to one's house is closed, there is no access. People stay inside their homes. It's not the same as in the *gam*, especially in the *falia* system.

In the above quote, the resident alludes to some of the factors that shaped the associational ties that existed in the *falias* of the walled city, such as its embeddedness in the urban form, and its genesis in quotidian interactions based on familiarity and trust developed over several years. It also indicates that these ties were not just defined by caste or religion, but often transcended them. Hence, such associations could not be simulated in the relocation sites amongst members of the same caste or religion with no shared history and whose only common characteristic was their familial ties, caste, or religion.

Many residents observed an increase in impersonal relationships. In most relocation sites, temples (along with some public parks) came to perform the function of social spaces. Plots reserved for community purposes (*sarvajanik* or public plots) as per the new layout plans of the relocation sites were largely vacant. People adapted to the changed physical settings by redefining social boundaries as they resettled in the new locations, even when it was with members of the same community. Post-earthquake Bhuj entered into a phase of change.

Emotional coping. Despite acknowledgement of the psychological effects of the earthquake on affected populations, the dialectic relationship between physical resilience and emotional coping were largely overlooked by the state. While faster rebuilding and restoration of livelihoods can have a positive impact on emotional coping (restoring a sense of normalcy), uncertainties posed by post-earthquake town planning and reconstruction processes complicated the emotional coping processes.

Traditional use of the term resilience in a disaster context implies restoration of livelihoods and economy, reconstruction of homes and infrastructure, as well as physical and emotional recovery. While restoration and development of urban infrastructure might indicate resilience of the city, it does not necessarily imply individual and societal resilience and well-being. In Bhuj, the different yet mutually interacting trajectories of these forms of resilience indicated variations in not only the ability to recover from the disaster but also in the uncertainties that the rehabilitation process itself posed.

Emotional recovery is an important aspect of dealing with various instances of loss as well as change (Marris, 1974, 1996). Immediately after the earthquake, many of the residents of the walled city used to visit their damaged homes regularly to grieve the loss of family members and their homes, and this continued for several years. For many it had the effect of a "pain killer." While economic conditions

improved (asset creation through new plots and structurally safe houses) and the city was rebuilt with improved infrastructure, many who had lost family members were not able to recover from the trauma. Despite several camps and trauma centers run by NGOs and other organizations, lack of emotional recovery was a persistent problem. Families that continued to live together or in close proximity found it easier to adapt to their new surroundings. The differential nature of emotional recovery and adaptive capacities of individuals in different spatial and social settings underscores the significance of socioeconomic interactions afforded by the built environment in shaping people's abilities to cope with disasters. It is yet another indication of the dialectic relationship between physical, social, and emotional recovery.

Invisible violence. One of the distinct outcomes of post-earthquake spatial restructuring processes was the absence of Muslims in the relocation sites. Most families that owned land in the old city retained ownership of their plots. Very few applied for plots in relocation sites. Among those who were allotted plots, most sold their plots as such or sold them after constructing a house. By and large, Muslims preferred to stay close to their own community members either in the walled city or in areas in the northern part of the city outside the wall.[324] Organized and affluent Muslim communities such as the *Memons* and *Bohras* built new housing colonies

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[324] Loyalty to one's home ground after being struck by disaster has been observed as a common sentiment among survivors (Wolfenstein, 1957, in Oliver-Smith, 2001, p. 101) often manifesting in a strong sense of attachment to the place along with tendencies to idealize the lost place (Marris, 1974). Resistance to relocation, a defense and shoring up of threatened identity, is constituted as an affirmation of identity and a defense against cultural collapse (Hansen and Oliver-Smith, 1982). However, others have pointed to the dynamic and adaptive nature of identity beyond its "rootedness" in a place (Malkki,

(mostly formal). Economically backward communities either stayed back in the old city (if the houses could be repaired) or stayed in the temporary relocation site or in rented facilities until they were able to rebuild their homes in the old city. Others moved to informal settlements in the northern part of the city. Educationally backward, poor Muslims suffered the double disadvantage (interlocking oppressions) of lack of economic opportunities for self-improvement as well as reduced bargaining power with the state.

Efforts by the state to avoid "ghettoization" of Muslims yielded the opposite effect. The proposal submitted by the planning consultant to develop one of the relocation sites in the northern part of the city was rejected by the state government to prevent the creation of a site with a concentrated Muslim population. Yet, Muslim families who could not rebuild in their previous locations moved to both formal as well as informal areas with existing Muslim populations. A site with planned housing and infrastructure facilities would have significantly improved the living conditions of economically backward Muslims and other socioeconomically backward populations who lived in formal and informal settlements in the northern part of the city in deplorable conditions.

Muslims largely preferred not to stay in any of the three relocation sites because of perceived lack of social safety. Some articulated it as a conscious rejection of relocation sites by a large number of Muslim families. However, the decision to

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1992; Gupta and Ferguson, 1997) and how such dynamics were entangled with larger economic

relocate or stay with people of the same community had been influenced by communal tensions after 2002. Creation of a critical mass was seen by many Muslims as a form of security against future aggression.

Hindu-Muslim engagement in the old city and its business life explains why, despite shocking riots in other parts of Gujarat and some incidents in Kachchh, the old city remained relatively peaceful.[325] "*Ankh ki Sharam*" (a look of shame in the eye, especially when engaging in a wrongful deed to someone familiar)—owing to familiarity and quotidian interactions facilitated by a dense urban form where communities that lived in physical proximity even though with very distinct sociocultural practices and without any formal associational ties maintained a sense of tolerance and civic interactions—was a major factor for the absence of communal tensions. And not all *falias* were coherent entities either. Over the years, different communities moved in and out of the neighborhoods as far as they were within the "tolerable" limits.

The small size of the city, its social fabric, and its dense urban form rather than the structure of its economy had nurtured inter-communal engagements resulting in a climate of tolerance. In the informal sectors, many transactions are still carried out without any formal contracts, yet they are not always inter-religious transactions.

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development and cultural preservation schemes (Sorensen, 1997; Wilmsen, 1989).

[325] Gujarat has the highest per capita rate of deaths in communal incidents at around 117 per million of urban population (Varshney, 2004). However Kachchh has been relatively peaceful. Despite being a BJP stronghold, Kachchh did not experience any violence except for a few incidents in Anjar (Yagnik and Sheth, 2006).

Though the city has a majority Hindu population, businesses whose clientele spread across religious lines have proactively avoided communal flare-ups.

Although there has been an absence of inter-communal conflicts, especially of a violent nature, a sense of social marginalization and separation is prevalent. One finds signs of growing mistrust among people even in areas of the walled city where both Hindus and Muslims had lived in close proximity for generations. This is manifested in various forms, including the propaganda in *Soniwad* area of the walled city, located adjacent to the Muslim neighborhoods. The propaganda is that Muslims have been consolidating their hold over the walled city by purchasing all the plots in the area and that a time would come when all the properties would be owned by Muslims.[326] Earlier, if the socioeconomic characteristics of the population defined the North-South divide, with the absence of Muslims in the relocation sites and their consolidation in the formal and informal settlements in the North, the North-South divide has taken a religious tone.

The state's act of distancing itself from the socioeconomic realities of marginalized groups and its lack of recognition of the inter-communal relations embedded in the urban form in the processes of spatial restructuring spurred processes of resilience that negatively impacted social relationships and long-term social and physical vulnerabilities of marginalized populations. Its efforts to avoid spatial concentration of religious minorities (the Muslims in particular) led to greater

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[326] N. Upadhyay (personal communication, Bhuj, February 4, 2008).

consolidation, perpetrated the notion of "invisible violence" against Muslims, and led to greater religious segregation in the city.

Earthquake Rehabilitation and Multiple Resiliencies

In Bhuj, residents' processes of recovery—re-establishing their houses as well as economic and sociocultural recovery—were contingent upon processes of physical alteration of the city in the aftermath of the earthquake. The town planning process with its preoccupation with physical planning separated itself from socioeconomic and cultural aspects of recovery of those affected. Measures taken to reduce physical vulnerability to future earthquakes were not linked with policies and programs for restoration of livelihoods or the economy of the city. This meant that even when most people had in principle multiple options for housing under earthquake rehabilitation packages as well as town planning,   instability in their livelihoods meant they could not benefit from this choice.

Strict deadlines, need for supporting documentation, and uncertainty regarding the implementation of town planning (compounded by lack of clear understanding of the implications of town planning measures on property values, the urban form, and the social fabric of the city) affected recovery. In addition, the spatial restructuring processes did not leave room for longer and more painful processes of emotional recovery from trauma due to the loss of dear ones as well as altered economic circumstances within the family.

The changes to the walled city brought about by town planning had direct implications for the economic recovery of residents. Reconfiguration and decongestion of the walled city associated with implementation of town planning, infrastructure development, and subsequent increases in land values had significant impacts on businesses—including higher rents, loss or gain of businesses based on location vis-à-vis main thoroughfares, loss of clientele from the walled city, etc. Small businesses or artisans who were victims of hidden vulnerabilities in their particular trade (such as goldsmiths and silversmiths) not only had to find alternative livelihoods but also left those dependent on them for employment without any safety nets.

Although attempts were made by local administrators to create commercial spaces in relocation sites, these were often unaffordable to lower income residents. Others who still depended on the networks and connections in the walled city had to run their businesses from the walled city, even if it meant commuting to the city every day from the relocation sites. In addition, widespread corruption in the beneficiary selection and allocation of commercial assistance packages deprived many people of the resources to rebuild their shops or re-establish businesses. Yet, for many who could access loans or other financial resources or influence the allocation of plots to their advantage, the earthquake and ensuing town planning led to significant economic gains in terms of access to property or land at subsidized rates and sudden increase in their property values.

Disaster, per se, does not result in an increase in land prices; however, the expectation of subsequent physical development often fuels speculation.[327] In the case of the walled city, as part of the town planning process, land values of the Final Plots (after reconfiguration and deductions for new roads and reserved plots) were re-evaluated to account for the increase in values by virtue of better shaped plots with access roads and new infrastructure. The differences between pre- and post- town planning land prices were significantly large. These increases were justified on the basis of the lower pre-earthquake prices as recorded in land revenue records that were not reflective of actual market prices (a conscious strategy adopted by property owners to minimize taxes and the registration fee, proportionate to the value of the land or property in transaction).[328]

Reserved plots created as part of the town planning scheme process were auctioned by BHADA.[329] The first auction that took place in *Vaniawad*, the prime commercial area in the walled city, led to sale of plots at extremely high prices owing to their commercial potential. These prices were then used as the baseline to determine or readjust prices of adjacent plots, setting a trend for the rest of the city. While increase in land or property values was seen as a positive outcome for owners, these

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[327] After the earthquake there was a significant increase in rents due to shortage of safe, habitable houses that survived the earthquake and also a moratorium on construction within the walled city until the TP scheme preparation was completed.

[328] During the evaluation process, if someone wanted to contest government prices, such claims had to be substantiated with records of sales of their own property or sales in the neighborhood indicating property sale values consistent with the claim.

[329] This policy was not crafted by the state government, but decided among the CEO, District Collector, and Town Planner. It was opposed by the Gujarat High Court.

land value increases were reflected in the betterment charges that individual owners were required to pay to the planning authority. The tremendous rise in land values often limited or even deprived economically backward families access to land, making it extremely difficult to buy land adjacent to their houses for extending the house or to be used as a workshop (especially in the case of artisans and small enterprises).[330]

Most residents of Bhuj considered the earthquake a blessing because of the ensuing physical development of the city characterized by the new road network, improved services, better houses with street access, and economic development of the region through industrialization. With the option of buying plots in the relocation sites in exchange for their plots in the walled city, many families were able to resolve property-related family in-fighting, attain greater economic freedom from joint families, escape from traumatic memories of the earthquake, and improve their living standards. Allocation of plots in the relocation sites increased homeownership significantly. Many homeowners who had rented their houses for several decades got rid of their problematic tenants since the tenants' rights were terminated when the building they occupied collapsed.

However, the long journey from temporary shelters to permanent houses depended on availability of financing. Government employees fared better in getting access to loans. The time interval between release of first and second installments of

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[330] As part of the town planning process, once the final plots were handed back to the owners after deductions, any additional land they needed, even when that need was a creation of planning process

housing assistance meant that economically weaker families, who had spent the first installment on food and basic sustenance, did not get to claim subsequent installments and therefore were unable to use assistance money to construct houses. How one fared in the entire rehabilitation process including the reconstruction of houses also depended on whether one was an owner, tenant, illegal occupant, or squatter.

Post-earthquake town planning processes in Bhuj demonstrate that while policies were framed along generalized categories of damage, ownership, land tenure, type of building, etc. recovery from the earthquake did not fall neatly within the categories defined by the state. Also, they extended beyond the physical reconstruction of houses. Recovery was influenced by the availability of resources, property title, availability of credit, informal loans from relatives or through patron-client relations with community groups, lobby favors amongst competing politicians, type of tenure as well as the ability to resolve issues related to ownership and tenancy (Geipel, 1991; Winchester, 1992). It also depended on wide-ranging and often dynamic physical as well as socioeconomic factors in society.[331]

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that relied on outdated records and inaccurate damage assessment, had to be purchased from the local authority at market rates from the plots reserved for sale.

[331] General indicators used to understand why certain groups may be vulnerable include: management capacity (to deal with one's own affairs and to meet one's own needs, physical or mental), resource availability (wealth, income, insurance, etc.), cultural attitudes and values (different expectations of help, religious, or ethnic attributes that may require special attention or which may separate a person from the broader supportive community), access to services (language barriers, literacy, geographical distance), social isolation (having poor social networks, being marginalized in society), pre-existing stressors (previous exposure to a disaster). Existing networks in communities through provision of support and assistance may enhance resilience of vulnerable groups by instilling a sense of community—individual's sense of identity and belonging within a group (Wositzky, 1998). While membership of a cohesive group generally enhances resilience, it can, under certain circumstances, have

Various accounts of rebuilding homes in the walled city and relocation sites, by owners and tenants, formal and informal settlers demonstrate not only the different experiences faced by residents defined by the categories of tenancy and land ownership, but also differences within each category. Ambiguities in ownership and tenure could have detrimental effects on individuals' abilities to benefit from recovery programs.[332] Restoration as well as creation of tangible assets, such as urban infrastructure, might suggest resilience of the physical city, yet does not necessarily indicate individual and societal resilience/well-being or its varied and unequal nature. Along with the changes to the physical form, changes to the social and economic characteristics of the built environment can have a significant influence on the collective sense of well-being.

In urban areas like Bhuj that suffered extensive destruction, physical reconstruction is an important indicator of resilience yet not the only one as physical reconstruction is not necessarily recovery, or vice versa (Davis, 2005, p. 261). Different processes of coping (that vary with time), reflect not only the efforts to adjust to a changing material world but also how the relationship between material and non-material aspects of coping are negotiated and prioritized. Processes of coping or recovery have distinct physical, emotional and cultural dimensions (Kirshbaum and Sideroff, 2005). While certain forms of coping might be recognized and enabled by the state, others may be ignored or even inhibited.

the opposite effect—for instance, cultural characteristics which advocate emotional suppression can increase stress vulnerability (Paton et al., 2001).

Although "natural" disasters are said to provoke overall compassion without anyone having to take sides, compared with war reconstruction, which is morally charged (Hein, 2005), disaster responses including relief are intertwined with questions of legitimacy. Whether it is cash doles for earthquake-affected people in the immediate aftermath or financial assistance for rebuilding houses, such measures are inextricably linked with questions of the authenticity of claims. With passage of time, the "rigor" of such verification processes accentuates. While many residents were able to negotiate with relief suppliers on humanitarian grounds even if their ration cards were not updated to reflect their current family size (or even in some cases were lost or buried in the debris), lack of "proof" was a significant impediment to gaining monetary assistance to rebuild homes or prove eligibility to purchase a plot. Ration cards were re-issued for many who lost them in the debris.

During the course of the six years following the earthquake, when reconstruction was in full swing, policies and plans underwent changes with changing socioeconomic and political realities. The techno-legal machinery that guided and regulated development (institutions, tools, and techniques), availability of funds and resources, political interests, (public and private interests), the nature of stakeholder participation, cultural aspects of rebuilding (physical and non-physical aspects to be preserved or modified) political commitment, propensity to change and cooperation, along with processes of social and economic recovery influenced the physical restructuring of the

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[332] Complex property rights issues require considerable time to resolve, often delaying the recovery of

city. [333]

While de-densification of the city is inextricably linked with population dispersal, physical restructuring processes do need to pay greater attention to existing social relations (both inter- and intra-communal relations embedded in neighborhoods) and to articulate ways to preserve specific aspects of the built-form that afforded such interactions. Specific experiential qualities of space that render a sense of continuity is important in dealing with change. Nevertheless, reproduction of specific elements of the built-form in isolation is less likely to recreate the social interactions that these forms afforded in a particular sociocultural, economic, and political context. Understanding of the sociocultural and economic fabric, inter- and intra-communal relations, distribution of uses as well as location with respect to each other, density and scale of settlements that allowed certain elements of the built form to afford particular social interactions (for example, the relationship between a pedestrian and the street compared with a motorist and a street, or a cul-de-sac compared to a thoroughfare) are crucial to retain the essence of such interactions.

The experiences of residents of Bhuj challenge the current mode of disaster rehabilitation characterized by separate treatment of physical, social, and economic aspects, with an emphasis on physical reconstruction at the expense of social and economic rehabilitation of the affected. However, post-disaster urban planning

those affected (Olshansky et al., 2005).

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processes intended for long-term vulnerability reduction could do this while enhancing the inherent coping capacities of those affected. In the case of Bhuj, additional actions would have allowed people to benefit from the physical rehabilitation process: greater attention to the restoration of livelihoods and local economy along with options to diversify, creation commercial spaces/economic options in relocation sites for small businesses and services, the timely release of housing assistance along with guidelines for their effective utilization, and socio-technical facilitation of in-situ house construction or in relocation sites. Socio-technical facilitation of recovery of affected households would have allowed residents to make more informed decisions regarding reconstruction (in-situ or in relocation sites) based on better understanding of the technical aspects of planning and reconstruction processes. Faster physical and economic recovery has a positive impact on emotional recovery.

The adoption of existing regulatory mechanisms such as the Development Plans and the Town Planning Schemes allowed the state to restructure the physical city and its unregulated built form (with structurally unsafe buildings that had been shaped largely by real estate and commercial interests). These measures provided the institutional and legal framework to guide physical recovery and long-term risk reduction (using an existing mechanism) where there was immense pressure to produce faster results. However, the application of these physical planning measures to guide earthquake rehabilitation and reconstruction in an already urbanized area

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[333] This is referred to as convergence behavior, characterized by a sense of solidarity and shared loss resulting in willingness to make sacrifices for the common good when overwhelmed by an event of massive proportions (Fritz and Mathewson, 1957).

requires that the state provides affected households with support systems for socio-technical facilitation of physical rebuilding as well as economic recovery. NGOs, civil society organizations, and technical agencies/building professionals could work in collaboration with local actors, including local governments, in setting up such facilities.

In order to be effective in influencing the decision-making process (by informing such processes of realities on the ground and the needs of the affected populations) and also to gain public acceptance (as credible means of participation in recovery and rebuilding processes and information exchange), it is important that these fora have a legal standing and are linked with local governance systems dealing with recovery planning and implementation, disaster assistance, building regulations, provision of basic services, livelihoods restoration, etc. It is equally important that they are set up early in the process, so that they can help formalize, strengthen, and sustain the convergence behavior exhibited by the disaster affected for deliberations on policies and plans. This is also crucial for the incorporation of long-term risk reduction measures (especially that of the marginalized) in recovery plans and policies that are typically difficult to achieve with the passage of time.

In the long term, as policies and plans related to recovery are translated into action (or "made") by its implementers at the local level, the proximity of the fora to those affected allow them to capture the multiple resiliencies and make suitable adjustments to policies and plans. In addition, their permanent status and state

recognition enhances their legitimacy in the eyes of the public as a legitimate platform for sustained interactions with the state. Such interactions also help inculcate a sense of ownership in local actors, including the earthquake-affected, of the plans and policies, thereby increasing the chances of their acceptance and adherence. For smaller urban areas that face systemic problems of inaccurate or badly maintained records (including land and property records), such units can allow for local validation of records, which then forms the basis for planning interventions. Engagement of local government in such processes also provides opportunities for local officials to enhance their understanding and build capacities in dealing with recovery and long-term development.

The socio-technical facilitation units cannot replace other legitimate means of public articulation of opinions, needs, and grievances (including public meetings, debates, and protests), the role of media, local governments or that of elected representatives. However, through the involvement of NGOs (with strong local presence and experience with recovery processes), organizations and individuals informed of the local context and physical planning and rebuilding processes, and local government (and linkages with higher levels of government), such units can play an important role in finding ways to facilitate physical recovery of the disaster-affected in association with options for livelihood generation and economic recovery, while being sensitive to processes of emotional recovery.

Given the discussion of multiple factors that shaped the recovery of the

earthquake-affected in the context of disaster rehabilitation and town planning processes, in particular, the final chapter will bring together the complexities of rehabilitation of urban areas through town planning mechanisms and the multiple resiliencies associated with such processes. It discusses the institutional changes brought about by GERRP and situates these in the larger context of techno-legal regime of disaster management in India. The implications of these changes on post-disaster recovery and vulnerability reduction are discussed, and suggestions are made for enhancing the coping capacities of disaster-affected and facilitate their faster recovery.

CHAPTER 8

DISASTER AS OPPORTUNITY FOR VULNERABILITY REDUCTION

In this final chapter, I synthesize the findings from the preceding chapters on the complexities associated with the application of town planning processes for earthquake rehabilitation in Bhuj, as well as the multiple trajectories of various aspects of the recovery of the city and its residents. Following this, I discuss the institutional changes in urban governance and disaster rehabilitation brought about by GERRP and situate them in the larger context of the techno-legal regime of disaster management in India. I conclude by suggesting ways in which post-disaster urban planning processes intended for long-term vulnerability reduction could also enhance the inherent coping capacities of those affected.

With the influx of funds, political commitment from the state, and the "opportunity" to use existing urban planning measures for earthquake rehabilitation, GERRP was largely successful in a number of ways: expanding and improving the physical infrastructure of the city, providing housing options to owners and tenants (thereby increasing home ownership), enhancing circulation within the walled city to allow for emergency response, and ensuring construction of houses compliant with building regulations to render them earthquake-safe. It was also successful in decongesting the walled city by reconfiguring it, as well as developing relocation sites where plots were made available to those affected by various town planning proposals

and others who wanted to relocate.

However, the rational planning model adopted by the architects of the program hesitated to engage with the political realities of the affected population and denied legitimate means of participation, making the processes of recovery long and painful. By framing assistance packages according to categories defined by the state, the policy framework redefined the identities of the affected population based on land tenure, the damage category of the buildings they occupied or owned, and legality of landownership—rendering those outside these categories illegal and hence ineligible for government assistance.

The program's strong emphasis on housing reconstruction and infrastructure development, along with the disconnect between various components of economic and social recovery, prevented several residents from benefiting from the housing program for lack of resources or difficulties in resolving ownership related problems. This was especially true for the socioeconomically marginalized. It reflected the dominant approach of urban planning prevalent in India, which treats physical, social, and economic aspects of urban planning separately and often with an emphasis on the physical.[334]

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[334] Urban planning in most developing countries, a legacy of colonial planning laws—with its emphasis on physical aspects—is an extension of design-based disciplines such as architecture and civil engineering, and is more often shaped by bilateral and multilateral funding agencies or indigenous varieties in response to it (Sanyal, 2005). Rational comprehensive planning is the prevalent type of

Disaster as Opportunity for Development

The narratives of residents as well as state actors reveal that many considered the earthquake and the ensuing town planning processes a "blessing in disguise," not only for Bhuj but for the entire district of Kachchh. The earthquake presented the opportunity to undertake extensive infrastructure development such as the road network, water, and sewer systems, along with restructuring of the congested walled city and development of new sites, all of which required massive funding and mobilization of the state apparatus that are typically hard to come by for smaller towns such as Bhuj.[335]

Under the leadership of the state government, GERRP was formulated to utilize earthquake rehabilitation to modernize a socially and economically backward region by checking clientelism (social relationships based on patronage) in the local administration and establishing new institutions for long-term planning, reconstruction, and disaster management. There was also immense political pressure to rebuild fast. The extent of damage and human casualties had invited media attention, with every action of the state brought under public scrutiny.

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planning where planning practice separates and regulates land uses through various regulatory measures (Mahadevia, 2001).

[335] Despite the large number of smaller towns and villages that are urbanizing, local administrations lack adequate resources to undertake planning and infrastructure development. A significant move to alter this has been the introduction of the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) in 2005 which allows towns with varying levels of urbanization to apply for funds from the central government for undertaking infrastructure development subject to a set of mandatory and optional reforms in urban governance. For details of JNNURM see:
http://jnnurm.nic.in/nurmudweb/toolkit/Overview.pdf

Decisions about spatial planning in the context of earthquake rehabilitation were framed within the larger politics of land, where private developers dominated land and housing markets in the absence of government provision.[336] The land readjustment policy adopted in the inner city along with the massive infrastructure development fuelled speculation, causing tremendous increase in land values. Since the government rates for land were high after the town planning exercise, private developers began demanding even more. With new ring roads, land was opened up for development and land around the ring roads was "cornered" by real estate developers.[337] The post-earthquake years saw the mushrooming of several real estate firms, many of which run schemes to attract lower- and middle-income families.[338]

Those who purchased plots in relocation sites at subsidized rates saw their value appreciate severalfold.[339] The government's decision to use only public land for relocation sites led to significant appreciation of privately owned lands surrounding these sites. Despite the availability of land, owing to high values, many families continue to live in multistoried buildings (including several that are structurally unsafe).

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[336] In the 1960s and 70s, the Gujarat government allotted land to cooperative housing societies. However, since the 1980s the allocation of land for housing societies was very limited and was difficult for lower- or middle-income families to get land for housing societies.

[337] Land values along the ring roads have increased tremendously, though near areas in the North of the city primarily resided by Muslims and backward communities the increase is not as high as others.

[338] The local newspaper reports incidents of extortion where the operators of a scheme disappear with their money, leaving the subscribers more impoverished.

[339] Among the three relocations sites, prices in RTO relocation site are the highest: 100m^2 plots purchased for Rs. 32,000 (US $720) were sold for Rs. 600,000 (US $13,340) after five years, indicating a 20 time increase in prices.

Urban rehabilitation through town planning. Unlike earlier programs of earthquake rehabilitation, GERRP did not directly undertake housing reconstruction.[340] Instead, it adopted the approach of restructuring urban areas through existing planning mechanisms (such as the Development Plan and Town Planning Schemes) and infrastructure development. Formulation and implementation of these planning mechanisms in Bhuj demonstrated the complex nature of urban rehabilitation arising from higher land values (due to greater demand and real estate speculation), various formal and informal arrangements that constitute land ownership and tenure, state of land and ownership records as maintained by the local agencies as well as the strong nexus between real estate developers and the local administration. In addition, the disaster context as well as the magnitude of human and material loss suffered evoked a sense of urgency to produce tangible outcomes, thereby putting immense pressure on those in charge of preparing and implementing policies and plans.

After a major disaster, the strong desire to return to normalcy is manifested in demands for faster re-establishment of homes and livelihoods. Hence, any attempt to undertake urban restructuring through planning is often challenged by an overwhelming pressure from politicians and the media to formulate plans and policies as soon as possible. Bhuj, being the capital city of the worst affected district of Kachchh, drew a lot of attention from the national and international media and other observers who scrutinized every action of the state. This condition of being constantly

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[340] Under earlier earthquake reconstruction programs funded by the World Bank, houses were rebuilt for its occupants as part of the program. For details of earthquake reconstruction programs, see Mexico

in the limelight, along with political manipulation of issues, put a lot of pressure on officials to produce faster, more visible results. The predominant strategy, therefore, was to "Do it now, and fix the problems later" before the window of opportunity shut. Implied in this attitude was reliance on the irreversibility of the overall plan (whether Development Plan or Town Planning Scheme, except through the process of variance), which according to the planners offered greater "sanctity" to the town planning endeavor. This sense of urgency often resulted in spending more time later rectifying errors, modifying original plans, and making the plans work by employing tactics ranging from persuasion to coercion.

Despite the modernist, rational planning tradition prevalent in India, a legacy of British town planning laws, in Bhuj we find planners and administrators acting in "good faith," preparing Development Plan and Town Planning Schemes based on inaccurate and outdated land records (City Survey and revenue maps)—which is antithetical to rational, comprehensive planning principles. Policies would later be "made" de facto by the local bureaucrats who used their discretionary powers to fill the information gap.[341]

Making plans work. The town planning policies and plans of Bhuj resonated

City (Inam, 2005), Los Angeles (Comerio, 1998, Inam, 2005), and Marathwada , Maharashtra, India (Economic and Political Weekly Research Foundation, 1998, Vatsa, 2005).

[341] People who deliver services to the public through their behavior "make policy" (through their power to exercise discretion) by translating the policies into action and in this process, they redefine the policies as perceived by the public. By exercising their discretionary powers, they also negotiate with the "system" to find ways of accommodating individual grievances and hence are constantly involved

with a techno-legal approach to disaster management. However, the conditions of civic engagement and awareness and adherence to disaster management practices that were necessary for faster recovery and long-term vulnerability reduction, were largely absent.

Traditionally, political and economic interests severely curtail implementation of "rational" plans. While the disaster aided adoption of a statutory planning mechanism like the Town Planning Scheme for post-earthquake urban rehabilitation, its successful implementation was not ensured. To solve problems related to town planning and thereby achieve "desired" outcomes, the implementers used several tactics ranging from persuasion to coercion, employed arguments invoking morality and social consciousness, reinforced the need to live in safe environs, and offered incentives which did not clearly fit in the existing legal framework of town planning.

In addition, it was crucial to have "file-pushers" who constantly followed up with the bureaucratic machinery till decisions pertaining to town planning and infrastructure development were approved, thereby providing the plans and policies with legal sanctity.[342] In order to minimize political interference, the state government agencies such as GUDC adopted the strategy of obscurantism, maintaining a "low profile" or even anonymity.

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in the re-interpretation of the public policy. See Lipsky (1980) for a detailed discussion on strategies adopted by street-level bureaucrats in public services in the US.

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Following the reconfiguration exercise and associated reduction of plot area ("cutting"), many residents found their plots too small to serve their purpose, too far away from the original location or in shapes unsuitable for rebuilding, and sometimes with no adequate/proper access. In order to rectify such problems with the physical plans, BHADA officials often encouraged residents to surrender their plots in the walled city and move to relocation sites or purchase additional land from BHADA.

Increase in land values as a result of town planning processes and subsequent sale of plots in the TPSs allowed the state government to generate revenue to repay substantial portions of the loans. Ironically, adoption of TPSs in an earthquake rehabilitation project turned out to be a financial success in generating revenues whereas historically TP Schemes had been unsuccessful in financing infrastructure development within the scheme area.[343]

While GERRP defined the institutional framework for the creation and implementation of policies and plans, creation of a new local agency such as BHADA for planning and implementation was intended to minimize the involvement of local elected bodies and allow state agencies and departments to maintain control over the rehabilitation program. Hence, attempts were made by the state to circumvent the self-interested behavior of local politicians and to "protect the project" from being sabotaged or manipulated by local interests that had failed to regulate growth and

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[342] For a discussion on file-pushers in bureaucracies, see Weber, "The theory of social and economic organization," translated by Henderson and Parsons (1947).

speculative real estate development that resulted in the creation of an unsafe built form.

The narratives of planners and other stakeholders reveal a differentiated view of planning practice, which does not fit into the neat frameworks offered by top-down or bottom-up explanations of planning. At the local level, where policies were "made" by its implementers, individuals and public-minded actors worked in conjunction with local decision-makers to minimize the negative influences of policies and plans or even make them more inclusive. However, for these actors to be able to influence decisions, they had to be knowledgeable and educated enough to understand the policies and plans and their implications, perseverant, rational, secular, committed, without any personal interests or gains, and willing to work from within the institutional framework of rehabilitation/town planning without challenging them explicitly. This space for deliberations was not always present and was largely dependent on the openness of local level administrators, such as the District Collector and the CEO of BHADA.

A strong sense of empathy towards the "victims" and the desire to minimize future loss of lives presented compelling reasons for institutional actors to push the limits of political and bureaucratic structures that shaped or even restricted the nature of interventions that would result in long-term vulnerability reduction. People who were affected by the earthquake, for whom the rehabilitation packages were created

[343] For review of reasons for the failure of TP Schemes of Gujarat to meet its self-financing condition

and town planning efforts undertaken, were often reduced to a statistic—a combination of an administrative category based on their relationship to the house as well as the land (an owner, tenant or an illegal occupant) and a damage category of the structure (G-1 to G-5). However, in the local offices these statistics assumed a human face as people struggling to reestablish their lives, often eliciting "sympathetic" responses from local administrators.

The post-disaster context allowed technocrats and bureaucrats to expand their professional boundaries and navigate the political system as long as this helped solve problems associated with the plans and therefore worked toward the completion of the program. The rationale for restructuring the walled city as part of earthquake rehabilitation did not elicit support from many bureaucrats who considered it inappropriate for the situation at hand and unjustified. Some even considered town planning proposals (as prepared by consultants) to be the source of all problems. Therefore, they were more receptive to individual problem solving associated with the implementation of policies and plans. Despite the attempts by the state government at Gandhi Nagar to control the process, this sentiment allowed decentralization of decision making to the local level often through deliberate efforts of particular bureaucrats.

Because of the need to gain "public acceptance," especially in the initial stages of rehabilitation, the state government allowed for such actions, yet severely curtailed

see Theckethil (2005).

them in the later stages. The political-bureaucratic machinery at the state level often checked the powers of the administrators using the tool of transfers. Also, with the passage of time, mechanisms for rationing services were adopted, such as reducing intake hours, requiring applicants to provide additional documentation of eligibility, restricting allocation of plots at the relocation sites, etc. (Lipsky, 1980, p. 104).

"Participatory" rehabilitation. We find in Bhuj a strong resistance from the state to institutionalize participation, thereby preventing the formation of legitimate fora for public articulation of responses to planning interventions beyond the bureaucratic procedures mandated by the Town Planning Act. State agencies feared that opening up the processes to public scrutiny would not only cause delays in decision making but also result in political manipulation that might undermine the underlying rationality of plans and policies. Technocratic approaches to keeping politics out of town planning left many deprived of legitimate ways to raise their concerns or voice their opinions and often forced those who did not understand or were skeptical of the procedures to adopt precarious and unreliable means to recover from the earthquake, as well as from town planning.

Following large-scale destruction associated with disasters, people move to safer locations, making it difficult to participate in meetings and bureaucratic procedures as well as meeting deadlines. The town planning exercise reduced the city to a collection of plots, where solving individual problems assumed greater importance than

deliberations on how the city should be rebuilt. The burden of establishing legitimacy of claims for housing assistance or resolving problems arising from town planning (based on inaccurate records) fell upon individuals, who often felt themselves to be at the mercy of the state to solve their problems and feared repercussions if they opposed these plans. This, along with a history of absence of political mobilization, deterred participation in larger discussions or formulation of any collective public opinion on the course of development of the city.

Adoption of Town Planning Schemes, a planning mechanism used to reconfigure larger agricultural plots on the peripheries of urban areas, to reconfigure an earthquake -devastated dense urban core was itself seen as a testimony to the lack of sensitivity as well as high-handedness of the state government that controlled the rehabilitation program. Such claims were indicative of a larger sense of disenfranchisement felt by the earthquake-affected because of their lack of involvement in the decision-making processes and the long and painful processes of recovery.

By emphasizing a "community-based" relocation approach, the program's implementers further solidified divisions based on caste, allowing better- organized as well as economically and politically powerful communities to benefit from the program and also manipulate the system to their advantage. Despite the partial success of people's collectives like the Soniwad *falia samiti* in influencing town planning processes and rebuilding faster with greater participation of the residents, attempts to get formal acceptance from the state for *falia samitis* as a legitimate forum for

people's participation in the planning process was not heeded for fear of "the mob" taking over the process and delaying it. Therefore, in the absence of adequate representation and participation of the earthquake-affected, especially those with fewer resources, in decision-making processes regarding post-disaster planning and rehabilitation and the lack of support mechanisms to aid their recovery (physical, economic, and emotional), we find in Bhuj the unfolding of multiple resiliencies of its residents.

Responses to state plans: multiple resiliencies. Narratives by residents of Bhuj about their experience of town planning reveal multiple resiliencies with regard to rebuilding homes in the walled city and relocation sites. Although the disaster risk reduction rationale provided the state with the moral high ground to adopt town planning, multiple resiliencies of the affected populace many times challenged the public-good argument of the plans. The application of an existing planning mechanism to mitigate future disasters posed a compelling model for post-disaster rehabilitation and long-term risk reduction where individual grievances were reduced to sacrifices made in the short-term for greater public good.

The separate treatment of physical, social, and economic aspects of vulnerability significantly affected people's abilities to re-establish their lives in the aftermath of the earthquake, especially those with fewer resources. The gap in the release of first and second installments of housing assistance led to many people using the first

installment for basic sustenance and therefore not qualifying for subsequent installments. Those with regular sources of income, especially government employees, could procure loans to supplement the housing assistance or in many cases build up to the plinth level to be eligible for the second installment. However, households with fewer resources were unable to procure loans due to unavailability of necessary documents or inability to pay loan interest for lack of adequate and steady income. While availability of resources was a major factor determining one's ability to rebuild, the nature of land tenure, whether one was an owner, tenant or an illegal occupant, affected the process in significant ways. The categorization of the physical area of the city into the walled city, area outside the walled city, and relocation sites for town planning purposes, with different interventions for each, added another dimension to the recovery process.

Many Muslim residents of Bhuj expressed the view that the properties of Muslims had been disproportionately affected by town planning processes. Demolition of several graveyards, mausoleums, and other religious structures were seen as a sign of disrespect for the religious sensibilities of a minority population in a state notorious for state-sponsored blatant marginalization of religious minorities.[344] The state government's rejection of a fourth relocation site in the northern part of the city, where majority of Muslims lived, to avoid the consolidation of Muslim population in the

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[344] See Mukta 2003, 1990, Shah et al., 2004, Lobo and Kumar, 2009, Yagnik and Sheth, 2006, Breman, 2002.

northern part of the city yielded the opposite result.[345]

Due to a combination of factors, such as economic reliance of Muslims on the walled city, sense of insecurity after the 2002 Godhra riots, higher property values in the walled city compared to relocation sites, and long commute from relocation sites to mosques for daily prayers, we find in Bhuj what was referred to as "a rejection of the dispersal tactics of the Hindu state." While most Muslims who owned plots in the walled city retained them, those who got plots in the relocation sites in exchange for those in the walled city sold them later. This led to greater consolidation of Muslim populations in existing formal and informal settlements mostly in the northern parts of the city as well as development of several new formal housing projects to accommodate the middle-class Muslims.

The techno-legal disaster management approach largely excluded illegal settlers and those who could not establish the legality of their claims, thereby restricting the scope of a program focused on vulnerability reduction. Except for compensations to informal settlers whose houses had to be demolished for the implementation of the Development Plan, no attempts were made to extend assistance to residents of informal settlements, or regularize them by providing tenure or extending

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[345] Within the government, this was seen as an effort to prevent the creation of another *naroda patia*, the Muslim neighborhood in Ahmedabad that was subjected to the worst massacre by the right-wing Hindu mob during the 2002 Gujarat Communal Riots. *Naroda Patia* has become a metaphor for the risks associated with the creation of a vulnerable minority settlement.

infrastructural facilities.[346] Government agencies were apprehensive that if the government gave plots to lower-income families, especially informal settlers, it would spur further in-migration. Setting precedents was therefore avoided to prevent future claims for land.

Post-earthquake rehabilitation processes addressed economic rehabilitation separately from housing and infrastructure development. Physical changes to the walled city including the new road network and subsequent changes in land values, decongestion of residential areas near the markets, reconfiguration of commercial spaces, and relocation of government offices to outside the walled city had a significant effect on the viability of businesses in the walled city, especially those with fewer resources. In addition, hidden vulnerabilities of artisans emerging from informal arrangements with bigger merchants, inability to benefit from the commercial assistance packages (due to corruption), and lack of assistance to rebuild shops also affected restoration of livelihoods, in turn affecting reestablishment of homes.

Physical restructuring of the city also affected the sociocultural spaces and the relationships embedded in them. As part of the town planning process, in order to provide street access to each and every house in the walled city (that had grown organically with cul-de-sac streets and high density residential precincts), elements of the traditional built-form such as the *chowks*, *otlas*, and courtyards were used to design the new layout. Removal of these gathering spaces and dispersal of population from

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[346] For a historical analysis of the evolution of this political culture of authoritarianism in Gujarat, see

the walled city to various relocation sites as well as other settlements in the city (especially community-wise relocation to government sites) had an impact on the social ties between members of the same community, as well as of those belonging to different castes/religions.

The analysis of town planning processes in Bhuj demonstrates how processes of recovery of its residents in the aftermath of the earthquake—re-establishing their houses as well as economic and socio-cultural recovery—were contingent upon processes of physical alteration of the city. In addition to the physical restructuring and infrastructure development of the city, GERRP served as an opportunity to intervene in the urban sector that had been sidelined in the past due to lack of revenue generating capacity of the sector (and therefore, fewer resources), and lack of understanding of the complex issues associated with urban areas and their governance systems.

Institutional Changes in Governance and Disaster Rehabilitation

> If we hadn't made the Development Plan, we wouldn't have known the mess, we wouldn't have gone into these reforms and land management or a unified state level agency doing a total station survey . . . cleaning up the mess, creating another Special Purpose Vehicle (SPV), allocation of funds for it. . . [347]

Mukta (1990, 2003).

The earthquake became a "blessing in disguise" to intervene in the urban sector, which had always been on the backburner owing to lack of understanding about the sector as well as its inability to generate revenue. The urban sector was primarily seen as a social sector, with extension of services such as water supply, sewer lines and therefore it was not considered a revenue generating sector. Typically, it ran on subsidy and very little government allocation.[348] However, to undertake large-scale planning in urban areas governments required large sums of money which could only be made available by multilateral funding agencies or International Financial Institutions (IFIs). In 2000, Gujarat had begun the first set of reforms in the urban sector under the World Bank-funded Gujarat Urban Reforms Project (GURP).[349] As it was making progress, the earthquake happened and the entire focus was shifted to rehabilitation, with an emphasis on urban areas.

In Kachchh, the town planning process was also a response to "rectify" problems associated with the existing system of urban governance. Owing to the lack of credibility of existing institutions of local governance and skepticism about their capability to deal with issues of long-term planning and development, earthquake rehabilitation efforts resorted to more centralized forms of functioning, even if that meant undermining basic tenets of decentralization. The creation of new local

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[347] A. Dhar (personal communication, Ahmedabad, February 8, 2008).

[348] In the case of Gujarat, the total allocation for 117 municipalities of the state was approximately Rs. 20-40 crores, Rs. 1 Crore = US $200,000 (Source: Ibid.)

[349] The key reforms under this project included: repealing Rent Control and Land Ceiling Acts, area-based property tax, rationalization of stamp duty rates, collection of user charges, and double entry accrual based accounting system. With a total project cost of US $150 million, Urban Development and Urban Housing Department of Government of Gujarat was identified as the implementing agency and

authorities for the preparation as well as implementation of plans reflected these concerns.

As part of the City Assessment and Development Strategy (CADS) under the Gujarat Urban Development Program (GUDP), GUDC advised the state government to make it mandatory to prepare Development Plan, so that in the process the cadastral maps, base maps, land revenue and city survey records would get updated.[350] Under the project, it also proposed to create a unified agency that would develop cadastral information at the state level, update the information and make it available to people.

Many attributed the speedy recovery of Kachchh to the implementation of the program through autonomous institutions like the newly created GSDMA, BHADA, and existing ones like GUDC and not by the routine departments and agencies.[351] ADAs were designed to handle the earthquake rehabilitation process and were expected to be dissolved when the program ended. Nevertheless, many, including state actors, feared that the outcomes of the project would be unsustainable once ADA, the local authority who was primarily responsible for the entire project, was dissolved and responsibility to maintain the infrastructure as well as to ensure the adherence of new construction to earthquake safety standards was transferred back to the respective

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GUDC, formed in 1999, the nodal agency. This project was dropped in 2001 following the earthquake (Sources: http://gudc.com/gurp, World Bank Report).

[350] GUDP is a US $300 million World Bank-funded project launched in 2009 with the objective of implementing capital investment projects and urban reform initiatives at both city and state levels in Gujarat. First step of the process consists of carrying out detailed studies on reforms streamlining, urban planning and land management which would then get translated into infrastructure projects and specific reforms. 10 towns have been identified to carry out city level component of the program called CADS. GUDC would act as the nodal agency for the program. For more information see http://gudcl.com/gudp

municipalities.

In urban areas, the Urban Development Department of the state government controlled the Area Development Authorities and superseded GSDMA with regard to funding allocation power. Municipalities in the towns had very limited involvement in the process, except for the engineer who was consulted by BHADA and GUDC.[352] Once the infrastructure was built, it was transferred from the ADAs to the respective municipalities. Information related to the housing layout and infrastructure, including AUTOCAD drawings, plans, and GIS maps, was made available to the municipalities as part of the hand-over process. However, the maintenance of the newly built infrastructure and monitoring future development were major concerns for all those who were involved in the design and implementation of the project.

A majority of the state actors expressed skepticism about the ability of municipal officials to maintain the infrastructure when the newly built services were to be handed over to them. Municipalities lacked the required technical staff. And, due to the political nature of the body and the constant arguments between ward councilors on allocation of funds to their respective wards, very little work was done. Prior to the earthquake, municipal bodies were unable to maintain even the existing services under their jurisdiction.[353]

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[351] V. Thiruppugazh (personal communication, Gandhi Nagar, March 26, 2007).
[352] In case of Bhuj, the main engineer of the Municipality at the time of earthquake rehabilitation program, who worked closely with GUDC and the consultants, left after two years.

The lack of technical capacity, highly bureaucratic way of functioning, and its control by the combined political and—real-estate-developer lobbies were cited as reasons for not involving local municipalities in the rehabilitation process. But many believed that the municipalities could have prioritized people better, and could have been more accessible to the public since people knew their ward councilors. They did not know the planner who spoke a different language, who was an "outsider." The ADA had no representatives from the city in its governing or advisory boards.

Despite the influx of funds for GERRP, capacities of municipalities were not strengthened. It was not GSDMA's mandate to build the capacities of municipalities. They focused on local people, dissemination of information regarding safe construction of houses, and retrofitting measures to make existing houses disaster resistant. GSDMA provided the funds for the construction of roads and other infrastructure development (which was implemented by line departments under the supervision of GUDC), approved their projects, and oversaw the implementation of the programme.[354] None of the four Area Development Authorities were mandated with building the capacities of municipalities or engaging them in the rehabilitation process.[355] The pressure to produce faster results was such that it was easier for the newly created agencies to implement the program themselves than to build the capacities of municipalities to undertake the program implementation.[356]

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[353] C. Bhatt (personal communication, Bhuj, February 6, 2008).
[354] M. Sahu (personal communication, New Delhi, March 23, 2007).
[355] N. Tewari (personal communication, New Delhi, March 22, 2007).

Multilateral funding agencies such as the Asian Development Bank wanted a more "clean and technical body" to implement their projects, which also contributed to the non-involvement of municipalities in the rehabilitation processes. In addition, there were concerns of financial mismanagement and corruption if the municipalities were involved.

In 2008, BHADA was still in charge though the state government's original intent at the time of creation of ADAs was to dissolve them in three to five years. The municipality is neither familiar with (due to lack of involvement in the process), nor has any reason to want to own the extensive infrastructure that was created as a result of the earthquake rehabilitation and town planning exercises. While BHADA by and large ensured the adherence of the newly built houses to safety standards, accretions to those houses as well as seismic safety of houses constructed in future are critical aspects of physical vulnerability reduction.

In the absence of efforts to strengthen the capacities of municipalities and reform the processes related to building permissions and monitoring of adherence to standards, the fundamental issues that led to widespread damages to buildings and infrastructure in the city, unregulated development and non-compliant built form, persist.[357] However, for BHADA to hand over all its responsibilities to the municipality, adequate technical and administrative expertise of the municipality to manage the new revenue and taxation systems, and maintenance and future expansion

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[356] Ibid.

of the infrastructure was necessary.[358]

In case of Bhuj, instead of dissolving BHADA, this organization would be replaced by a new authority, Kachchh Development Authority (KDA), with the power and resources to maintain the services that have been created under the earthquake rehabilitation programme as well as to regulate future development. The proposal to form the KDA was submitted to the state government by the District Collector in 2007. According to the proposal, in addition to Bhuj, the new authority would also be responsible for all areas of Kachchh other than Anjar, Gandhidham, and Mundra.[359]

In Bhuj only 50% of the roads proposed by the Development Plan were constructed by GUDC under GERRP. Therefore, the proposal suggested that the KDA supervise the construction of the remaining 50% of roads, as well as undertake future implementation of infrastructure projects, preparation of Development Plans and TP Schemes (along with sale of the reserved plots from the TPSs to finance new infrastructure), and other development activities in the district. Although the government considered the option of creating a municipal corporation for Bhuj, because of its small population, in order to meet the minimum population requirement for a municipal corporation, the nearby village of Sukhpar (15km from Bhuj) would have to be included. The difficulties in servicing such a vast area discouraged state

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[357] N. Tewari (personal communication, New Delhi, March 22, 2007).
[358] V. Thirppugazh (personal communication, Gandhi Nagar, March 26, 2007).
[359] According to this proposal, Area Development Authorities of Anjar and Gandhidham would be merged and a new authority would be created for Mundra.

officials from adopting that option.[360]

Upon conclusion of GERRP and having learned lessons from Bhuj, GUDC initiated the process of bringing about systemic changes to urban planning and land management through the World Bank funded urban reform project. This included streamlining existing processes related to urban planning and land management by reviewing the legal framework, urban planning practices, and land information systems, followed by preparation of policy papers, draft legislations, planning guidelines/manuals, restructuring of institutions, and setting up land information systems.[361]

GUDC, under the urban reform agenda, has initiated the process of creating a Commissionerate of Municipalities, consisting of IAS officers who would control all the municipal corporations and municipalities, replacing an earlier directorate of municipalities which was non-functional. It indicates a shift from the state government's earlier approach of "trying to improve municipalities by establishing a presence in them so that work happened" to "exercising greater control over the municipalities and superseding it in order to minimize the influence of local politicians on decisions related to urban development." [362] A new paradigm of urban development is being crafted by GUDC where through government it is creating a platform for

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[360] C. Bhatt (personal communication, Bhuj, February 6, 2008).
[361] B. R. Balachandran (personal communication, Ahmedabad, July 28, 2006).
[362] GUDC is faced with a lot of resistance from the political spheres, but not a strong opposition as they are the nodal agency who receives funds and oversees the implementation of projects. In addition, GUDC is a company, with employees from the private sector, over whom no minister has direct control or influence.

other companies to invest and implement projects. GUDC's role would be that of an intermediary to lend the government's credibility to those companies that deserve it because of their credit worthiness.[363]

The de-politicization myth, the belief that exercising more centralized forms of bureaucratic and technocratic control over local governance institutions would check the powers of local politicians and lead to more efficient urban development devoid of any political interference, continues beyond earthquake rehabilitation. The earthquake would further the establishment of more centralized forms of political control by taking power off the hands of local elected bodies such as municipalities. GERRP is a now a successful case of how disasters can be used as an opportunity to transform urban areas using existing planning mechanisms and improve governance through an independent authority. The program was also reflective of a larger process of transformation at the national level with regard to disaster management—from a response-oriented approach to that of risk reduction through a new techno-legal regime.

A techno-legal disaster management regime. Single events often influence discourse and national and international policies and practice.[364] The Gujarat earthquake was a watershed moment in the disaster management regime in India.

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[363] A. Dhar (personal communication, Ahmedabad, February 8, 2008).
[364] The International Decade of Natural Disaster Reduction (IDNDR) was hugely shaped by the occurrence of several earthquakes and subsequent emphasis on technological solutions to minimize earthquake risks (Blaikie et al., 2004, p. 22).

While India has faced several earthquakes in the past, including the earthquakes in Uttarkashi (1991), Latur (1993), Chamoli (1999) as well as in Kachchh (1819 and 1956), most of them occurred in rural areas. [365] The 2001 earthquake was the first major earthquake to hit an urban area in the last 50 years.[366] The earthquake brought about significant changes to the institutional aspects of disaster management at the national level. Government of India carried out a review of the disaster management mechanisms. In 2001, based on the recommendations of the High Powered Committee on Disaster Management, the Disaster Management Division was shifted from the Ministry of Agriculture to the Ministry of Home Affairs (Bandopadhyay, 2007).

At the state level, it brought about significant changes to the institutionalization of disaster management.[367] The Gujarat State Disaster Management Authority (GSDMA) was created immediately after the earthquake and played a key role in the rehabilitation process. In 2003, a Gujarat State Disaster Management Act was passed. Under the Act, all districts are required to have their own District Disaster

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[365] The two earthquakes in Kachchh were of magnitude 8.0 with 1,500 deaths and magnitude 7.0 with 115 deaths respectively (Jain et al., 2002); Geological Survey of India has recorded two more earthquakes in Kachchh in 1845 and 1903 of magnitudes 6.3 and 6.0 respectively. The earthquake of 16th June, 1819 placed the Kachchh peninsula within the seismic tract of India. The shock was felt over a radius of 1600km from Bhuj and an area 50 miles long and 10 miles broad was raised up, blocking the Indus waters flowing through Kachchh and depriving Lakhpat area much of the water it had been getting (Gazetteer of India, 1971).

[366] Along with several smaller urban areas such as Bhuj, major cities such as Ahmedabad, Bhavnagar, and Surat, located 240km, 275km and 350km respectively, experienced severe damages especially to its high-rise buildings. In Ahmedabad, nearly 130 multistoried buildings collapsed during the earthquake, majority of which did not follow building codes or development regulations.

[367] For a brief history of institutionalization of disaster management in India, disaster management framework in India, as well as milestones in the national discourse on disaster management in India, see Todd and Palakkudiyil (2003).

Management Authorities and Disaster Management Plans.[368]

Emergence of disaster risk reduction as a national agenda. Prior to 2001, disaster management activities were largely response-oriented, with a focus on provision of relief and financial assistance to the disaster-affected for reconstruction. At the national level, the Disaster Management Division within the Ministry of Agriculture was responsible for disaster management. In the 1990s, influenced by the International Decade for Natural Disaster Reduction (IDNDR) efforts were initiated at the national level to shift the focus from relief to preparedness.[369]

In a significant step towards institutionalization of disaster management in the country, in 2005, in response to the increasing human and economic costs associated with disasters,[370] the Government of India enacted the National Disaster Management Act. In the same year, the national government launched a new initiative to reduce disaster vulnerability. [371] The new techno-legal regime, "proceeds from the conviction that development cannot be sustainable unless disaster mitigation is built into the development process" (GoI, 2005, p. 4). Although this highlighted the shifting focus

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[368] While the statute would dictate the implementation, preparation of plans is carried under a UNDP-GoI project fully funded by UNDP. Source: M. Sahu (personal communication, New Delhi, March 23, 2007).

[369] In 1989, the United Nations General Assembly declared the decade 1990-2000 as the International Decade for Natural Disaster Reduction with the objective to reduce loss of lives and property and restrict socio-economic damage through concerted international action, especially in developing countries (GoI, 2004, p. 1).

[370] 4344 people lost their lives and about 30 million people were affected by disasters every year in the decade, 1990-2000 (GoI, 2004).

of the Indian state from relief and rehabilitation to mitigation and risk reduction, the new regime, technocratic in scope and imagination, and a legacy of the IDNDR, underscores engineering and other physical protective measures to be supplemented with legislative measures regulating land use, urban planning, and construction of buildings.

Towards reducing the vulnerability of the building stock, the report made recommendations for amending the existing legal framework including Town and Country Planning Act, development control regulations and building bylaws for safety against natural hazards and called for stricter enforcement of regulatory measures (GoI, 2005). The Ministry of Home Affairs, the nodal ministry for disaster management in the country, recommended that state governments and the union territory administrations adopt these. Despite the comprehensive nature of the recommendations, the new approach maintains silence about the highly politicized, complex social and spatial settings, within which various regulatory mechanisms are operationalized (Mileti, 1999, Green, 2005).

The techno-legal regime also maintains silence regarding measures for reducing vulnerability of marginalized groups, low income residents, and other minority populations—including informal settlers who live outside the legal framework of the state and who lack resources to follow regulations suggested by the state (Narasimhan,

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[371] National Disaster Management Division (under the Ministry of Home Affairs) and the Building Materials and Technology Promotion Council (under the Ministry of Urban Employment and Poverty Alleviation)

2003, Das, 2002). In a country like India, where more than a quarter of the urban population lives in slums and informal settlements (38% for cities over 1 million)[372] and 60% of the landmass is prone to earthquakes of various intensities (GoI, 2004, p. 3), the claim of the regime to reduce vulnerability to disasters needs to be challenged as the majority of the population, often those most affected by disasters, lives in areas outside the legal framework. The new regime, formally adopted in 2005, uses regulatory power of the state to enhance safety of the urban areas against future disasters.[373]

Another significant outcome of the Gujarat earthquake rehabilitation is the emergence of disaster management as a national agenda with the inclusion of a chapter on the same in the 10th Five Year Plan (2002-2006).[374] The plan emphasized the need for development processes to be sensitive to disaster prevention, preparedness, and mitigation to minimize periodic shocks to development efforts. Despite the plan's emphasis on "mainstreaming disaster risk reduction into the process of development planning at all levels for sustainable development", the 11th Five Year Plan (2007-2012) noted that it is yet to be carried forward across sectors through actionable programs for achieving the desired result.[375]

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[372] Task Force on Housing and Urban Development, Shelter for the Urban Poor, (Part IV), Planning Commission, 1983.
[373] Town and Country Planning Act of 1960 was modified to incorporate disaster management. The new regime made it mandatory, for regions in Seismic zones III, IV and V (based on Modified Mercalli intensities VII, VIII and IX or more respectively) to adopt the techno-legal framework.
[374] Prepared by the Planning Commission of India (with the Prime Minister as the Chairman), Five Year Plan is a key economic policy instrument through which decisions regarding setting of national development goals and allocation of national resources to different development sectors are made

Earthquake Rehabilitation and Urban Planning: Bhuj

The earthquake rehabilitation of Bhuj demonstrates that while disasters can influence the development patterns of an area, disaster response and recovery processes do not always address root causes of vulnerability due to a variety of political, social, economic, administrative, and legal reasons. In addition to the large-scale physical rebuilding of the earthquake affected areas, state-led interventions after the earthquake extended the domain of domestic and global capital to Kachchh—a region that had been marginalized in the development agenda of the state. The earthquake was a blessing in disguise because it "opened up" Kachchh for development, though without much attention to associated socioeconomic marginalization and environmental degradation. While particular development models that prioritize capital accumulation and economic efficiency over equity and environmental sustainability could accentuate existing vulnerabilities and lead to disasters, disaster rehabilitation can also serve as the "window of opportunity" to apply the very same models of development.

The town planning model adopted in Bhuj is an example of the rational, modernist planning practice in India—with its emphasis on physical planning and its lack of engagement with social, political, and economic processes, often leading to worsening of existing forms of socio-economic marginalization or even creating new forms. The depoliticized planning exercise relied heavily on bureaucratic procedures of public participation. Its predominantly technocratic orientation masked the highly

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[375] Eleventh Five Year Plan (2007-2012), Volume I, Planning Commission, Government of India

political nature of planning process and associated deal making—and presented it as a rational decision-making process conducted in the interest of the greater public good.

Vulnerability reduction cognizant of socioeconomic processes of marginalization. Disaster vulnerability reduction practices need to be informed of processes of social and economic marginalization associated with technocratic planning and disaster management practices, and they need to take a strong social justice stance that explores the public good argument of various initiatives. There is a strong need for an explicit emphasis on minimizing vulnerabilities of populations by building their assets and improving their access to social safety nets and services. After a disaster, the pressure to produce results on the ground quickly warrants faster formulation of policies and plans. In the case of Bhuj, risks were taken collectively by state actors, especially when actions was expected solve the problems created by town planning. This, along with the sense of sympathy towards the earthquake-affected, helped the local administrators transgress the boundaries of legality (with the tacit approval of the state machinery) when it came to implementation of plans. Nevertheless, policies and plans should reflect the socioeconomic and political context of those affected and need to be flexible enough to help reduce their long-term vulnerabilities. Both substantive as well as procedural aspects of these measures should allow the affected to be informed as well as engaged in the process. This would allow them to weigh various options and prioritize those in an informed manner that would help them recover from the impacts of disasters.

Recognition of multiple aspects that shape recovery from disasters.
Recovery is influenced by the availability of resources, including credit as well as informal loans from relatives or through patron-client relations with community groups, ability to lobby favors amongst competing politicians, type of tenure and property title as well as the ability to resolve issues related to ownership and tenancy (Geipel 1991, Winchester 1992). Ambiguities in ownership and tenure can have detrimental effects on individuals' abilities to benefit from recovery programs. The ability to recover also depends on wide-ranging and often dynamic physical as well as socioeconomic factors. Various accounts of rebuilding homes in the walled city and the relocation sites by owners and tenants, as well as formal and informal settlers, demonstrate not only the different experiences of residents in those categories as defined by tenancy and land ownership, but also the ambiguities in such categories themselves. Recovery of the physical city does not always imply socioeconomic recovery of the disaster-affected. Changes to the physical city can have significant implications for the sociocultural lives of residents, including communal relations and sometimes lead to disintegration of social relations that are embedded in the built form. Hesitation of state actors to engage with the social realities of the disaster-affected, whether through the rejection of a relocation site in the northern part of the city or its mixed response towards facilitation of communal living in the relocation sites, can have detrimental effects on long-term vulnerability reduction of marginalized groups as well as their economic recovery.

Decentralized decision-making to facilitate faster recovery. In the case of large disasters with extensive loss to lives, livelihoods, and assets, the response and rehabilitation efforts involve various levels of government, from the national to the local. However, for recovery and long-term vulnerability reduction initiatives, local governments/agencies play a prominent role because of their proximity to the site of implementation of policies, plans, and decisions pertaining to disaster rehabilitation. While policies and plans related to disaster rehabilitation (formulated at local, state or national levels) might apply uniform rules/standards to a population which has unequal access to resources (often creating the illusion of an egalitarian approach where same laws and regulations apply to all the citizens), their implementation at the local level is inextricably linked with dealing with differences in access to resources, differences in governance systems and their inherent systemic vulnerabilities, and particularities of the socioeconomic and cultural contexts. Therefore, in the context of vulnerability reduction, understanding the dynamics of such processes at the local level, especially its impact on households, would help bring a human dimension to disaster management practices. Attention to the processes of recovery of households and adaptation of plans and policies to be supportive of such processes are crucial in ensuring that any action or intervention contributes to the well-being of people, especially those with fewer resources.

Need for institutionalization of public participation. Participation in decision making needs to be institutionalized so that such processes could be

undertaken in ways that enhance the inherent coping capacities of the affected populace, especially the marginalized groups, without compromising on the need to rebuild individual homes as well as a disaster-resilient city. While vulnerability reduction measures might warrant drastic changes to the built form or other aspects of people's lives, it is important more so in a post-disaster context (where people are coping from trauma and changes to their lives) for people to be informed of the changes and their impacts on their lives to make informed choices regarding recovery and reestablishment of their lives. Without exacerbating existing divisions, creation of representative forms that reflect the social relations embedded in the localities should be encouraged and recognized by the state and other actors and these should be engaged in the processes. It is equally important to ensure that the needs and voices of marginalized groups are represented in such fora.

Strengthening capacities of local governance institutions. In the aftermath of a major disaster, due to the pressure to produce quick results, often new agencies are created rather than building on the capacities of municipalities to undertake a program's implementation. In the context of disaster response as well as overall vulnerability reduction, sidelining existing institutions of local governance from decision-making processes related to disaster rehabilitation and recovery due to their lack of technical expertise or their political nature could only be a temporary solution to vulnerability reduction and effective recovery. While large-scale disasters bring in resources and attention that allow for major infrastructure development and planning initiatives, local governments are responsible for development decisions in the non-

disaster times, which would reduce the vulnerabilities of the people and their assets. Also, in the case of smaller disasters and emergencies (annual floods, storms, epidemics, fires, etc.) many of which are recurring in nature, it is the local governments that are responsible for undertaking response and recovery.[376] Hence, instead of replacing them with "technical" agencies for planning and development, it is necessary to strengthen their capacities by providing adequate manpower with required technical skills, financial resources, and building systems of accountability.

Limitations of the Study & Suggestions for Future Research

Limitations of this study. This study looked at the institutional aspects of post-disaster town planning and processes of recovery associated with spatial restructuring. It did not collect data on asset creation at the household level of various income groups or access to services, which are important for long-term vulnerability reduction. Although household-level surveys were conducted in three places—the walled city, relocation sites, and informal settlements of the city—the focus was on the process of town planning and recovery associated with the re-establishment of homes.

Questions of livelihood restoration, a key aspect of recovery, were largely asked in the context of town planning and re-establishment of homes. There is a need to understand the impacts of programs such as GERRP on businesses and artisans,

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[376] Under the 73rd and 74th constitutional amendments, the Village Panchayat (rural local body) and the *Nagarpalika* or the municipality (urban local body) have the powers to initiate preparedness,

especially how the new infrastructure including the road network and expanded residential areas, have influenced their viability in the long term. The continued significance of the businesses in the walled city and attempts by many small businesses and artisans to move back to the walled city warrant a longitudinal study of coping mechanisms adopted by them in an altered physical and economic setting.

The city of Bhuj has undergone a dramatic change in its physical form compared to pre-earthquake days. While this study looked at the physical alterations to the social spaces, especially within the walled city, the evolution of social spaces and changes to inter- and intra-communal relations need further analysis, including the ways in which urban spaces are generated in social relationships and how social relations take distinct spatial forms in cities (Jewson and MacGregor, 1997, p. 1). Although the positive role of social and community interactions and associations in community recovery is widely recognized, the interaction of the physical and the social aspects of recovery at the level of neighborhoods and cities is largely unexplored.[377]

An important limitation of this research is its single-case study method. While this particular method allowed for a detailed analysis of the case that is crucial to understanding the nuances of post-disaster town planning processes, the lessons are drawn from an urban context and a large rehabilitation program in a particular region. It does not allow drawing generalized lessons on institutional and governance-related

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mitigation, recovery and rehabilitation initiatives.
[377] Ethnographic study of the social transformation in Yungay after the 1970 Peruvian earthquake and mudslide illustrate social amplification of risk (Oliver-Smith, 1986).

challenges in recovery and rehabilitation programmes in different socioeconomic and political settings. Nevertheless, the research demonstrates the challenges of undertaking a detailed analysis of a rehabilitation program in a city in the absence of process documentation, where the "bits" had to be pieced together through extensive interviews of all institutional actors, document analyses, and household surveys over an extended period of time to arrive at a coherent description of the processes involved.

Suggestions for future research. Recovery and rehabilitation after disasters are long, drawn-out processes that require analysis spread over a long time period. These processes need to be understood from the perspectives of institutional actors as well as the people for whom the program were implemented (and those who were excluded). There is a dearth of systematic studies that critically analyze post-disaster planning processes especially in the urban areas—policies and plans—their formulation, implementation, and evolution in response to the ground realities. Although policies and plans might be formulated at higher levels—with or without the involvement of local actors—the analyses of their impacts need to pay close attention to the ways in which they are translated into action at the local level by their implementers. Analysis of these actions would not only demystify the technical aspects of urban planning measures, but reveal the political nature of such processes including the value-laden nature of policy debates without dismissing the challenges associated with post-disaster rehabilitation and long-term vulnerability reduction

(Douglas, 1985).[378] Such an analysis, when done in conjunction with household analysis of multiple resiliencies of the disaster-affected, would help identify how disaster risk reduction initiatives could enhance the inherent coping capacities of those affected and allow for their participation in the processes. Acceptability of disaster risk reduction measures by the households in the long-term also needs to be understood.

Of particular significance is the ways in which people influence decision-making to yield favorable outcomes—individually and collectively. Social, political, commerce/trade-based, and communal (caste/religion/ethnicity) organizations and their ability to influence processes of disaster rehabilitation and recovery and to articulate needs and aspirations of their constituencies, need further exploration, especially in the urban context where associations are based on criteria different from the rural settings. Various legally mandated units of participation in urban areas and their ability to influence developmental activities and extension of social safety nets at the local level also need further exploration.

The research tries to establish the linkages between physical, social, economic and political aspects of recovery. However, there is need for longitudinal studies that examine the impact of policies and plans for physical restructuring or infrastructure

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[378] Physical planning exercises are often embedded in larger narratives of reinforcing identity (cultural, national), furthering economic development, and progress through modernizing ways of life. For analyses of specific examples of physical planning interventions and their impacts on populations, see Peattie, 1987; Holston, 1989; Kalia, 1987, 1994, 2004; Marris, 1961. Planning also takes the form of a political project, as an instrument of state control, a technocratic form which often depoliticizes the structures of power that shape these processes (Scott, 1998; Ferguson, 1994; Mitchell, 2002; Flyvbjerg, 1998, etc.)

development on economic, political, and sociocultural lives and well being of households as well as the city as a whole. There is also need to analyze environmental impacts of large-scale urban planning and reconstruction initiatives that undertake massive construction projects.

The study recommends more interdisciplinary research in disaster studies that draws from various disciplines such as urban planning, civil engineering, environmental studies, sociology, economics, and public policy. Disaster rehabilitation programs largely deal with all these aspects to varying degrees. The particular ways in which these aspects interact with each other to shape the recovery and vulnerability reduction of those for whom the programs are designed and implemented need to be systematically analyzed. Understanding their mutual interactions is crucial not only for recovery and rehabilitation of disaster-affected populations but also to for develop initiatives and programs that intend to reduce their vulnerabilities.

While rehabilitation and reconstruction associated with larger-scale disasters are often funded by multilateral organizations, recovery from smaller, recurring disasters are dealt with by governments using their own funds (and in the absence of that, households use their own resources). These smaller disasters significantly erode the assets of households, especially the socioeconomically marginalized, and often accentuate their slide into poverty. While the rehabilitation of towns of Kachchh under GERRP used existing town planning mechanisms, the massive infrastructure development projects (including development of relocation sites) were funded by

multilaterals. Possibilities of designing disaster recovery and rehabilitation programs that use existing programs for shelter construction, employment and livelihood creation, and extension of social and physical infrastructure to vulnerable populations should be explored. We also need to explore how government could work with civil society organizations, private sector, and the people to implement such programs. Similarly, additional measures required to ensure disaster risk reduction and the participation of the "beneficiaries" in the processes also need to be explored.

APPENDICES

Appendix A: Earthquake Damage Statistics: Details of Affected Districts

Appendix B: Indian Seismic Zones Classifications and the Modified Mercalli Intensity Scale

Appendix C: Categorization of RC-Framed Buildings Damaged in Cities of Gujarat During Earthquake of January 26, 2001

Appendix D: Sector-Wise Estimates of Asset Losses and Reconstruction Costs

Appendix E: Rehabilitation Costs Estimate

Appendix F: Components of Gujarat Earthquake Rehabilitation and Reconstruction Program

Appendix G: Details of the Earthquake Housing Assistance Package

Appendix H: Line Departments Responsible for Implementation of Projects in GERRP

Appendix I: Town Planning Scheme Process

Earthquake Damage Statistics: Details of Affected Districts

District	No. of Affected Talukas	No. of Affected Villages	Total Population	Affected Population	Human Deaths	No. of Injured	Percentage of Population Affected
Kachchh	10	949	1,262,507	1,262,507	12,221	136,048	100.00
Ahmedabad	11	392	4,687,491	3,894,000	752	4,040	83.07
Rajkot	14	686	2,514,122	1,594,000	429	11,951	63.40
Jamnagar	11	685	1,563,558	1,563,000	119	4,930	99.96
Surat	8	94	3,397,900	397,989	46	190	11.71
Surendranagar	10	661	1,208,872	1,154,000	110	2,909	95.46
Banaskantha	8	452	2,013,519	719,000	32	2,770	35.71
Kheda	10	350	1,793,138	35,121	0	28	1.96
Bharuch	8	248	1,148,052	460,000	9	44	40.07
Gandhi Nagar	4	210	1,026,728	35,000	8	241	3.41
Patan	8	349	935,203	664,000	38	1,695	71.00
Junagadh	14	554	2,018,446	597,787	8	89	29.62
Navsari	5	331	1,085,692	87,783	17	52	8.09
Porbandar	3	157	376,113	376,113	10	90	100.00
Vadodara	6	85	3,039,127	186,092	1	270	6.12
Bhavnagar	11	535	2,060,315	445,226	4	45	21.61
Anand	8	124	1,647,759	4,687	1	20	0.28
Mehsana	9	611	1,648,251	1,648,251	0	1339	100.00
Sabarkantha	8	68	1,761,086	128,000	0	56	7.27
Amreli	11	273	1,484,300	599,000	0	5	40.36
Valsad	5	108	1,087,680	5,985	0	0	0.55
Total	182	7922	37,759,859	15,857,541	13,805	166,812	42.00

(Source: Table 20-1, Jain et al., 2002, p. 391)

APPENDIX B

Indian Seismic Zones Classifications and the Modified Mercalli Intensity Scale

Seismic Zone	MM Intensity	Description
III	VII	Everybody runs outdoors; negligible damage in buildings of good design and construction, slight to moderate in well built ordinary structures, considerable in poorly built or badly designed structures; some chimneys broken; noticed by persons driving cars.
IV	VIII	Damage slight in specially designed structures, considerable in ordinary but substantial buildings with partial collapse, very heavy in poorly built structures; panel walls thrown out of framed structures; falling of chimneys, factory stacks, columns, monuments, and walls; heavy furniture overturned; sand and mud ejected in small amounts; changes in well water; disturbs persons driving motor cars.
V	IX	Considerable damage in specially designed structures, well designed framed structures thrown out of plumb, very heavy in substantial buildings with partial collapse; buildings shifted off foundations; ground cracked conspicuously; underground pipes broken.

Kachchh district is classified predominately as zone V in the Seismic Zoning Map of India, 1998. This is the highest risk zone and areas so classified are at very high damage risk. Ahmedabad lies in zone III (moderate damage risk). Zones III, IV, and V correspond to VII, VIII, and IX (out of XII) on the Modified Mercalli (MM) intensity scale

(Source: WB/ADB, 2001, p. 23)

APPENDIX C

Categorization of RC-Framed Buildings Damaged in Cities of Gujarat during Earthquake on January 26, 2001

Category	Damage	Extent of Damage in Non-Engineered Component	Extent of Damage in RC column		Suggested Post Earthquake Action
			Individual Column	*All Columns in Ground Story*	
0	None	No damage	No damage or visual cracks	No damage	Seismic strengthening is required for long-term seismic safety.
G1	Slight non-structural damage	Thin cracks in plaster, falling of plaster bits in limited parts.	Very fine cracks in columns, which are to be seen with much attention.	40%-50% of columns in G1, rest in Cat 0	Remove plaster across crack and re-plaster. Building need not be vacated. Seismic strengthening is required for long-term seismic safety.
G2	Slight structural damage	Small cracks in walls, falling of plaster in large bits over large areas; damage to non-structural parts like chimneys, projecting cornices, etc. The load carrying capacity of the structure is not reduced appreciably.	Wider cracks in column approaching *1 mm* width going through core of column, visible to eye.	40%-50% in G2, rest in Cat G1	Remove plaster and grout cracks using epoxy or similar materials. Building need not be vacated. Seismic strengthening is required for long-term seismic safety.
G3	Moderate structural damage	Large and deep cracks in walls; wide spread cracking of walls, columns and piers and tilting or falling of chimneys; the load carrying capacity of structure is partially reduced.	Cracks in column at top and within height approaching *2 mm* width with some crushing of concrete at the cracks but without relative movement between two parts.	40%-50% in G3, rest in Cat G2	Building needs to be vacated. To be reoccupied after restoration and strengthening. Structural restoration and seismic strengthening necessary before reoccupation.
G4	Severe structural damage	Gaps occur in walls; inner or outer walls collapse; failure of ties to separate parts of buildings. Approximately 50% of the main structural elements fail. The building takes a dangerous state.	Diagonals cracks/ torsional cracks/ substantial crushing of concrete, buckling of reinforcement, *'through'* wide cracks in column including relative movement in parts of column and floor.	40%-50% in G4, rest in Cat G3	Building needs to be vacated. Either building has to be demolished, or extensive restoration and strengthening work has to be carried before reoccupation.
G5	Collapse	A large part or whole of the building collapses.	A large part or whole of the building collapses.		Cleaning the site and reconstruction.

(Source: Murty et al., 2005)

APPENDIX D

Sector-wise Estimates of Asset Losses and Reconstruction Costs

Preliminary Estimate of Asset Losses and Reconstruction Costs, as of February 23, 2001

Sector	Asset Losses		Reconstruction Costs 1/	
	($ million)	(crore Rs)	($ million)	(crore Rs)
Housing	1,111 /2	5,166 /2	1,107	5,148
Health	47	219	60	279
Education	144	670	180	837
Subtotal: Social sectors	1,302	6054	1,347	6,264
Irrigation	40	186	90	419
Rural water supply	50	233	97	451
Municipal infrastructure	30	140	45	209
Public buildings and monuments	73	339	95	442
Power	40	186	98	456
Transport /3	69	321	77	358
Ports	21	98	26	121
Telecommunications	11	51	26	121
Subtotal: Infrastructure	334	1,553	554	2,576
Agriculture and livestock *	117	544	74	344
Industry *	73	339	44	205
Services *	250	1,163	200	930
Subtotal: Productive sectors	440	2,046	318	1,479
Subtotal: Environment /4	55	256	55	256
Grand Total	2,131	9,909	2,274	10,575
Of which public assets /5	537	2,497	831	3,864
Of which private assets /6	1,594	7,412	1,443	6,710

/1 Replacement of immovable assets, with improved earthquake/cyclone resistance.
/2 Includes value of household contents such as consumer durables; reconstruction excludes replacement of these assets.
/3 Includes roads and bridges, railways, and airports.
/4 Includes costs of rubble removal in urban and rural areas.
/5 Public assets above include: health, 70 percent of education assets, irrigation, rural water supply, municipal infrastructure, public buildings and monuments, power, transport, ports, and telecommunications; plus the environment.
/6 Private assets above include housing, 30 percent of education assets, and production assets in agriculture and livestock, industry and services.
 *Asset losses and reconstruction costs to agriculture, industry, and services, exclusive of sectors listed above.

Source: Government of Gujarat and Assessment Mission Estimates

(Source: WB/ADB, 2001)

APPENDIX E

Rehabilitation Costs Estimate

Table 8: Expected Expenditure on Rehabilitation

	$ million	Rs. crore
Education*	180	837
Health	60	279
Rural water supply	97	451
Power	98	456
Municipal infrastructure	45	209
Public buildings and monuments	95	442
Roads and bridges	55	256
Housing*	1,107	5,148
Irrigation	90	419
Total	**1,827**	**8,496**

*Note: Sectors where private sector participation is possible.
Source: Joint mission estimates, preliminary.

(Source: WB/ADB, 2001)

APPENDIX F

Components of Gujarat Earthquake Reconstruction and Rehabilitation Program

GERRP comprised five key components: 1) Housing Recovery 2) Livelihood Support Programs 3) Infrastructure 4) Social and Community Development, and 5) Disaster Management.[379]

1) Housing Recovery

Housing component of the rehabilitation program involved monetary assistance for the purposes of reconstruction, repair and strengthening (retrofitting) of buildings. The policy clearly stated that "individual grant for reconstruction is by way of assistance and not compensation." The housing component consisted of five packages of financial assistance which prioritized the provision of minimum shelter for all the affected households (and equity in the distribution of assistance). A second priority was to provide houses for living. Hence in cases were residential buildings had been used for non-residential purposes, the owner or occupants of such houses were not entitled to any assistance. Beneficiaries were to be identified "strictly on the basis of 'house replacement' needs." (GSDMA 2001: 12-13) The package was financed through a loan from the World Bank and was based on the damage category of individual buildings, G1 to G5. It comprised of four packages for:

1. Demand based grant assistance for relocation of 256 villages where more than 70 percent of the housing stock was destroyed, at an estimated cost of Rs. 30 million per village, including grants for land and housing as well as public facilities;
2. *in situ* reconstruction or repairs of housing in villages and towns located in areas declared as the worst affected in the earthquake zones IV and V;
3. *in situ* construction for destroyed or damaged housing in the less affected zone III, and
4. A package of grant based compensation in urban areas.

A special fifth package was developed with an emphasis on urban planning for the rehabilitation of four badly affected towns of Kachchh district, namely, Anjar, Bhachau, Bhuj, and Rapar. Separate compensation schemes were offered based on the damage category, the type as well as the built area of the structures. Financial assistance was also provided for the repair of multi-storied and non-multistoried buildings as well as huts that were completely destroyed. Details of the housing assistance package are given in appendix H.

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[379] Also known as Gujarat Emergency Earthquake Reconstruction Program (GEERP)

The initial package for earthquake affected was directed to property owners, though many were absentee owners. In Bhuj where 40% of its residents were tenants such a compensation scheme raised the ethical question as to who should be compensated, the absentee owner or the tenant who invested in the property and suffered material losses.[380] A new assistance package for tenants was therefore later created by the state government.[381]

Within agreed general standards of disaster resistance, the recovery strategy encouraged an owner driven approach with varied designs and materials.[382] House designs (by households) were expected to help incorporate concerns related to the "house as a workplace", which is common in rural Kachchh and use of local materials. GERRP envisaged cost sharing in three different ways: (a) in those villages where "partners" will be involved, 50 percent of total costs will be shared by corporate houses, large NGOs, other agencies including state governments or any other donors; (b) the households may bring in their own savings or labor to share the costs of reconstruction; and (c) wherever possible, households may also seek to mobilize financing, though the government support for this is envisaged only in terms of facilitating information. (WB/ADB 2001: 46) To promote risk sharing/transfer and protecting investments (sharing the costs), GoG expressed its intent to insure every newly reconstructed house against natural disasters. Since the very poor typically lack access to traditional insurance mechanisms, Self Employed Women's Association (SEWA) developed micro-insurance mechanisms for its members, in several areas, including natural disasters.

2) Livelihood Support & Economic Rehabilitation

In addition to housing recovery, there was also an immediate need to revive and restore livelihoods in the affected regions. GERRP extended short-term economic schemes and benefit packages to self-employed people, service and cottage industries through commercial banks and financial institutions (loans upto Rs. 2 lakhs with 60% government subsidy, popularly known as 60:40 Schemes). Assistance was provided for the purchase of tool-kits, temporary construction of work shed for cottage industry owners, handicrafts artisans etc. in addition to material assistance.

Long-term economic assistance consisted of permanent work sheds to artisans whose house/work shed had been destroyed, formation of Rural Industries Development Centers to provide infrastructural assistance, formation of Handloom-Handicraft parks with 50% government assistance, creation of a revolving fund for

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[380] N. Upadhyay (personal communication, Bhuj, February 4, 2008).
[381] GRs in the GSDMA Document; For Bhuj and Anjar only, according to the municipal records Bhachau town didn't have any tenants
[382] The World Bank-ADB joint assessment recommended that "an owner-driven, *in situ* housing reconstruction process is likely to lead to fast reconstruction and genuine acceptance by beneficiaries" (WB/ADB, 2001, p. 44).

rehabilitation of self-employed in village and cottage industries. For reviving agriculture, immediate assistance for inputs and implements, assistance for damaged and destroyed farm structures, irrigation assets etc. were also proposed.

Assistance for industries consisted of compensation up to Rs.5000 for salt farmers; repair and reconstruction assistance for all tiny, small, medium and large-scale industries in seismic zones IV and V; contribution towards meeting interest liability of existing loans from financial institutions; levy of electricity charges from affected industrial units based on actual usage and not minimum charges; exemption of stamp duty on financial transactions associated with the various disaster assistance schemes; exemption of lease rent and royalty on salt production; exemption of royalty for all materials produced and utilized in Kachchh for 1 year etc. Subsidies were offered to encourage shop owners, traders, businessmen and professionals to invest in commercial activities as well as health and medical services in the seismic zones IV and V.

A significant measure for the creation of long term employment opportunities and over all industrial development of Kachchh was the Special Incentive Scheme which came into effect 6 months after the earthquake and remained operational till October 2004. Popularly known as *Tax Holiday for industries*, this scheme granted new industrial units Sales Tax Exemption or deferment based on the unit's preference, duration of exemption based on the total amount of investment. This was supplemented by Excise Exemption by the central government.

Continued livelihood support would allow households to engage in shelter construction which in turn would allow the beneficiaries to resume their home-based activities. The extensive reconstruction program would also generate employment opportunities.

3) Infrastructure Restoration and Development

The infrastructure component of GERRP included repair and reconstruction of transportation (primarily road network), water supply, irrigation, and power systems in the earthquake-affected areas. In case of public buildings, the Roads and Buildings (R&B) Department was responsible for the repair and rebuilding of administrative buildings and residential quarters. The short-term program included provision of temporary office space (temporary residential accommodations to be provided through regular provision of temporary housing); minor and major repairs and strengthening to damaged buildings, and preparation of designs for buildings to be reconstructed in the following two to three years.

A key aspect of the policy was the improved town planning that would provide the framework for an improved infrastructure in the four affected towns of Kachchh. The Urban Development Department (UDD) of the state government and the newly

formed Gujarat State Disaster Management Authority (GSDMA) developed a strategy for restoration of basic services in larger urban areas, with a three phase approach: (a) immediate needs to restore essential services such as water supply, power, sanitation, and roads to a level that will sustain both the people still remaining in their homes and the large displaced population; (b) medium-term, for the first two to three years, to rehabilitate and reconstruct the urban infrastructure and civic facilities; and (c) long-term to develop improved capacity at the local level enabling them to properly operate and maintain their local systems for which they have become responsible for under the 74th Constitutional Amendment (WB/ADB 2001: 50)[383].

4) Social and Community Development

Social and Community Development component addressed rehabilitation needs in the areas of health, education, social justice and empowerment, and women's empowerment. It provided assistance for the reconstruction of district hospitals, community health centers, primary health centers and sub-centers, *Ayurvedic* and homeopathic hospital and dispensaries/clinics; reconstruction of Aanganwadi Centers and Integrated Child Development Scheme godowns; reconstruction and repair of primary and secondary schools, higher and technical education institutions with improved infrastructure; social protection for orphans, widows, handicapped and marginal groups; and rehabilitation of protected and private monuments and heritage buildings (GSDMA, GERR Policy, 2001). One of the highlights of the reconstruction effort was the district hospital at Bhuj, GK General Hospital, which was rebuilt with Prime Minister's fund using modern earthquake resistant technology[384]

The policy document stated that "the Government of Gujarat will implement a number of programs for rebuilding social and community services and regenerating social capital in the earthquake-affected areas…the restoration of these services is critical for developing a sense of well-being among the communities" (GSDMA 2001: 24). However, educational buildings, healthcare facilities as well as community centers that were owned and operated by community organizations or other groups would be reconstructed by the respective organizations. The central government through its various agencies announced support for livelihood and education of scheduled castes, minorities, *safai kamdars* (scavengers), and backward classes.

5) Disaster Management

A significant step toward addressing issues of disaster response and reconstruction was the formation of the GSDMA to manage and coordinate the implementation of the reconstruction program. Recognizing the high level of exposure

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[383] Under the 74th Amendment to the Indian Constitution
[384] Built using "Base isolation technology" for seismic safety, from The Netherlands, one of its kind in India

of Gujarat to a number of natural and technological hazards, soon after its establishment, the mandate of the GSDMA was broadened to include issues of long-term disaster risk reduction for all hazards faced by the state. The agency's immediate focus, however, was on the earthquake recovery efforts. Its primary functions included coordination of all relevant line agencies and stakeholders involved in reconstruction, financial management of the Gujarat Earthquake Rehabilitation and Reconstruction Fund (GERRF), and monitoring progress of the overall program.

To ensure sustainable reconstruction, GSDMA undertook efforts to quickly develop and disseminate appropriate and affordable anti-seismic designs using local materials and construction techniques, to builders at the state, district and local levels along with programs to train workers in the construction industry in their use. Furthermore, GSDMA would monitor construction and code enforcement throughout the building process, and inspection of completed works; retrofitting of critical structures that were not destroyed in the earthquake, such as schools, hospitals, essential infrastructure, congregation areas, administrative buildings, monuments and hazardous industries to conform to hazard-resistant standards.

For the reconstruction efforts of Gujarat to be truly sustainable, the state government emphasized the need to develop long-term disaster risk management capacity, with an active participation of the public as well as private sectors, NGOs, and local communities. For long-term disaster risk reduction, it incorporated three main components to a comprehensive disaster risk management strategy: (a) identifying the hazards one is exposed to and the vulnerability to those hazards; (b) reducing the risks by taking steps to prevent or prepare for potential impacts; and finally (c) transferring or sharing the portion of risk that cannot be reduced.

There was also an immediate need to develop a comprehensive and sustainable disaster risk management program, capitalizing on the strong public awareness and expectations for improved disaster management following the earthquake. The favorable environment at the national level through the work of the Government of India High Powered Committee set up in August 1999 to draw up national and state-level disaster management plans and earlier/ongoing work undertaken in other states[385] supported such an endeavor. Though hazard distributions of Gujarat were described in the *Vulnerability Atlas of India for Gujarat, 1997*, under GERRP, GSDMA would extend its mandate to support and monitor further research to estimate probabilities of future earthquakes; undertake micro-zoning for land use planning purposes; and a comprehensive vulnerability assessment for each hazard (hydro-meteorological as well as industrial/technological hazards) throughout the state to design and target appropriate risk reduction and transfer measures.

In addition to addressing the need for scientific and technical knowledge required

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[385] Such as Andhra Pradesh, Maharashtra, Orissa, Uttaranchal, and Uttar Pradesh

to ensure safe structures that can withstand the effects of extreme events, earthquake reconstruction projects under GERRP would also consider ways to overcome the socioeconomic, institutional and political barriers to the adoption of effective risk reduction strategies and measures. Since awareness and knowledge play an important role in risk reduction, the policy stated support for workshops and conferences aimed at heightening the awareness of stakeholders to the threat of natural disasters and what can be done about it, and educational and training activities that increase the understanding of policy makers, decision makers and practitioners about disaster management.

APPENDIX G

Details of the Earthquake Housing Assistance Package

Government of Gujarat announced five special packages of assistance for reconstruction, retrofitting, and repairs of approximately a million houses destroyed and damaged in the earthquake. The benefits enunciated through these packages form the basis of the housing recovery program.

Package 1 addresses the reconstruction and rehabilitation of villages in zone IV and V where more than 50 per cent of the houses have collapsed. At the rate of nearly Rs. 3 crore per village of 200 households, it envisages Rs. 30 lakhs for land acquisition, Rs. 70 lakhs for infrastructure, and Rs. 1.8 crore for constructing 200 pucca, quake and cyclone-resistant houses, and Rs. 20 lakhs for other emergency facilities.

Package 2 is for villages in seismic zones IV and V, which have opted for in-situ reconstruction. Here, the families below the poverty line whose houses have been destroyed would get Rs. 40,000. Others will get assistance up to Rs. 90,000 for reconstruction @ Rs.2000 per m^2 of built up area with a ceiling of 45 square meters.

Package 3 is for the villages situated in areas other than Zone IV and V, where individual houses have been destroyed or partially damaged. The assistance ranges from Rs. 7,000 for totally destroyed huts to Rs. 40,000 for fully destroyed houses depending on extent of damage. For the repair of damages, the assistance varies from Rs. 2,000 to Rs. 20,000, depending upon the extent of damages.

Package 4-A declared by the Government relates to the RCC (Reinforced Cement Concrete) frame structure, (low rise & high rise) in urban areas, which include Municipal Corporation, Urban Development Authority areas, and other municipalities, in the state (excluding Bhuj, Bhachau, Rapar and Anjar in the Kutch District). The package provides reconstruction assistance to owner of RCC frame structure buildings at the rate of Rs. 3,500 per m^2 up to a maximum built-up area of 50 m^2. It also offers assistance for repairs and structural strengthening of low rise and high rise structures, depending upon the degree of damages varying from Rs. 50,000 to Rs. 800,000.

Package 4-B declared by the Government relates to the Load Bearing Structures in Corporation areas, Urban Development Authority areas, and municipalities in the state (except Bhuj, Bhachau, Rapar and Anjar in the Kutch District). The Government will provide assistance for reconstruction of collapsed or demolished houses at the rate of Rs. 2,800 per square meter up to a maximum built up area of 50 m^2, subject to an upper limit of Rs. 1.40 lakhs. For the repairs of damages, the assistance varies from Rs. 2,000 to Rs. 20,000 depending upon the nature of damages.

Package 5 relates to rehabilitation in the four worst affected municipal towns of Bhuj, Anjar, Bhachau and Rapar in the district of Kutch with a stress on urban town

planning. The financial assistance for reconstruction will be made available at the rate of Rs. 3,500 per m^2, subject to an upper limit of Rs. 1.75 lakhs for a maximum of 50 m^2. The assistance for repair of multi-storey houses will vary from Rs. 50,000 to Rs. 8,00,000 depending upon the category of damages. The assistance for repair of non-multi-storeyed houses will vary from Rs. 8,000 to Rs. 45,000 depending upon the category of damages. The assistance of Rs. 7,000 will be made available for completely destroyed huts.

(**Source: GSDMA, 2001**)

APPENDIX H

Line Departments Responsible for Implementation of Projects in GERRP

Sector	Government Department
Housing	Panchayat and Rural Housing, Urban Development and Urban Housing, Revenue and Roads & Buildings
Livelihood	Industry, Agriculture, Social Justice and Empowerment
Health	Health and Family Welfare, Roads and Buildings (R & B)
Education	Primary Education, Higher Education and Technical Education
Dam Safety and Irrigation	Irrigation and Water Supply
Public Buildings	Roads & Buildings, Panchayat, Home, Sports, Youth & Cultural Affairs, Police
State Roads and Bridges	Roads and Buildings (R & B)
Power	Gujarat Electricity Board, Energy & Petrochemicals
Rural Water Supply	Gujarat Water Supply and Sewerage Board (GWSSB), Water Supply
Urban Infrastructure	Urban Development, Gujarat Urban Development Corporation (GUDC)
Community Participation and Community Development	Gujarat State Disaster Management Authority (GSDMA)
Disaster Management and Capacity Building	Gujarat State Disaster Management Authority (GSDMA)

APPENDIX I

Town Planning Scheme Process

Preparation and implementation of Town Planning Schemes are the responsibility of Area Development Authority and are overseen by the Urban Development Department of state governments. The process begins with the local authority (ADA or the Town Planning and Valuation Department's local office) declaring its intention to undertake a TPS. The ownership of all properties (land parcels) within the proposed scheme area would be automatically assumed by the authority. Also property owners are not allowed to engage in any development activity till the ownership is transferred back to them. Town Planning Scheme process involves three main phases.

In Phase One, ADA prepares and publishes a Draft TP Scheme, seeks objections and suggestions from plot owners, revises the plan in response to their comments and concerns and then submits the Draft Scheme to the Urban Development Department for approval. In Phase Two, Town Planning Officers (TPO) from Town Planning and Valuation Department (TP&VD) are appointed, who in their quasi judicial capacity, give three rounds of individual hearings to all the property owners. Based on the hearings, the physical layout, known as the Preliminary Scheme is finalized. Based on the preliminary scheme or the physical plan the local authority (ADA) demarcates the final plots and initiates the infrastructure work. Individual owners assume possession of their plots and permission to undertake building activity is reinstated. In this phase, financial transactions with owners are undertaken to compensate owners for any changes in property value as well as to levy betterment charges.

In the third and final phase, financial details such as compensation to be paid to owners and the betterment charges to be levied are finalized. The Final Scheme is submitted to the state government for approval. Once the final scheme is published, resolution of further financial grievances can only be done by an Appeal committee.

REFERENCES

Alexander, D. (1993). *Natural disasters*. London: UCL Press.

Altman, I., & Low, S. M. (Eds.). (1992). *Place attachment, human behavior and environment: Advances in theory and research* (vol. 12). New York, NY: Plenum Press.

Balachandran, B. R., & Tyabji, A. (2001). *Reconstruction of Bhuj: A case study in the integration of disaster mitigation into planning & financing urban infrastructure after an earthquake*. Paper presented at the Asian Regional Conference on Urban Infrastructure Financing and Disaster Mitigation, March 14-15, Colombo, Sri Lanka.

Balibar, E. (2004). *We the people of Europe? Reflections on transnational citizenship*. Princeton, NJ: Princeton University.

Bandopadhyay, S. (2007). *Disaster preparedness for natural hazards: Current status in India*. Kathmandu, Nepal: International Center for Integrated Mountain Development Publications.

Barton, A. H. (1969). *Communities in disaster: A sociological analysis of collective stress situations*. Garden City, NY: Doubleday.

Barzelay, M. (1993). The single case study as intellectually ambitious enquiry. *Journal of Public Administration Research and Theory*, *3*(3), 305-318.

Bhuj Area Development Authority. (2001a). *Draft Development Plan of Bhuj 2011. Part 1: Existing situation, surveys, studies, analysis, policies, proposals, and programmes. Report submitted under Section 16 of the Gujarat Town and Urban Development Act, 1976.* Bhuj, India: Environmental Planning Collaborative for Gujarat Urban Development Company, Government of Gujarat, Gandhi Nagar, India. Unpublished report.

_____. (2001b). *Draft Development Plan of Bhuj 2011. Part 2: Development*

Control Regulations. Bhuj, India: Environmental Planning Collaborative for Gujarat Urban Development Company, Government of Gujarat, Gandhi Nagar, India. Unpublished report.

_____. (2001c). *Draft Development Plan of Bhuj 2011. Part 3: Supporting Documents.* Bhuj, India: Environmental Planning Collaborative for Gujarat Urban Development Company, Government of Gujarat, Gandhi Nagar, India. Unpublished report.

Bhuj Area Development Authority. (2006). *Town Planning Schemes*. Bhuj, India: Environmental Planning Collaborative for Gujarat Urban Development Company, Government of Gujarat, Gandhi Nagar, India.

Bilham, R. (1999). Slip parameters for the Rann of Kachchh, India, 16 June 1819 earthquake, quantified from contemporary accounts. In I. S. Stewart & C. Vita-Finzi (Eds.), *Coastal Tectonics*. Geological Society London, 146, 295-318.

Blaikie, P., Cannon, T., Davis, I., & Wisner, B. (2004). *At risk: Natural hazards, people's vulnerability and disasters*. New York, NY: Routledge.

Blauert, J. (2004). *Spaces for deliberation or decision-making? Lessons for participation and policy in Mexican environmental councils*. Conference of the International Association for the Study of Common Property, Oaxaca, Mexico, August 2004. Unpublished report.

Bolin, R., & Stanford, L. (1991). Shelter, housing and recovery: A comparison of US disasters. Disasters, 15 (1), 24-34.

Bolin, R., & Stanford, L. (1998). The Northridge earthquake: Community-based approaches to unmet recovery needs. *Disasters, 22*(1), 21-38.

Breman, J. (2002). Communal upheaval as resurgence of social Darwinism. *Economic and Political Weekly*, *34* (16), 1485-1488. Retrieved from http://www.epw.org.in

Bryant, E. (1991). *Natural hazards*. Cambridge: Cambridge University Press.

Burton, I., Kates, R., & White, G. (1978). *The environment as hazard*. New York, NY: The Guilford Press.

Chavez, D., & Goldfrank, B. (2004). *The left in the city: Participatory local governments in Latin America*. London, UK: Latin America Bureau.

Chew, L., & Ramdas, K. (2005). *Caught in the storm: The impact of natural disasters on women.* Global Fund for Women. Accessed at http://www.globalfundforwomen.org/downloads/disaster-report.pdf

Chinsinga, B. (2003). The participatory development approach under a microscope: The case of the poverty alleviation program in Malawi. *Journal of Social Development in Africa, Vol. 18* (1), 129-144.

Christoplos, I., Mitchell, J., & Lijelund, A. (2001). Reframing risk: The changing context of disaster mitigation and preparedness, *Disasters*, *25* (3), 185-198.

Coburn, A., & Spence, R. (1992). *Earthquake protection*. New York, NY: Chichester-Wiley.

Comerio, M. (1998). *Disaster hits home:* New policy for urban housing recovery. Berkeley, CA: University of California Press.

Cooke, B., & Kothari, U. (Eds.). (2001). *Participation: The new tyranny?* London, UK: Zed Books.

Corrigan, P., & Sayer, D. (1985). *The great arch: English state formation as cultural revolution*. Oxford, UK*:* Blackwell Publications.

Cutter, S. L., Boruff, B. J., & Shirley, W. L. (2003). Social vulnerability to environmental hazards, *Social Science Quarterly*, *Vol. 84* (2), 242-261.

Das, K. (2002). Social mobilization for rehabilitation, relief work in cyclone-affected Orissa, EPW Perspectives, *Economic and Political Weekly*, *37* (48), 4784-

4792.

Davis, D. E. (2005). Reverberations: Mexico City's 1985 earthquake and the transformation of the capital. In L. Vale and T. Campanella (Eds.), *The resilient city: How modern cities recover from disaster* (pp. 255-280). New York, NY: Oxford University Press.

Davis, M. (2004). Planet of slums. *New Left Review*, *26*(2), March-April 2004, 5-34.

De Blij, H. (1994). *Nature on the rampage*. Washington D C: Smithsonian Books.

Deyle, R. E., French, S. P., Olshansky, R. B., & Patterson, R. G. (1998). Hazard assessment: The factual basis for planning and mitigation. In R. J. Burby (Eds.), *Cooperating with nature: Confronting natural hazards with land-use planning for sustainable communities* (pp. 119-166). Washington, D C: Joseph Henry Press.

Douglas, M. (1985). *Risk acceptability according to social sciences*. New York, NY: Russell Sage Foundation.

_____. (1990). *Risk and blame: Essays in cultural theory*. New York, NY: Routledge.

Douglas, M., & Wildavsky, A. (1982). *Risk and culture*. Berkeley, CA: University of California Press.

Dynes, R., De Marchi, B., & Pelanda, C. (Eds.). (1987). *Sociology of disasters: Contributions of sociology to disaster research.* Milano: Franco Angelli.

Ebert, C. (1993). *Disasters: Violence of nature, threats by man*. Dubuque, IO: Kendall/Hunt.

Economic and Political Weekly Research Foundation. (1998). Reports No. 4–7. *Maharashtra Earthquake Rehabilitation Documentation Project*.

Enarson, E., & Morrow, B. (1998). *The gendered terrain of disaster: Through women's eyes*. Westport, CT: Praeger.

Environmental Planning Collaborative. (2002). *Initiative for Planned and Participatory Reconstruction*. Ahmedabad, India: Environmental Planning Collaborative.

_____. (2003). *Revival of Hamirsar and its catchments*. Ahmedabad, India: Environmental Planning Collaborative. Unpublished report.

Fainstein, S. (2000). New directions in planning theory. *Urban Affairs Review, 35* (4), 451-478.

Ferguson, J. (1994). *The anti-politics machine: "Development," depoliticization, and bureaucratic power in Lesotho*. Minneapolis: University of Minnesota Press.

_____. (1997). Paradoxes of sovereignty and independence: "Real" and "pseudo" nation-states and the depoliticization of poverty. In K. F. Olwig & K. Hastrup (Eds.), *Siting Culture: The Shifting Anthropological Object* (pp. 123-141). London: Routledge.

Fischhoff, B., Lichtenstein, S., Slovis, P., Derby, S., & Keeney, R. (1981). *Acceptable risk.* Cambridge: Cambridge University Press.

Flyvbjerg, B. (1998). *Rationality and power*: Democracy in practice. Chicago, IL: University of Chicago Press.

_____. (2006). Five misunderstandings about case-study research. *Qualitative Inquiry, 12*(2), 219-245.

Forester, J. (1989). *Planning in the face of power*. Berkeley, CA: University of California Press.

_____. (1999). *The deliberative practitioner: Encouraging participatory planning processes*. Cambirdge, MA: MIT Press.

_____. (2009). *Dealing with differences: Dramas of mediating public disputes*. Oxford, UK: Oxford University Press.

Frazier, K. (1979). *The violent face of nature: severe phenomena and natural disasters*. New York, NY: William Morrow and Co.

Fritz, C., & Mathewson, J. H. (1957). Convergence behavior in disasters: A problem in social control, *Disaster Study No. 9*, Committee on Disaster Studies, National Academy of Sciences, National Research Council, Publication 476.

Fung, A., & Wright, E.O. (Eds.). (2003). *Deepening democracy: Institutional innovations in empowered participatory governance (The Real Utopias Project)* (v. 4). New York: Verso.

Geertz, C. (1973). *The interpretation of cultures.* New York: Basic Books.

Geipel, R. (1991). *Long-term consequences of disasters: The reconstruction of Friuli, Italy, in its international context 1976-1988*. New York: Springer-Verlag.

Glantz, M.H. (2005). Hurricane Katrina rekindles thoughts about fallacies of a so-called natural disaster. *Sustainability: Science, Practice, & Policy, 1*(2), 1-4.

Glavac, S. M., Hastings, P. A., & Childs, I. R. (2003). Demographic projection as a tool for analyzing trends of community vulnerability. *Australian Journal of Emergency Management, Vol. 18*(3), 9-19.

Government of Gujarat. (1971). Gazetteer of India, *Kutch District.* Ahmedabad, India: Government of India.

_____. (1999). *Gujarat Town Planning and Urban Development Act of 1976*. Gujarat, India: Government of Gujarat.

Government of India. (2002). *Tenth Five Year Plan: 2002-2007*. New Delhi, India: Government of India Planning Commission.

_____. (2004). *Disaster management in India: A status report*. New Delhi, India: National Disaster Management Division, Ministry of Home Affairs, Government of India.

_____. (2005). *Building a new techno-legal regime for a safer India.* National Disaster Management Division, Ministry of Home Affairs and Building Materials & Technology Promotion Council, Ministry of Urban Employment and Poverty Alleviation. New Delhi, India: Government of India.

_____. (2007). *Eleventh Five Year Plan: 2007-2012*. New Delhi, India: Government of India Planning Commission.

Green, R. (2005). *Negotiating risk: Earthquakes, structural vulnerability and clientelism in Istanbul*. Unpublished doctoral dissertation, College of Engineering, Cornell University, Ithaca, NY.

Green, R., Bates, L. K., & Smyth, A. (2007). Impediments to recovery in New Orleans' Upper and Lower Ninth Ward: One year after Hurricane Katrina. *Disasters, 31*(4): 311−335.

Gujarat State Disaster Management Authority. (2001). *Gujarat earthquake reconstruction and rehabilitation policy*. Gandhi Nagar, India: Government of Gujarat.

_____(2003a). *The Gujarat State Disaster Management Act*. Gandhi Nagar, India: Government of Gujarat.

_____ (2003b). *Government orders on earthquake rehabilitation*. Gandhi Nagar, India: Government of Gujarat.

Gupta, A., & Ferguson, J. (1997). Beyond culture: Space, identity, and the politics of difference. In A. Gupta & J. Ferguson (Eds.), *Culture, power, place: Ethnography at the end of an era* (pp. 33-51). Durham, NC: Duke University

Press.

Gupta, H. R. (1969). The Kutch affair. Delhi, India: U. C. Kapur.

Haque, C. E., & Zaman, M. Q. (1991). Coping with riverbank erosion hazard and displacement hazard in Bangladesh: Survival strategies and adjustment. *Disasters, 13*, 300–314.

Hardiman, D. (1988). Class base of Swaminarayan sect. *Economic and Political Weekly, Vol. 23*(37), 1907-1909, 1911-1912.

Harvey, D. (1997). Contested cities: Social process and spatial form. In N. Jewson and S. McGregor (Eds.), *Transforming Cities: Contested Governance and New Spatial Divisions* (pp. 19–27). New York, NY: Routledge.

Healy, P. (2009). The pragmatic tradition in planning thought. *Journal of Planning Education and Research, 28*, 277-292.

Hein, C. (2005). Resilient Tokyo: Disaster and transformation in the Japanese city. In L. Vale, & T. Campanella (Eds.), *The resilient city: How modern cities recover from disaster* (pp. 213-234). New York, NY: Oxford University Press.

Hickey, S., & Mohan, G. (Eds.). (2004). *Participation: From tyranny to transformation? Exploring new approaches to participation in development*. London: Zed Books.

Holston, J. (1989). *The modernist city: An anthropological critique of Brasília*. Chicago, IL: University of Chicago Press.

Hunold, C., & Young, I. M. (1998). Justice, democracy and hazardous siting. *Political Studies, XLVI*, 82-95.

Ilcan, S. (1998). Challenging settlement: Rural women's culture of displacement. In S. Ilcan & L. Phillips (Eds.), *Transgressing borders: Critical perspectives on gender, household and culture* (pp. 55-74). Westport, CT: Bergin & Garvey.

Inam, A. (2005). *Planning for the unplanned: Recovering from crises in megacities*. New York, NY: Routledge.

Indian Society of International Law. (1965). *The Kutch-Sind border question: A collection of documents with comments*. New Delhi, India: Indian Society of International Law.

International Federation of Red Cross and Red Crescent Societies. (2010). *World disasters report*. Geneva, Switzerland: International Federation of Red Cross and Red Crescent Societies.

Jain, S. K., Lettis, W., Murty, C.V. R., & Bardet, J. (2002). Bhuj, India earthquake of January 26, 2001: Reconnaissance report. Earthquake Engineering Research Institute, *Earthquake Spectra*, *Supplement A to Vol. 18*.

Jewson, N., & MacGregor, S. (Eds.) (1997). *Transforming cities: Contested governance and new spatial divisions*. New York: Routledge.

Johnson, B., & Covello, V. (Eds.) (1987). The social and cultural construction of risk: Essays on risk selection and perception. Boston, MA: Reidel.

Kalia, R. (1987). *Chandigarh: The making of an Indian city*. New Delhi: Oxford University Press.

_____. (1994). *Bhubaneshwar: From a temple town to a capital city*. New Delhi: Oxford University Press.

_____. (2004). *Gandhi Nagar: Building national identity in postcolonial India*. Columbia, SC: University of South Carolina Press.

Khare, R. (2004). *Kutch: Triumph of the spirit*. New Delhi, India: Rupa & Co.

Kirshbaum, J. B., & Sideroff, D. (2005). A delayed healing: Understanding the fragmented resilience of Gernika. In L.Vale & T. Campanella (Eds.), *The*

resilient city: How modern cities recover from disaster (pp. 159-180). New York, NY: Oxford University Press.

Lefebvre, H. (1991). *The production of space*. Oxford, UK: Blackwell Publishing.

Lipsky, M. (1980). *Street-level bureaucracy: Dilemmas of the individual in public services*. New York, NY: Russell Sage Foundation.

Lobo, L., & Kumar, S. (2009). *Land acquisition, displacement and resettlement in Gujarat 1947-2004*. Thousand Oaks, CA: Sage Publications.

Low, S. (1999). *Theorizing the city: The new urban anthropology reader*. New Brunswick, NJ: Rutgers University Press.

Lupton, D. (1999). *Risk*. New York, NY: Routledge.

Macatol, I. (1999). A reconsideration of the nature and role of resettlement housing and housing materials in natural disaster recovery in indigenous communities. *Australian Journal of Emergency Management*, *Summer*, 33-41.

Mahadevia, D. (2001). Sustainable urban development in India: An inclusive perspective. *Development in Practice*, *11*(2 & 3).

Malik, J. N., Sohoni, P. S., Merh, S. S., & Karanth, R.V. (2000). Paleoseismology and neotectonism of Kachchh, western India. In K. Okumara, K. Takada, H. Goto, & J. Andrews, (Eds.), *Active fault research for the new millennium: Proceedings of the Hokudan International Symposium and School of Active Faulting*, January 17th–26th, 2000. Hyogo, Japan: Hokudan Co.

Malkki, L. (1992). National Geographic: The rooting of peoples and the territorialization of national identity among scholars and refugees. *Cultural Anthropology, 7*(1), 24–44.

Massey, D. (1992). Politics and space/time. *New Left Review, 196,* 65-84.

_____. (2005). *For space*. London, UK: Sage Publications.

Marcus, C. C. (1997). *House as a mirror of self: Exploring the deeper meaning of home*. Berkeley, CA: Conari Press.

Marris, P. (1961). *Family and social change in an African city*. London, UK: Routledge.

_____. (1974). *Loss and change*. London, U.K: Routledge.

_____. (1996). *The politics of uncertainty: Attachment in private and public life*. London, UK: Routledge.

Maybury, R. (Ed.). (1986). *Violent forces of nature*. Mt. Airy, MD: Lomond Publications.

Mileti, D. (1999). *Disasters by design: A reassessment of natural hazards in the United States*. Washington, D.C.: Joseph Henry Press.

Mishra, P. K. (2004). *The Kutch earthquake 2001: Recollections, lessons and insights*. New Delhi, India: National Institute of Disaster Management.

Mitchell, T. (2002). *Rule of experts: Egypt, techno-politics, modernity*. Berkeley, CA: University of California Press.

Moghissi, H. (1999). Away from home: Iranian women, displacement cultural resistance and change. *Journal of Comparative Family Studies, 30*, (2), 207-217.

Mohan, G. (2001). Beyond participation: Strategies for deeper empowerment. In B. Cooke & U. Kothari (Eds.), *Participation*: The new tyranny (pp.153-167). London, UK: Zed Books.

Mukta, P. (1990). Worshipping inequalities: Pro-Narmada Dam movement. *Economic and Political Weekly 25*(41), 2301-2302.

_____. (2003). On the political culture of authoritarianism. In G. Shah, M. Rutten, & H. Streefkerk (Eds.), *Development and deprivation in Gujarat* (pp. 59-73). New Delhi*,* India: SAGE Publications.

Murty, C.V. R, Greene, M., Jain, S. K., Prasad, N. P., & Mehta, V. V. (2005). *Earthquake rebuilding in Gujarat, India: An EERI reconnaissance report*. Earthquake Engineering Research Institute, 2005(02).

Narasimhan, S. (2003). Lessons from Latur: A decade after the earthquake. *Economic and Political Weekly*, *38* (48), 8-14.

Neuwirth, R. (2005)*. Shadow cities: A billion squatters, a new urban world*. New York, NY: Routledge.

Ockman, J. (Eds.). (2002). *Out of ground zero: Case studies in urban reinvention*. New York, NY: Prestel.

Olaa, A. (2001). Uganda: The resilience of tradition: Displaced Acholi in Kitgum. In M. Vincent & B. R. Sorensen (Eds.), *Caught between borders: Response strategies of the internally displaced* (pp. 99-116). London, UK: Pluto Press.

Oliver-Smith, A. (1986). *The martyred city: Death and rebirth in the Andes*. Albuquerque, NM: University of New Mexico Press.

_____. (2001). Anthropology in disaster research and management. *National Association for the Practice of Anthropology Bulletin*, *20* (1), 111-112.

Oliver-Smith, A. and Hoffman, S. (Eds.). (1999). *The angry earth: Disaster in anthropological perspective*. New York, NY: Routledge.

Olshansky, R., Kobayashi, I., & Ohnish, K. (2005). The Kobe earthquake: Ten years later. *Journal of American Planning Association*, *71*(9), 32-37.

Olshansky, R. B., & Wu, Y. (2004). Evaluating earthquake safety in mid-American communities. *Natural Hazards Review*, *5*(2), 71-81.

Palakudiyil, T., & Todd, M. (2003). *Facing up to the storm: How local communities can cope with disaster: Lessons from Orissa and Gujarat*. London, UK: Christian Aid.

Paton, D., Smith, L., & Violanti, J. (2000). Disaster response: Risk, vulnerability and resilience. *Disaster Prevention and Management*, *9* (3), 173-179.

Paton, D., Millar, M., & Johnston, D. (2001). Community resilience to volcanic hazard consequences. *Natural Hazards*, *24*, 157-169.

Pearce, L. (2003). Disaster management and community planning and public participation: How to achieve sustainable hazard mitigation. *Natural Hazards, 28*, 211-228.

Peattie, L. (1987). *Planning and rethinking Ciudad Guayana*. Ann Arbor, MI: University of Michigan Press.

Pelling, M. (2003). *The vulnerability of cities: Natural disasters and social resilience*. London, UK: Earthscan.

Perry, R. & Mushkatel, A. (1986). *Minority citizens in disasters*. Athens, GA: University of Georgia Press.

Pierik, R. (2004). Conceptualizing cultural groups and cultural difference: The social mechanism approach. *Ethnicities*, *1* (4), 523-544.

Quarantelli, E. L. (2003). Urban vulnerability to disasters in developing societies: The

need for new strategies and for better applications of valid planning and managing principles. *Miscellaneous Report No. 51*, Disaster Research Center. Newark, DE: University of Delaware Press.

Rajendran, K., & Rajendran, C. P. (2001). Characteristics of deformation and past seismicity associated with the 1819 Kutch earthquake, northwestern India. *Bulletin of the Seismological Society of America, 91*.

Rohrmann, B., & Renn, O. (2000). Risk perception research: An introduction. In O. Renn & B. Rohrmann (Eds.), *Cross-cultural risk perception: A survey of empirical studies* (pp. 12-53). Norwell, MA: Kluwer Academic Publishers.

Rossi, I. (1993). *Community reconstruction after an earthquake: Dialetical sociology in action*. Westport, CT: Praeger Publishers.

Roy, A. (2003). *City requiem, Calcutta: Gender and the politics* of poverty. Minneapolis, MN: University of Minnesota Press.

Rushbrook Williams, L. F. (1958). *The black hills: Kutch in history and legend: A study in Indian local loyalties*. London, UK: Weidenfeld and Nicolson.

Sanyal, B. (2005). *Comparative planning cultures*. Oxford, UK: Routledge.

Sarewitz, D., Pielke, R. Jr., & Keykhah, M. (2003). Vulnerability and risk: Some thoughts from a political and policy perspective. *Risk Analysis, 23* (4), 805-810.

Scott, J. (1998). *Seeing like a state: How certain schemes to improve the human condition have failed*. New Haven, CT: Yale University Press.

Schwab, J., Topping, K., Eadie, C., Deyle, R., & Smith, R. (1998). *Planning for post-disaster recovery and reconstruction*. Chicago, IL: American Planning Association.

Sen, A. (1982). *Poverty and famines: An essay on entitlement and deprivation*. New

York, NY: Oxford University Press.

Shah, G., Rutten, M., & Streefkerk, H. (2004). *Development and deprivation in Gujarat*. New Delhi, India: Sage Publications.

Slovic, P. (2000). Perception of risk. London, UK: Earthscan.

Smith, K. (1992). *Environmental hazards: Assessing risk and reducing disaster*. London, UK: Routledge.

Sorensen, B. R. (1997). The experience of displacement: Reconstructing places and identities in Sri Lanka. In K. F. Olwig & K. Hastrup (Eds.), *Siting culture: The shifting anthropological object* (pp. 142-164). London, UK: Routledge.

Tendler, J. (1997). *Good government in the tropics*. Baltimore, MD: Johns Hopkins University Press.

Theckethil, R. (2004). *Development of GIDC relocation site into a self-sustainable township through community-driven development*. Bhuj, India: Hunnarshaala.

_____. (2005). *Financing town planning schemes*. Unpublished master's thesis, University of Illinois, Urbana-Champaign, IL.

Tobin, G. A., & Montz, B. E. (1997). *Natural hazards: Explanation and integration*. New York, NY: The Guilford Press.

Torry, W. I. (1986). Morality and harm: Hindu peasant adjustments to famines. *Social Science Information*, *25* (1), 125 -160.

Tuan, Y. (1977). *Space and place: The perspective of experience*. Minneapolis, MN: University of Minnesota Press.

Turner, S. (2005). Suspended spaces, contesting sovereignties in a refugee camp. In T. B. Hansen & F. Stepputat (Eds.), *Sovereign bodies: Citizens, migrants, and*

states in the postcolonial world (pp. 312-332). Princeton, NJ: Princeton University Press.

Turton, D. (1977). Response to drought: The Mursi of Southwestern Ethiopia. *Disasters*, *1* (4), 275–287.

Tyabji, A. (2006). *Bhuj: Art, architecture, history*. Ahmedabad, India: Mapin Publishing.

United Nations. (2001). *Interim Report of the United Nations Disaster Assessment and Coordination (UNDAC) Team, 11 February 2001*. Bhuj, Gujarat, India. Unpublished report.

_____. (2011). *Global assessment report on disaster risk reduction: Revealing risk, redefining development*. Oxford, UK: Information Press.

Vale, L., & Campanella, T. (Eds). (2005). *The resilient city: How modern cities recover from disaster.* New York, NY: Oxford University Press.

Varadarajan, S. (Ed.). (2002). *Gujarat: The making of a tragedy*. New Delhi, India: Penguin Books.

Varshney, A. (2002). *Ethnic conflict and civic life: Hindus and Muslims in India*. New Haven, CT: Yale University Press.

Vatsa, K. S. (2001). *The Bhuj earthquake, district of Kutch, state of Gujarat (India) January 26, 2001: A reconnaissance report*. Alexandria, VA: World Institute for Disaster Risk Management.

_____. (2005). Asset-based approach to household risk management: An analysis of selected case studies in South Asia. Unpublished doctoral dissertation, School of Engineering and Applied Science, George Washington University, Washington DC.

Weber, M. (1947). *The theory of social and economic organization.* (A. M. Henderson

and T. Parsons, Trans.). New York, NY: Oxford University Press.

Whittow, J. (1980). *Disasters: The anatomy of environmental hazards*. Athens, GA: University of Georgia Press.

Wildavsky, A., & Dake, K. (1994). Theories of risk perception: Who fears what and why? In S. Cutter, (Ed.), *Environmental Risks and Hazards* (pp. 166-177). Englewood Cliffs, NJ: Prentice-Hall.

Williams, R. B. (2001). *An introduction to Swaminarayan Hinduism*. Cambridge, UK: Cambridge University Press.

Wilmsen, E. N. (1989). *Land filled with flies: A political economy of the Kalahari.* Chicago, IL: University of Chicago Press.

Winchester, P. (1992). *Power, choice and vulnerability: A case study in disaster mismanagement in South India*. London, NY: James & James Publishers Ltd.

Wolfenstein, M. (1957). *Disaster: A psychological essay*. Glencoe, IL: Free Press.

World Bank & Asian Development Bank. (2001). *Gujarat earthquake recovery program: A joint assessment report by the World Bank and Asian Development Bank to the governments of Gujarat and India, March 14, 2001*. Unpublished report.

Wositzky, H. (1998). Out of the ashes, a community responds: The Dandenong Ranges bushfires, January 1997. *Australian Journal of Emergency Management*, *Winter*, 17-20.

Yagnik, A., & Sheth, S. (2006). *The shaping of modern Gujarat: Plurality, Hindutva and beyond*. New Delhi, India: Penguin Books India.

Yanow, D., & Schwartz-Shea, P. (2006). *Interpretation and method: Empirical research methods and the interpretive turn*. London, UK: M. E. Sharpe.

Zaman, M. Q. (1986). The role of social relations in the response to riverbank erosion hazards and population resettlement in Bangladesh. In A. Oliver-Smith (Ed.), *Natural Disasters and Cultural Responses* (pp. 177-200). Williamsburg,VA: College of William and Mary.

Zukin, S. (1991). Landscapes of power: From Detroit to Disney World. Berkeley, CA: University of California Press.

_____. (2003). *Whose Culture? Whose City?* In R. T. Le Gates & F. Stout (Eds.), *The City Reader* (pp. 136-146). New York: Routledge.