SYNTHETIC VERNACULAR - THE COPRODUCTION OF ARCHITECTURE

A thesis submitted to The University of Manchester for the degree of
Doctor of Philosophy
in the Faculty of Humanities

2013

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SCHOOL OF ENVIRONMENT, EDUCATION AND DEVELOPMENT

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Word count: 95330

Abstract

The University of Manchester

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Doctor of Philosophy in the Faculty of Humanities

Synthetic Vernacular: The coproduction of architecture

17th December 2012

The Gujarat earthquake of 2001 caused widespread devastation to livelihoods and the built environment, demolishing or badly damaging in excess of 400,000 buildings in the Kutch region as well as killing upwards of 15,000 people. This research examines the work of Hunnarshālā, an urban development and architecture firm based in Bhuj, Gujarat, India who, in response to the immediate and long-term needs apparent in the aftermath of the earthquake, proposed an owner-driven redevelopment strategy which sought to promote the socio-cultural needs of the 'users' as embodied in the artefacts and processes of the vernacular traditions common to the communities, as essentially empowering and therefore critical to the long-term sustainability of any reconstruction work. Hunnarshālā's approach is an illustration of the coproduction of housing, leading to what is termed here as 'synthetic vernacular architecture'. The thesis explores the potential of the coproduction of housing as an alternative model for architectural development for disadvantaged individuals and groups, with the potential for broader application in other contexts. Using three settlements on which Hunnarshālā worked as case studies, this research examines the efficacy of such an approach through both artefacts and processes of production as found in the field through a qualitative methodological approach based on ethnographic and design analysis methods. The research indicates that whilst there are distinct and problematic issues raised by an approach such as that used by Hunnarshālā in the context of Kutch, their approach is an illustration of the coproduction of housing, Such an approach has not been investigated to any significant degree in terms of its potential as a means of making culturally resonant architecture and therefore as a strategy of empowerment. This it is felt is an oversight which this research seeks to remedy.

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Dedication

To my wife Jackie and to our children: Petra, Josephine, Sophia and Baby Vincent.

Acknowledgement

Foreword

On the north coast of the Yucatan Peninsula a dirt road running parallel to the sea separates a long string of large white houses with high walls around large gardens from a line of small, scruffy houses with bars in place of glazing, crowded together. The large houses back onto the sea and are the homes of the *extranheros*, bolt-holes for Americans and Europeans who employ the residents of the small houses and nearby village to construct, maintain, clean and secure their houses. The short beach down to the milky blue sea is strewn with large, broken pieces of concrete strung along iron reinforcement wire, testament to the force of the sea and wind in the Gulf; in some places larger sections of house remain, poised at strange angles on exposed concrete footings.

On a Sunday morning, returning from the village, we passed a knot of people outside one of the smaller houses. The father of the houses was holding the bridle of a good horse and one of the group, a child, was being helped to climb into the saddle for a ride. The incongruity of this, of the apparent poverty and the good horse (which I later learnt the family owned and kept tethered there) can be counted as the moment I began to want to undertake this research. That a family with little material wealth should want a horse to ride on Sunday rather than to build a better house more akin to the villas ten yards away over the dirt road led me to question the architectural development paradigm I had been raised in, one in which form followed function, function meant utility and utility (on reflection) more-or-less meant Maslow's hierarchy of human needs which translated as frivolity for the wealthy, utility for the poor. But here was a dirt-poor community *needing* something strange and ephemeral, a type of sustenance I had not consciously recognised before but which seemed, when encountered, entirely valid. Their 'needs' were evidently not ordered as mine were; before they had secured what I understood to be a sufficient house they were indulging in culture and games! Why hadn't I come across this idea during my years of architectural education? Why had nobody suggested that the model of architectural production, around which architectural education was founded, was just that, a model and that there were other ways which may be more effective at generating decent, sustainable homes for the less well-off?

That was the starting point. Once no longer romancing the poverty in Mexico, the process of the doctoral study and the guidance of my tutors demanded that I interrogate my logic

and be reasonable, a process made much easier when, with babies of my own I was forced to confront the possibility of my own offspring experiencing pain and, more broadly, structural violence. What if they ended up in damaged, damp houses, prey to underemployment and the weather? Poverty lost its romance. Even so, I remained confident that there must be more space within the production of housing and neighbourhoods for the realisation of an individual's socio-cultural values than is generally apparent in current models, and by extension in the design and construction of housing for the poor. It was by working through this supposition that I was led towards the two themes of vernacular architecture and coproduction.

Chapter One - Introduction

1.1 Introduction

A housing crisis is apparent in the both the global North and South (Kazimee 2007: 327, Shelter 2008, Shostak and Houghton 2008: 121), insufficient supply and inadequate buildings typifying large areas of the urban realm (Rondinelli 1990: 153-4). A global movement away from more traditional agrarian or rural ways of life towards what can be understood as more urban lifestyles (Lyytimäki, Kjerulf et al. 2008: 163-4), rural-to-urban migration and population growth, has resulted in unprecedented changes to the scale and nature of the urban realm (Satterthwaite 2007: 1). Some potential consequences of this urbanisation are of concern, particularly with regards to issues of security, health, and public order and global concerns relating to climate change and its effect upon human settlements. Proposed action required to address these concerns, especially with regards the insecure urban condition of the poor in both the North and South is likewise many and various (Agenda 21 1992, Chapter 7, Section 7.1). Added to these discussions about macro-level issues (such as 'the urban') are more personal or individual micro-level concerns relating to lived reality: environments of people as they experience them. How the new urban world works for the individual is of course bound up with macro-level concerns but also brings to bear on any proposed solution a whole host of other questions, not least how a person's house can be genuinely sustainable environmentally, economically and socially.

The notion of sustainable architecture is central to discussions about effective means of constructing adequate housing, with place and person-specific building emerging as a key element in the generation of habitation that will meet the requirements of twenty-first century societies. Vernacular architecture is widely seen as embodying the specific social practices and material capacity of individuals and communities (Glassie 2000: 91, Oliver in Oliver 1997: xxii, Vellinga 2005: 6 & 7), and as being directly responsive to specific climatic conditions (Coch 1998: 68, Rapoport 1969: 83), making it a housing typology that meets current ideas for sustainable housing. However, views of it as a non-professional, informal, incremental and non-commodified enterprise means that it is difficult to use as an urban development strategy. As a consequence, the coproduction of vernacular architecture, in which local knowledge and construction practice is synthesised with contemporary social

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and techno-scientific knowledge and development practice, which is emerging as a strategy to address housing need in developing nations (Duyne Barenstein 2005: 5, Frank 2004: 184, Schilderman in Lyons, Schilderman, et al. 2010: 14), constitutes a problem for common understandings of 'the vernacular'.

This research examines the coproduction of vernacular architecture through the work of Hunnarshālā, a non-profit urban development organisation based in Bhuj, Gujarat, India. Using three case studies the research explores both coproduction and vernacular architecture and how the former can be used to effectively manufacture the latter, in so doing demonstrating the possibility (and utility) of *synthetic vernacular* architectures. Limitations on the claims that can be drawn from an examination of one organisation are made in Chapter 3, Section 3.1 and further in 3.9 and 3.10.

The global shortage of adequate (that is, sustainable) housing increasingly limits the ability of the poor to modify their circumstances, embedding negative social conditions and divisions (Davis 2008: 61-2, Shelter 2008). It has therefore become something of an imperative to address the estimated 1.6 billion people worldwide[1] who do not have access to adequate housing (Kothari 2005). In addition, a growing awareness of the deleterious effects of human activity (greenhouse gas production caused by fossil fuel consumption) on the environment (Stern 2003) requires that new urban development, the buildings of which account for a substantial proportion of this energy use, take this into account and seek to reduce or offset it (Guy 2005: 129, Rees 1999: 208). Ideas of urban sustainability, which have slowly been absorbed into the mainstream, are now delineated in policy documents, the most familiar of which is the United Nation's Agenda 21 program, which in keeping with common ideas of sustainable development, purports to promote a new paradigm in urbanism, central to which are notions of place and culture (Agenda 21)[2].

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[1] 8.1 million homes in Britain alone fail to meet the government's 'Decent Homes Standard' (Shelter 2008)

[2] The Agenda 21 program sets out in Chapter 7 the 'Human Settlement Objective' of the UN thus:
'7.4. The overall human settlement objective is to improve the social, economic and environmental quality of human settlements and the living and working environments of all people, in particular the urban and rural poor. Such improvement should be based on technical cooperation activities, partnerships among the public, private and community sectors and participation in the decision-making process by community groups and special interest groups such as women, indigenous people, the elderly and the disabled. These approaches should form the core principles of national settlement strategies. In developing

Urban development strategies which overlay or even over-write valued cultural structures and forms, in effect seeking to impose a worldview (Western or any other) will be, at best, undervalued, at worst doomed to failure because they cannot meet the socio-cultural and thus economic needs of those they are designed to house (Tweed and Sutherland 2007: 68); such housing will not sustain. It is increasingly acknowledged that indigenous or local knowledge must be used to align development with specific local needs and desires, lending it relevance and meaning (Agrawal 1995: 43, Arefi 2008: 2 & 9). This will also help maintain distinct cultures which are threatened by the spread of industrialised manufacturing techniques and the ubiquitous, standardised component-based architecture of modernity (Oliver 1969: 28, Lewcock in Oliver 1997: 122, Tyrrell 2003: 83), whilst sharing the benefits of contemporary scientific, social and technological knowledge. In so doing, such an approach addresses issues of justice, facilitating greater representation and participation in society generally, and a more equal distribution of negative environmental externalities also. Such an approach will also reframe architectural development agendas in relation to a more holistic and sympathetic appreciation of the human needs of the residents, away from the customary hierarchical approach.

This 'indigenous agenda' indicates the need for a reappraisal of vernacular architecture, opening it to interpretations which emphasise its primary characteristic as a manifestation of how a/ the group go about living rather than material, aesthetic artefacts (Vellinga 2005: 4). Vernacular architecture is commonly typified as building which "is based on an indigenous traditional knowledge of both design and construction, and, which exhibits a rare assimilation of social, environmental and economic demands of the place and the people" (Tiwari, Tyoshida et al 2004: 1). As such it is seen as a deep repository of local knowledge which can serve as both a source of ideas for place and people-relevant architectural design, and of technologically appropriate solutions. However, industrialisation and the general appeal of 'modern', generally urban lifestyles appears to be rendering vernacular architectures unappealing as an urban choice, especially in those contexts in which tradition has become viewed as an "impediment to progress" (Jenkins 2000: 302, Lewcock in Oliver 1997: 122, Oliver 2006: 383). As a consequence, vernacular architectures are losing out in the face of a singular expression of modernity (Oliver 1969:

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these strategies, countries will need to set priorities … taking fully into account their social and cultural capabilities. Furthermore, countries should make appropriate provision to monitor the impact of their strategies on marginalized and disenfranchised groups'.

28, Rapoport 1969[3]: 126, Tyrrell 2003: 90, Waterson in Bourdier and AlSayyad 1989: 480). Their loss is more important than superficial concerns about diversity for anthropological reasons however; vernacular architecture is a social product, that is, a product of its society, conditioned in turn by socio-economic, cultural and enviro-material forces. As such vernacular architecture embodies the core aspirations of all sustainable architectures (Guy and Farmer 2001: 141 - 145) In addition, vernacular architectures benefit from being place-community specific, lending it a depth of relevance that internationalist typologies do not have (Valverde 2004: 122).

In short, there is much to be learnt from vernacular typologies that is relevant to the development of sustainable architecture and much to be lost if it is forced to become irrelevant to the actual lives of those who live in it. As such, if vernacular architecture is to sustain it must be allowed to evolve into the context of a globalised twenty-first century. Indeed, if vernacular architecture is a response to the environment it is built in, these new globalised conditions should (and would naturally) become embodied in the vernacular language and the vernacular method of production. There are many existing examples of such blending occurring already, vernacular architectures emerging which bring together indigenous and global technologies and approaches, produced through owner- or community-led construction in conjunction with state and civil partners. Such coproductive relationships are themselves seen as more than simply a means of producing a 'better' product, in this case a synthetic vernacular, but can also be seen as a way towards more resilient and meaningful democratic societies, devolving power to the communities affected by development.

However, this suggestion of a synthetic vernacular architecture raises two key questions: Can vernacular architecture as a typological form sustain in the networked, globalised 'modern world'; is synthetic vernacular architecture vernacular architecture at all? How can the principles and processes of vernacular architecture be used as a means towards sustainable architecture and therefore facilitate co-option into a more general, wide-ranging development agenda? The processes of coproduction appear to provide a way for these questions to be addressed.

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[3] It should be noted that Amos Rapoport was writing in 1969. The globalization of Modernity has certainly accelerated massively in the intervening forty years. His observations as to the nature and modifying influence of a Modern view of time's "linearity, progress, and historicity" (p.126) are perhaps even more relevant now.

Defined as the 'provision of services by people not in the same organisation', and usually involving a combination of professional and lay people (Ostrom 1996: 1073), the principle of coproduction has not been widely applied to the field of architecture. To a degree this is perhaps because it is seen as somewhat unnecessary; architecture always emerges out of dialogue, is the negotiated process of building production (For examples, see research by Cuff [1991] and Yaneva [2009]). Nevertheless, in an age of deepening professionalisation the space for lay participation (let alone lay 'generation') is diminishing, particularly in increasingly technical fields such as building and even more so in relation to rarefied discourse on environmental damage and climate change. Therefore strategies need to be established which facilitate engagement on this level, if not for the purposes of justice then at least in pursuit of sustainable buildings (in the broad sense), as others have suggested (Cedeno 2006: 6, Frank 2004: 184, Nilsson *et al* 2011: 251. The concept of 'sustainable architecture' is discussed in greater detail in Chapter Two). Coproduction is arguably a means of achieving deep and actual engagement not possible through other approaches, advancing a model of community-led development based upon interaction and interdependence at many levels and across established boundaries, and empowerment through this.

Hunnarshālā, a non-profit urban development and architectural design organisation based in Bhuj, Gujarat, India, is an organisation that seeks to blend lay and professional knowledges through coproductive processes in accord with this research's agenda of describing and analysing a more people-orientated, sustainable means of producing housing for the poor. The processes employed in their work focuses on developing self-sufficiency and empowerment in the communities with whom they work through, amongst other things, applying indigenous knowledges to the reconstruction of the urban realm, thereby enabling individuals and their wider social networks to directly develop and manage their own communities. As such the architectural project is the means for generating and nurturing the actual ends, which is empowerment.

This agenda is specifically relevant to Hunnarshālā's geographical, social and historical context: India, a vast country with a rich and complex history is embodied in microcosm in Bhuj and the broader Kutch district. Contested, dynamic and industrialising, the story of Kutch was re-set in 2001 when an earthquake measuring 7.9 on the Richter scale shook the

region, killing over 15,000 people and flattening much of the built fabric (Sanderson and Sharma 2008: 177). The in-pouring of aid was huge but needed coordinating to maximise its potential. Having operated in the region for many years Hunnarshālā, as part of the Kutch Nav Nirman Abhiyan (KNNA[4]) network of NGOs, anticipated the opportunity and set about forming networks of information exchange and knowledge transfer. Through this they recognised the economic, social and cultural necessity of owner-led development processes, particularly with regards the production of housing, if reconstruction was to attain even a measure of the resilience of the demolished urban and architectural fabric.

This Chapter describes the background of the research and introduces the themes and subjects that will form the material for this research. It is composed of two principal sections. The first section sets the scene, explaining the research's origins as emerging from an agenda focused upon an identifiable problem which is seen as being under-explored in the current literature, coalescing in a thesis statement. The second section sets out a series of research questions which emerge from the thesis, opening them out and problematizing them so as to establish an outline for the research in the field, and so as to identify critical areas of the literature that will be explored in Chapter Two. It will finish with a brief description of the structure of the subsequent chapters of the thesis.

1.2 Thesis statement

The research proposal can be simplified into a thesis statement:

> Synthetic vernacular architecture is a sustainable architectural typology and can be
> produced through coproduction, as manifest in the work of Hunnarshālā.

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[4] Quoting from www.onlinevolunteers.org "The Kutch Nav Nirman Abhiyan is a network of 14 grassroots NGO's that was founded as a response to the devastating cyclone that hit Kutch in May 1998. The Abhiyan galvanized highly effective disaster relief operations by close coordination between NGOs, the district administration, health services, donor agencies and the disaster-affected. Eighty trained social workers of the Abhiyan conducted a detailed survey of 197 villages of Kutch, which was later legitimized by the government for their rehabilitation and compensation schemes. Through its 14 grassroots NGO members, the Abhiyan works in 400 villages of Kutch district … [s]ubsequently the Abhiyan emerged as a network of voluntary organizations in Kutch undertaking coordinated planning, lobbying and training activities to strengthen the voluntary movement in the district. It has undertaken a range of development initiatives including training of rural youth for social work and policy advocacy on drinking water, primary education, disaster management, natural resources and industrialization."

1.3 Contributions

The research contributes to current knowledge in three specific areas:

1. To describe a synthetic vernacular architecture typology as a useful sub-category of customary descriptions of vernacular architecture found in the literature.
2. To identify the actors and processes used to generate such a typology and to describe them as they occurred in the field. The research grows from the assumption that it is feasible for a coproduction strategy to be used in the production of architecture. The research will outline an example of this through the work of Hunnarshālā.
3. To outline possibilities and the risks and limits of coproductive strategies as they pertain to the processes and artefacts of architectural development, particularly in conditions of inequality, as found in the context of contemporary Kutch.

As the above contributions indicate, the value of the research is in relation to the two key themes. The description of a synthetic vernacular architecture serves to justify a reinvigorated description of a vernacular architecture which already exists and which is arguably the norm, for good or ill. A description of the processes and actors involved in the production of such a typology exposes a coproductive arrangement which is uncommon in architecture (as a professional enterprise) but knowledge of which would benefit from wider dissemination and exploration, not least for its potential as an approach to architectural practice elsewhere.

1.4 Research Questions

This research will concern itself with the four main themes contained in the thesis statement: synthetic vernacular architecture, sustainable architecture, coproduction and Hunnarshālā. The research's aim is to identify links between coproduction and the development of a vernacular architecture (Can coproduction create vernacular architecture?), and the mechanisms of production (How does coproduction create

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vernacular architecture?), that is the relationships and strategies used in such a process. It will argue that coproduction can produce synthetic vernacular architecture, a hybrid form that emerges out of a discourse between traditional and contemporary architectural knowledges, which is a holistically sustainable architectural typology that better promotes environmental justice through the application of a more holistic interpretation of human needs. The research will attempt to justify these claims by describing the production of housing in the three settlements of Sadar Nagar, Junawada and Hodka. The research will also offer a critique of the synthetic or hybrid architectures that emerge in this context.

Below, I will 'unpack' each of the research questions implicit within the thesis statement, explaining the terms used. It is intended that the data acquired during the fieldwork research will go some way towards answering these questions.

1.4.1 What is synthetic vernacular architecture?

- synthetic (in this context)

The word synthetic derives from the Greek *syntithenai*, meaning 'to put together' and is defined as "composition or combination of parts or elements so as to form a whole" (Merriam Webster Dictionary online [24.03.2011]). In this research the word is used to describe the 'putting together' or combining of architectural typologies that may be more commonly viewed as discrete and not connectable into a cohesive whole which satisfies both local perceptions of vernacular or traditional socio-spatial and cultural forms and contemporary demands for modernising architectural agendas.

- vernacular architecture

The meaning of 'vernacular architecture' is not entirely fixed both within current literature on the topic and within common understandings of it, as made evident by the multiplicity of labels (vernacular, folk, indigenous, primitive, tribal, popular, anonymous) applied to architecture of this kind (Bourdier and AlSayyad in Bourdier and AlSayyad 1989: 5, Oliver 1997: xxi). Furthermore, my initial research has demonstrated a difference in the meaning of 'vernacular' between the global North and South, as they are commonly understood,

complicating the research and analysis process by rupturing notions of conceptual firmness and necessitating deeper reflexivity.

Drawing on this literature, in this research vernacular architecture is understood to be socio-cultural phenomena rather than solely as a formal, aesthetic typology, or as an historical form, or as the product of non-professional development practices or as climatically responsive building. This is explored in greater detail in the literature review in Chapter Two but in brief, because it is built by people *in the world* to meet their needs in response to environmental, social, economic and human conditions and these conditions are dynamic, vernacular architecture is necessarily in a state of flux. This means it cannot be easily typified. Whilst all architecture embodies the social, cultural, technological and economic practices of those who build it and dwell in it and their spatial practices or preferences to some degree, vernacular architecture's identity lies in the immediacy of its responsiveness and the transparency of the links between conditions and their architectural effect. In short, the defining characteristic of vernacular architecture can be understood to be the clarity with which it embodies the communal, social and individual practices of the people who build and live in it. The buildings embody the day-to-day lived reality of the residents, their perceptions of the social and environmental worlds they inhabit, ' the context-specific, experience-driven, subjective, informal, even poetic' what can be described as local knowledge (UN-HABITAT & M. Arefi 2008: 18). As such, vernacular architecture can best be identified through the level to which it satisfies the requirements of the life-worlds of the residents.

As mentioned above, a wide variety of opinions exist on this topic in the literature, some deeply entrenched. It is not the aim of this research to presume to elucidate a conclusive definition but simply to demonstrate the potential of other architectural forms that have perhaps been overlooked to fit easily within wider understandings of the vernacular. Interviews conducted for the research have shown that a more flexible definition could be beneficial. Further, in the context of the rapidly spreading regulatory function of the state, particularly in contexts which have until recently been free from much governmental intervention, the space for entirely non-professional vernacular architecture is greatly reduced. In the context of Bhuj, because the earthquake of 2001 brought about fundamental changes in the provision of housing, models of the vernacular which met with

contemporary technological building regulations were developed. The legitimacy of these new hybrid forms as true vernacular architecture represents a key concern of the research.

- synthetic vernacular architecture

The globalisation of knowledge and its rapid and cheap transmission through new media can be seen to have had an effect on what constitutes local knowledge. Very few communities remain which are separate from the world at large; interconnectivity between peoples is now almost ubiquitous. With this comes a change in what constitutes ones locale and therefore local knowledge. In light of this, if it is possible to state that because vernacular architecture is fluid, embodying local knowledge and, increasingly, because the local is global, vernacular architecture will evolve into a synthesis of these numerous 'local' voices which is naturally a synthesis between traditional vernacular architecture and contemporary building forms and practices.

However, whilst knowledge of 'the other' is an apparent characteristic of contemporary society, the means to replicate it may not be possible, particularly in the sphere of architecture which tends towards material and technological as well as bureaucratic complexity. Furthermore, democratic agendas promote development, part of which is the improvement of the urban condition of poorer peoples through improvements in building quality. In light of this the professional designer or architect has an important role, having the capacity to invest traditional architectural development with current building technologies in relation to growing ideas about sustainability, structure, health and security. Further, the possibility that the 'artefacts' of traditional cultures not only express the social forms of the society from which they emerge but help maintain it can be engaged with, (See for example Kwolek-Folland's [1995: 6] discussion of Upton's 'famous study of Anglican parish churches' or more pertinently, Zako's discussion of gender inequality and courtyard housing.[2006: 75]). This coming together of traditional and contemporary knowledges creates something which may be deemed a new synthetic vernacular typology, definable as a manifestation of both the fluid socio-cultural knowledges and socio-spatial motivations which typify traditional vernacular architecture and contemporary technical, social and environmental knowledges. This research aims in part to uncover the efficacy of such an agenda within the context of Hunnarshālā's work in Kutch.

1.4.2 What is sustainable architecture?

Whilst the importance of the idea of sustainable architecture is largely uncontested, interpretations of what it is, what it means in theory and practice are often so varied as to seem irreconcilable (Guy and Farmer 2001: 140). The apparent triumph of the 'technical fix' approach to producing sustainable urbanism and architecture (what Guy and Farmer calls the 'eco-technic' approach [ibid. 141]) and its ubiquitous suitability is not universally accepted (Zetter and Butina Watson 2006: 3) and consequently other interpretations and approaches are abundant[5]. It is the position of this research, however, that social, material and intellectual ownership of the urban sphere by those people directly affected by its existence is the key element in achieving a measure of social sustainability and further that this idea of ownership is the thread that links the many 'sustainabilities'. If people are made responsible for the growth of their urban realm, and are made stakeholders in the processes of development and management of it, that is, are given real rights to it and are therefore free to socially and emotionally own the spaces in which they live (what. Turner calls 'the principle of self-government in housing' [Turner 1976: 102]), they are more likely to demand that its realisation satisfies the needs of them as individuals and as members of a community, over both the short and long term. This conceptualisation can be seen to make sustainability a component of both a form of environmental justice and of a rejuvenated idea of human needs theory, which together form the theoretical grounding for the research, and which are discussed at greater length in Chapter Two.

- How is synthetic vernacular architecture sustainable architecture?

Synthetic vernacular architecture seeks to make manifest local knowledge which emerges from a community's social and environmental conditions, in combination with contemporary professional architectural practices and approaches. In this way the architecture is an extension of, or embedded within the communities' world-view, enabling them to maintain intellectual ownership of it. The normal processes of traditional vernacular architecture are augmented and maintained within a synthetic vernacular

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[5] The variety of interpretations may also stem from the uncomfortable relationship that exists within this tripartite interpretation of the notion of sustainability, which seeks to align fluid, progressive or growth-based notions of sustainability (economic, social) with ideas of sustainability as conservation (environmental) and, further, the myriad sub-groups with various conflicting characteristics within each of these general terms.

arrangement, through the development of new-vernacular technologies and materials. This again permits a level of material and intellectual ownership. Furthermore, contemporary processes of procurement of buildings, including permits and interaction with relevant bureaucratic and civil society bodies, can be 'vernacularised' (to a degree) in synthetic vernacular arrangements, enabling a level of involvement by the layperson in systems that have otherwise been unapproachably complex and promoting 'cross-cultural' engagement between laypeople and institutional authorities and their regulations. This in turn facilitates the continued future development of the urban sphere by the layperson. As such synthetic vernacular architecture can be deemed sustainable architecture, as described and defined in Section 2.4, below, by the above definition. Unsustainable housing development is cited as being in evidence where such involvement and engagement is not in evidence, such as in the reconstruction work in the wake of the 1993 Maharashtra earthquake (Duyne Barenstein & Iyengar 2010: 171, Salazar 2002a: 7)..

1.4.3 What is coproduction?

A review of current literature shows that the concept of coproduction also has no absolute definition but rather is defined by the particularity of its application, that is, by the case study that manifests coproduction. Emerging from research into the 'critical role that service 'consumers' have in enabling professionals to make a success of their jobs' (Boyle 2006: 10) coproduction is now applied to a wide range of contexts and organisations which appear to operate with this end in mind, from healthcare professionals, educationalists and policing. It is seen as having a particular value in the North with regards the growing appreciation of the importance of social capital and social networks as key factors in the development of resilient, socially cohesive neighbourhoods (Boyle, Clark et al. 2006: 10) and other instances in which institutional arrangements are (increasingly) seen as not best serving the needs of the service user. In the South however its use is more in relation to the incapacity of government to provide satisfactory services. For the purposes of this research however the definition of coproduction can be understood to mean 'the provision of services through regular long-term relationships between professionalized service providers (in any sector) and service users or other members of the community, where all parties make substantial resource contributions' (Boviard 2007: 847). Drawing also upon Ostrom's 1996 paper 'Crossing the Great Divide…' this research argues that the four conditions for coproduction identified by Ostrom (in an admittedly more economistic scenario) function

well as a framework through which one can view types and levels of coproduction within an architectural development.

The concept of coproduction has not been extensively applied to the study of the processes of architectural production, which this research will argue is an oversight. Whilst contextual differences may influence the application and efficacy of coproduction strategies, the research will examine the value and purpose of coproduction generally and in the urban sphere as a means of applying lay, indigenous knowledge to development processes, and will propose that the strategy can be fruitfully applied to architecture as a way towards not only improved architectural products, but community and individual empowerment as well.

- Can architecture be coproduced?

It is assumed that the concept of coproduction as understood in the literature is both applicable to and evident within the architectural sphere. The research will attempt to ascertain these possibilities and will argue that a more refined and specific definition of what this means and entails, (the processes involved, the networks and actors, the transactions, how it is and therefore can be done) would help with re-application. Although definitions of coproduction in other fields may seem relatively loose they do not lack clarity; the coproduction of architecture would benefit from such clarity as a means towards developing strategies for its wider use in the absence of satisfactory participatory approaches within architectural design (Davidson, Johnson, et al. 2007: 8 &12).

- How can coproduction produce synthetic vernacular architecture?

Some definitions of traditional vernacular architecture may seem to constitute a particular issue for this research insofar as it is often typified as being a non-professional enterprise (See Section 2.6.1) whereas coproduction augments lay knowledge and practice with professional expertise (See Section 2.5.1.), thereby challenging this distinction. This does not constitute a major theoretical hurdle for a number of reasons, not least of which is the difficulty of defining 'professional' (See Section 2.6.1.). If one understands the essential characteristic of vernacular architecture as an embodiment of the socio-cultural processes

of dwelling (See Section 2.7.) the hurdle is smaller still. As outlined above, as a socio-cultural construct vernacular architecture is in a state of flux by definition, contingent upon the fluid consciousness of the communities from which it emerges. Through such an open definition the field of vernacular architecture is opened to architectural typologies which demonstrate these socially resonant characteristics, including architectures made through coproductive arrangements. This is not to say that all coproduced architecture would be vernacular, because of variations in levels and types of engagement by relevant actors.

1.4.4 Who are Hunnarshālā?

As stated above, Hunnarshālā are a non-profit architectural design company who, operating in conjunction with NGO KNNA, work in the field of development and post-disaster reconstruction as well as in the private sector. Hunnarshālā use the processes of producing sustainable synthetic vernacular architecture through coproduction as a means towards community and personal empowerment amongst mostly poor or peripheral communities, in an attempt to gain for the communities a greater measure of equity, recognition and participation in the political processes. The case studies selected will attempt to explain how this occurs and also the effectiveness of it as an agenda. Hunnarshālā are described in detail in terms of their form, agenda and processes at the beginning of Chapter Four, as both they understand and promote themselves, in advance of describing them through the three case study communities of Sadar Nagar, Hodka and Junawada.

1.5 Structure of the thesis

The thesis is set-out in six chapters. I have begun in Chapter One by establishing the principal concerns of the research, my motivation in this area and the context in which the theories were applied and the data gathered. Chapter Two deals with current literature on the primary research themes of coproduction and vernacular architecture and on ideas of sustainability in architecture, working all three themes towards constructive definitions which, whilst inherent to the topics, also facilitates the research. Chapter Three describes the proposed methods of data gathering, outlining a combined qualitative strategy of ethnographic and interpretative elements and their validity to this project. The

methodological approach and the specific engagement in the field is then discussed in terms of its limitations, particularly the research's relationship to Hunnarshālā. This will be followed in Chapter Four by descriptions of the three case studies as they were encountered in the field and also the implementation of the research methodology. Chapter Five will analyse the data through the prism of the theoretical framework and in relation to current literature on the topic, as described in the second chapter. Finally in Chapter Six, the thesis will conclude by attempting to establish the validity of the hypothesis through the data and will expand upon the intended contributions of the research. Further research will be suggested.

Chapter Two - Literature Review

2.1 Introduction

In this chapter I will discuss the literature which is necessary for a focussed discussion of the hypothesis. The literature review will examine the dual themes of vernacular architecture and coproduction, proposing that both can be read as mechanisms for the promotion of justice as conceptualised through the theoretical framework. I will begin by describing the theoretical 'landscape' which encapsulates the research agenda; the thesis was not conceived of as an exercise in architectural history but rather as an exploration of alternative ways of producing sustainable housing for low-income groups. I will follow this by describing the main themes found within the literature relating to vernacular architecture and coproduction and will establish criteria that will allow the case-study data to be identified in relation to the literature. i.e. Is it vernacular architecture? Is coproduction occurring?

This chapter will outline and discuss the main texts associated with the central themes of the research, contained within the thesis statement. An enormous amount has been written about all of these themes (Alcock 2011[6]) and because any research is limited by time and space, I have had to exercise my critical judgement in establishing something of a hierarchy of importance within each field from which I have selected what I understand to be the 'canonical texts' most relevant to this study.

This literature review will begin by setting out a theoretical framework composed of the dual concerns of Schlosberg's conception of environmental justice (Schlosberg 2004) viewed as an aspect of theories on structural violence (Farmer 1999, Galtung 1969), and Max-Neef's Human Scale Development (Max-Neef 1991), an apparent 're-imagining' of Abraham Maslow's *Theory of Human Motivation* (Maslow 1943). I will follow this by briefly

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[6] The Vernacular Architecture Group identified 3162 separate texts written on the subject of vernacular architecture between 1996 and 2005. A large part of this 'certainly incomplete' list (Alcock 2011) appears to be on British examples. See: www.vag.org.uk. The Vernacular Architecture Forum's online bibliography, begun by Dell Upton in 1979, lists 27,639 separate texts on the topic. See: http://resources.umwhisp.org/vafbib.htm

examining the meaning of the idea of 'sustainability' as it is related to architecture. From this the concept of 'sustainable architecture' will be examined. 'Sustainable architecture' is a nuanced phrase encompassing various approaches (Guy and Farmer 2001: 141, Guy and Moore 2007: 15) but a reasonably cohesive view is needed so as to establish a contemporary context for the research, into which the topics of coproduction and vernacular architecture can be placed. To this end an overview and definition of sorts will be established, taking into account the possibility that social construction is key to the establishment of such ideas. Lastly, the literature review will engage with the concept of coproduction, establishing a definition relevant to the research and the case study work in Gujarat, and analyse the potential use of coproduction as an architectural and urban development strategy. This will feed into a discussion of the potential of coproduction as a means of producing a synthetic vernacular (sustainable) architecture. The literature review will then examine the idea[s] of vernacular architecture; how it is viewed of itself and its perceived potential as a sustainable architectural development practice.

2.2 Theoretical Frameworks

Theory 'is crucial in the definition of the problem and in deciding how to tackle it' (Bailey 1997: 135). The use of theoretical frameworks 'helps the researcher summarize previous information and guide his future course of action' (Bell 1987: 18 quoting Verma & Beard 1981: 10) and allows the researcher 'to organise and classify [facts] into a coherent pattern' and at the same time create a structure which serves as the 'basis of the analysis and interpretation of the data' (ibid.). As such, theoretical frameworks both generate and conclude the research, are formative at the beginning and the end.

Central to the motivation of Hunnarshālā is the issue of justice. In a context such as Bhuj, where disparities of power, material wealth, access to services and health are very extreme and explicit, Hunnarshālā see their role as architectural designers as being one which has the ability to affect positive social and environmental change through the production of culturally and socially resonant housing as a means to both limit (if not remove the incidence of) the disproportionate burdening of the poor with the negative consequences of otherwise positive human action, and to empower.

One way to more fully study this aspect of the organisation is through two key theories: Schlosberg's conceptualisation of environmental justice, which corresponds closely with theories of structural violence, and the human scale development of Max-Neef. These in no way constitute the only theoretical framework through which one could interpret the work of Hunnarshālā, nor do they constitute a distillation of extensive reading on the subjects of human needs and environmental justice. They are, as stated, *a* way of interpreting Hunnarshālā's activities, one that developed through my evolving relationship with the organisation. When initially engaging with Hunnarshālā I was pointed in the direction of Farmer's work 'Pathologies of Power' which deals extensively with the notion of structural violence (Farmer 2003: 29), as this was seen as a good way of understanding their primary interpretation of the conditions in which they worked and an explanation of their approach to housing[7]. This segued easily with the idea of environmental justice, which is comparable in its diagnosis and is equally applicable to the context of the post-disaster, industrialising, urbanising, democratising Bhuj-Kutch region, and which I had already engaged with through the literature as I worked towards a thesis, as a way of interpreting sustainable architecture (Guy and Moore 2007: 17). (This argument is expanded upon below – Section 2.2.1.) Similarly human scale development in its inverse enables one to identify the causes of unsuccessful urban development in other post-disaster development work (See for example problems described in Maharashtra in Duyne Barenstein, Joshi et al. 2005 and Salazar 2001a. Also, see the discussion of Vondh, Gujarat in Sanderson and Sharma 2008) and critically what such failure represents socially and politically as representations of a form of environmental [in]justice. It therefore serves as a 'framework of principles' through which it is possible to reconstruct housing for the poor so as to address the inherent issue of structural violence as understood by Hunnarshālā and of environmental justice. (Murray et al., 2005: 4-5, Cruz, Stahel et al., 2009: 2029)

2.2.1 Environmental justice

The centrality of socio-economic sustainability to the research emerged from reflections on the nature and prevalence of environmental justice issues in the context of housing provision for the poor. As delineated by Schlosberg, environmental justice demands 'equity

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[7] See Appendix 1 for a more detailed discussion of structural violence in relation to the research's architectural focus.

in the distribution of environmental risk, recognition of the diversity of the participants and experiences in affected communities, and participation in the political processes which create and manage environmental policy' (Schlosberg 2004: 517). It is not possible for this research to assess the broad spectrum of risks that may undermine well-being and constitute an environmental justice concern in an urban settlement, which might normally include such variables as proximity to noxious industry, atmospheric and water pollution, exposure to concentrations of waste, emissions and excessive noise or even increased exposure to the risks associated with climate change and environmental degradation (Agyeman, Bullard, et al., 2002: 77) and also to tenure security (Dixon & Ramutsindela 2006: 132). Rather, the research will be limited to discussing those environmental justice issues that can be linked to the production of decent housing, which can be best understood through the broad contextual idea of 'human ecology' (Agyeman and Evans: 2004: 157). From this perspective, environmental justice moves beyond the more direct issues of 'equal protection [from environmental pollution] and [into] meaningful involvement of all people with respect to the development, implementation and enforcement of environmental laws' (Commonwealth of Massachusetts 2002, quoted in ibid.), with the implicit stress on physical health, towards a more holistic appreciation of the vast spectrum of injustices which the poor are subjected to through their urban environments, which includes sub-standard, badly designed housing which is both deficient in its embodiment of socio-cultural norms and restrictive in its incapacity to evolve with changing needs.

Thus in this research, the environmental justice issue at stake is that of sub-standard housing and its setting, typified by urban landscapes which inhibit or even prevent social and economic interaction (Kajumulo Tibaijuka et al. 2005: 64) and limit comprehensive engagement with personal, communal and broader culture at a domestic, neighbourhood and community level. Housing provision of this kind constitutes a dereliction of responsibility by those with duty over the urban and architectural realm (pertinent in the reconstruction environment of Kutch post-2001, but not everywhere[8]), to provide urbanism which does not influence human beings 'so that their actual somatic and mental

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[8] Funding and land rights were/ are available in Kutch, technical and legal assistance was on hand, as was/ is social advocacy for the purposes of acquiring recognition and rights in relation to urban development. As such the responsibility for adequate housing provision can be seen to fall, in part, on institutional, particularly governmental, actors. Housing can therefore be seen as a responsibility of 'the state'.

realizations are below their potential realizations' (Galtung 1969: 168), but enables fuller citizenship which is characterised by, and is dependent upon, equitable distribution, recognition of diverse needs and access to democratic institutions, as per environmental justice (Schlosberg 2004: 524). This fuller citizenship is enabled by adequate housing provision, initially through the acquisition of stable, legal housing tenure which provides security and democratic representation, but also by housing which, as Galtung above suggests, does not disrupt a person's capacity to be an encultured, social person, as they would have it. As seen in the work of Hunnarshālā later in this thesis, the actual material and bureaucratic processes of building a house also play a part in this. Too often this does not appear to have been considered an issue of much importance (Dempsey et al. 2011: 289)

In this way, environmental injustice in housing provision can in part be witnessed (globally) in the construction of poor quality, culturally and environmentally insensitive environments which directly affect the well-being of the residents (Spencer and Baum in Baum et al 1997: 70). Likewise, one is able to identify instances where environmental justice is being promoted in housing provision, in the design and construction of houses which appear to engage with those to be housed as people with broad and complex socio-cultural, economic and environmental needs.

2.2.2 Human Scale Development

The above interpretation of environmental justice promotes partly- or wholly-provided housing for those in need that engages with the needs of the inhabitants holistically. This is a demanding brief for providers, particularly in low income environments where self-build is the norm (for various reasons), primarily because identifying meaning in 'foreign' environments is complex. This research argues that human scale development, as proposed by Max-Neef, offers a way to analyse architectural environments according to their capacity to satisfy the specific socio-cultural needs of a community and thereby to achieve better housing and urban design.

Aspects of development policy have been characterised since the 1960s by a concern for socio-economic indicators of human well-being (Murray et al. 2005: 2). Quality of life

assessments began to examine objective and subjective indicators of human well-being, the former as quantifiable 'occurrences, event or activities' such as life expectancy and living conditions, the latter 'based on reports or descriptions from individuals on their feelings and perceptions about themselves or the world around them' (ibid.). Although objective quality of life indicators remain suitable for particular purposes, their value is questioned because of the 'inherently subjective nature of [what constitutes] quality of life' (ibid. 3). This problem is multiplied when one considers the dilemma of analysing subjective accounts of perceived quality of life subjectively. Further, it is 'difficult to analyse subjective quality of life and link it to objective measurements' (ibid.). This conundrum was clarified to a degree by the formulation of the 'basic needs' approach to development in the 1970s, in place of an excessive focus on solely economic indicators. However, the basic needs approach had a 'very limited understanding of what people's needs are' (ibid.)[9]. This problem was overcome 'to a significant extent' (ibid.) by Max-Neef's (apparent) reconfiguration of Maslow's 'Theory of Human Motivation' (Maslow 1943). Maslow's model not only seemingly presupposed a very narrow, emotionless rationale on the part of the actor which one may presume is rarely evident in reality (as Chambers suggests, 'The realities of poor people are local, complex, diverse and dynamic.' [Chambers 1995: 173]), but also appears to have influenced approaches to the provision of basic human services, like housing, so that they are undertaken progressively through a model which presupposes an hierarchy of basic needs, rather than in relation to the actual lived reality of the acted upon. In a stark illustration of how such an hierarchical approach influenced housing provision, Le Corbusier is quoted as stating: 'We must make our way back to the wellspring of human nature. We must take an inventory of its needs. Final aim: to satisfy those needs and those needs only' (Le Corbusier quoted in Murray et al. 2005: 2). The failure of the acted-upon to make choices in an equivalently rational and hierarchical manner then becomes the justification for disregarding them in the development process. For workers engaged with development issues addressing this tendency to place 'Northern' notions of right order first becomes an issue of learning 'to see things the other way round, to appreciate and grasp that other reality, of local people' (Chambers 1995: 198), a more

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[9] This suggestion is evident in the description of basic needs as proposed by Streeten et al: 'Basic needs may be interpreted in terms of minimum specified quantities of such things as food, clothing, shelter, water, and sanitation that are necessary to prevent ill health, undernourishment and the like.' (Streeten et al 1981: 25) The authors themselves suggest that such a 'narrow physiological interpretation … leaves open many questions' (ibid.) but only, they suggest, in relation to access and quantity, rather than nature of the need itself, as does Max-Neef.

complicated challenge than it might sound bearing in mind 'upper-lower interactions between those who are dominant and those who are subordinate' (ibid.).

Max-Neef's 'human scale development' promoted people not as objects but as the primary subject of development[10]. By suggesting that the problem confronted by development is 'not just economic, nor just social, cultural or political... [but] ...it is the convergence of all these' (Max-Neef 1991: 2), and likewise that 'all human needs are interrelated and interactive' (ibid: 17), and therefore by extension particular to the individual, Max-Neef also made the case for an holistic and bottom up approach to development, one that engages with people on a 'human scale'[11]. This approach is particularly relevant to the idea of the coproduction of vernacular architecture which can be seen as a process of localising development by meshing it with indigenous, lay socio-spatial knowledge. Also, research into the development of, and realisation of a coproduced vernacular architecture presupposes a set of socio-economic human needs related to the construction of sustainable urbanism which can be legitimately extrapolated from Max-Neef's 'matrix of needs and satisfiers' (Max-Neef 1991: 30 - See Appendix 2). More centrally however is the purpose of the matrix, which is to 'transform the traditional, semi-paternalistic role of the ... state into a role of encouraging creative solutions flowing from the bottom upwards' (ibid. 8), again a presumed function of coproduced vernacular architecture. This corresponds with the notion of freedom being both the means and ends of development (Sen 1999: 36) rather than simply '"economic rights" related to important material needs.' (ibid. 147), promoted more recently by Sen. Both Max-Neef and latterly Sen make evident the unsuitability of a 'Maslowian' hierarchical approach which, applied to the development context generally and to the provision of housing more specifically, would promote a top-down, highly-paternalistic approach. Indeed, following Sen, it could be argued that such an approach, by denying the client-group the freedom to participate in the production of both the processes and outcomes of development, is not true development at all: 'The process of development, when judged by the enhancement of human freedom, has to include the removal of [a] person's deprivation.' (ibid. 37) In the case of housing provision, this

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[10] See also Streeten 1994: 282.

[11] A similar approach to what is termed 'human development' has been proposed by ul Haq, in which, as with Sen and many others, the specifically income-based approach to defining development, or more recently the basic needs approach, is challenged in favour of a more holistic model which accepts that people's choices 'can be infinite and can change over time' and that only 'accumulating wealth may not be necessary for the fulfilment of several kinds of human choices.' (ul Haq in Secondi (Ed.) 2008: 29)

deprivation is the inability of the resident to influence the production processes (conception, design, construction and maintenance) of their own house; removing this deprivation by facilitating genuine participation at all stages ensures greater development.

In contrast to previous models of development which fixated on economic indicators of progress, human scale development 'offers an alternative to the theory of power politics… when power politics are applied peaceful ends are pursued by carefully crafting a balance of power between would-be aggressors… In sharp contrast, from a human needs perspective, conflicts are managed and social justice is pursued through the satisfaction of human needs' (Christie 1997: 316). This formulation is particularly relevant with regards housing for the poor in Bhuj; within Christie's description there is an implicit acceptance that power politics is dependent upon a level of perceived fundamental equality, or the potential that negotiated power sharing will be respected, between differing social groups. This may well be the case in the context of Bhuj's socio-cultural structures (and possibly everywhere[12]), but in a situation of post-disaster need, the incremental movement towards greater share for the poor through power-politics negotiation may prove too slow. Human scale development offers an alternative approach that circumvents the frustration of cumbersome socio-cultural and political forms by addressing the recipient group *as people* rather than embodiments of power, thereby enabling a direct and immediate addressing of satisfiers to their particular needs. The theory identifies core needs and, whilst 'needs are constant, actions in pursuit of satisfiers [of these needs] vary across time and space' (ibid). This indicates that although the basic housing problem in the context of Bhuj requires specific satisfiers, (resolution that is time, space and person-community specific), Max-Neef's human scale development remains applicable because the needs are universal.

What is of critical importance, and clearly reveals the suitability of Max-Neef's human scale development over an hierarchical model in the context of housing provision (even post-disaster), is that the provision of housing is the provision of a socio-cultural entity, an artefact (Norberg-Schultz 1986: 8). Even the most destitute or disorientated people have an idea of themselves as cultural beings (that is, people of and with a culture), with deeply engrained and highly developed tastes, desires, preferences, and their opposites.

Consequently, any house will not do[13]. Basic needs or hierarchical needs applied to housing provision seems to assume that people in need return to some pre-cultured state. This is not acceptable, especially if doing otherwise is technically and financially realistic[14].

2.3 Sustainability

Any discussion of the ideal means of approaching sustainable architecture must begin by establishing the meaning of the word 'sustainable' in the context of the research. Broadly definable as action which ensures 'that present and future persons have the same right to find, on the average, equal opportunities for realising their concepts of a good human life' (Ott 2003: 60) sustainability is generally understood to comprise three components: 'economic development, social development and environmental protection – as interdependent and mutually reinforcing pillars' (UNGA 2005: 12). However, because the agendas of the sustainability trinity can be seen as conflicting, attempting to marry ideas of growth (economic) and progress (social) through education towards responsible social and economic independence, with conservation and ultimately regress (environmental), it has allowed for an interpretative approach to defining sustainability as it is required (Guy and Moore 2007: 146). Limitations to the current interpretation of the meaning of sustainability do not, arguably, facilitate the ready achievement of many goals of each of the pillars of the sustainability trinity however, individually or in combination (Dovers and Handmer 1993: 221), and arguments for a new conceptualisation are promoted (For example Ott 2003).

Sustainability in the context of Hunnarshālā's agenda in Kutch, which must be understood within the broad setting of the social and environmental context of India, is similarly multi-faceted, struggling to balance the numerous needs of both institutional and communal actors whilst engaging with global-local concepts of sustainability in conjunction with the maintenance of distinct cultures and the preservation of aspects of traditional cultural practices found within the specific communities with whom they work. Sustainability in this context, whilst perhaps appearing from the outside to be so nuanced and complex as

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[13] This is clearly demonstrated in Gujarat where whole villages of reconstructed shelters have been left abandoned to wildlife and cattle because they are not fit for human habitation, although they do meet basic needs of shelter, privacy and nominal security. See for example Sanderson & Sharma's description of Vondh (2008: 179)

[14] For example the Housing Incentive System as outlined by Frank (2004) or other owner driven approaches as outlined in Duyne Barenstein (2005).

to defy definition, as such encompasses components of a contemporary understanding of architectural sustainability, pertaining to social, environmental and economic issues in both progressive and regressive forms. As such it walks a line that attempts both to promote growth as a way towards greater social, health, livelihood and environmental security and also renewal, in the form of revivified local cultural knowledge and practices. All of this is undertaken in light of the democratic ideals promoted by the state and, by-and-large, requested by the communities themselves. All these demands must occur within a framework of sensitive stewardship of the local environment in relation to global environmental concerns, complicated in India generally but in Gujarat particularly by a rapidly rising population and a contingent demand for industrialisation.

However, the analysis of research data will attempt to ascertain what 'sustainability' is in the work of Hunnarshālā via an assessment of the practice and realisation of coproduced synthetic vernacular architecture because, despite the confusion and lack of progress outlined above sustainability remains a strong guiding narrative within urban and architectural development practice[15] (Fischer and Guy 2009: 2590), varied building types emerging out of different conceptualisations of what constitutes sustainable architecture. In the following section I shall briefly outline the main themes found within this discrete phrase, and identify a satisfactory definition applicable to the context of the research.

2.4 Sustainable Architecture

Sustainable architecture occupies complex and contested territory in contemporary discourse (Guy and Farmer 2001: 140). Whilst widely accepted (at least in theory) as the only legitimate focus of contemporary or future architecture, the development of sustainable architecture suffers however from contentious and often mutually exclusive interpretations of its meaning (Guy 2005: 126) and, although this satisfies the requirements of a pluralistic society, insofar as such societies accept a plurality of approaches to engagement with the social sphere and promote diffusion of power through this, it makes

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[15] The Department of Communities and Local Government states that '[s]ubstantial, and cost effective reductions in carbon emissions from buildings will be an essential part of' the attempt to address greenhouse gasses, including the implementation of zero-carbon regulations for domestic buildings by 2016 and new design codes. (See: www.communities.gov.uk as of 28.4.11 @ 5.15pm)

definition very difficult. In addition to this, the tripartite or even quadripartite nature of 'sustainable' as a term (Goodland 2002: 1[16]) allows emphasis to be placed on whichever element the client/builder so chooses. Thus an office block in concrete, glass and steel, which embodies a vast amount of energy and can be presumed to have a vast carbon footprint can be justified as sustainable in terms of its economic benefit implied through suggested associated social benefits (Wood 2007: 402). Gestures towards environmental aspects of sustainability, such as planting schemes or electricity-generation units are often made and the promoted narrative situates the architecture at the forefront of the adoption of a technological approach in addressing environmental concerns. In contrast the *eco-centric* approach, primarily occupying the environmental branch of sustainability and which is concerned with 'noninterference [sic.] with nature' promotes a retreat from technology and the adoption of 'holistic design strategies that … tend to revolve around small scale and decentralised [building] techniques utilising low and intermediate technologies' (Guy and Farmer 2001: 143), whilst at the same time railing against the parasitic character of the technological approach. This debate is not new although as the supremacy of the technological approach solidifies (Guy and Farmer 2001: 140, Zetter and Buttina-Watson 2006: 3) it seems to become more vociferous. Certainly the politics associated with the various approaches, linked as they seem to be to notions of progress and 'being modern', seems to polarize groups who otherwise have the same ultimate agenda. Whilst the debate about sustainable architecture's identity, purpose and ultimate realisation is unresolved, and a plurality of options exists, its necessity in some form is essential[17].

A second implication of the debate about sustainable architecture's 'true' definition, is that no single 'sustainable' solution will ever be found. This is not that surprising of course: the variety of architectural forms that have arisen over the course of human history is enormous, styles and techniques growing from the social and environmental conditions of the age. Now as then, global conditions are varied and whilst climate change is a globally distributed condition its effects will also be varied, necessitating architectural and urban solutions that address the specifics of the locale. Consequently, whilst technology has a

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[16] This tripartite nature has been expanded into a quadripartite form, incorporating Human sustainability as well. This is defined as 'maintaining human capital … [which is] … the private good of individuals … [and which grows out of] …health, education, skills, knowledge, leadership and access to services' (Goodland 2002: 1)

[17] Buildings are responsible for up to 50% of carbon dioxide emissions, 60% of which is from the domestic sector (Thomas 2005: 29).

global reach, a 'technical fix' approach will require different applications in different locations and whilst the philosophical approaches that underpin the eco-centric approach, such as the 'epistemological holism implicit in ecology and the metaphysical realities of ecological wholes' cited by Guy and Farmer (2001: 142) may presume a global relevance in reality they too will require modifications so as to be contextually applicable.

As suggested by Guy and Farmer (2001: 148) and Guy and Moore (2007: 15 & 21) a plurality of realisations is a sign of potential and strength for sustainable architecture; proponents of a single solution approach run the risk of advocating homogeneity at the expense of cultural richness and the associated social benefits of this. The importance of cultural diversity in this context lies in its capacity to facilitate peoples' sense of self as socially and spatially situated beings in the world (Heidegger 1975: 358) and thereby to achieve a measure of satisfaction in terms of their human needs (Max-Neef 1991: 10). A diversity of sustainable architectures demonstrates the ability of buildings to represent and promote the self-image of people and cultures, and in so doing become a tool in the push for environmental justice as well (Guy and Moore 2007: 17). As such, in reconstruction contexts such as that found in Kutch in 2001, culturally representative building (i.e. construction practices as well as design forms, urban layout and aesthetics) is not merely a post-modern, historicist or commercial choice but rather an issue of letting people be themselves and have their own voice; the inverse is disempowerment.

Whilst it is impossible to provide a singular description of sustainable architecture because of the myriad techno-aesthetic and techno-social realisations it is manifest in, it is possible to speak of an architecture that meets the social, environmental and economic needs of a place. In no two places are the needs likely to be the same and different stresses will be found on different branches of the sustainability trinity depending on need. (Also, of course, needs within a place will be uneven or varied, a fact addressed through the 'core house' model of development described in the case studies.) Architecture in this formulation becomes localised, that is becomes dependent upon its locale for its being, for its description. By addressing the needs of a place, the resultant architecture and urbanism will be locally embedded, will have specific relevance to a place. This relevance is, fundamentally, social (we are talking here of architecture) and therefore for architecture to be locally embedded means also that it is socially embedded; not only does it meet local needs but is meaningful for those who dwell in it, must 'serve man's need for meaning and

belonging' (Norberg-Schultz 1986: 8). By meeting the needs of the people it reflects the people, is owned by them. This sense of ownership, which in this context refers to more than simply stable tenure or legal ownership (although these are also important; see for example Rossi and Weber 1996]), is critically important if new urban development is to be valued and therefore embraced. Anything seen as impositional will be resented and rejected. Drawing Heidegger, ownership is understood to be the psycho-social state of dwelling. Heidegger wrote that 'To dwell, to be set at peace, means to remain at peace within the free, the preserve, the free sphere which safeguards each thing in its nature. *The fundamental character of dwelling is this sparing and preserving*' [author's emphasis] (Heidegger 1975: 149). As such, Heynen suggests:

> 'Dwelling refers to a way of being that has to do with a cautious and guarded attitude. The main feature of dwelling is to preserve and care for, to allow things to exist in their essence … mortals dwell insofar as they save the earth, receive heaven as heaven, await the divinities as divinities, and are capable of death as death. In other words, the person who "dwells" is someone who is open to those fundamental dimensions of being.' (Heynen 1999: 15)

This sense of dwelling is contingent upon the act of building; building is in this way orientated towards the act of dwelling and is fundamental to it (Heidegger 1975: 347). As such it can be suggested that a full sense of ownership, in which the dweller is 'open to those fundamental dimensions of being', is contingent upon the act of building. This perception underpins the research, and justifies the hypothesis that vernacular architecture, being an embodiment of the particularities of dwelling in a place and of local knowledge, represents a route to sustainability, because it grows from individuals' and communities' sense of self as situated, embodied and interactive beings, and represents a space of self-actualisation and peace.

It is through such a definition that Max-Neef's holistic and non-hierarchical human scale development becomes logically necessary: architecture which does not serve people as complete and complex social, encultured beings in the world will fail them and will be rejected by them, a wasteful scenario incompatible with the notion of sustainability. By placing certain human habitation needs above others (following Maslow's model) sustainable architecture appears to enforce a new hierarchy of human needs, which must be

satisfied in order of perceived importance. However, truly sustainable architecture must address human dwelling needs directly, as a single entity: humans must be housed well, good housing is buildings which satisfy the human's need to dwell in peace as social, encultured, economic beings in the world.

2.5 Coproduction

2.5.1 What is coproduction?

In her 1996 paper 'Crossing the Great divide…' Ostrom defined coproduction as being 'the process through which a good or service are contributed by individuals who are not "in" the same organization' (Ostrom 1996: 1073). This definition has proven resilient and sums up well the nature of an approach to the provision of services increasingly seen used in the South to deliver necessary social and physical infrastructure (Boviard 2007: 846, Fox 1996: 1089, Mottiar and White 2003: 2, Mitlin 2008: 357), often in places where the abilities of the state are lacking (Joshi and Moore 2004: 42-43). Coproduction is increasingly used in the North also (Boyle 2006: 11) and across the world operates to meet the needs of people who are becoming 'increasingly competent service users' (Boviard 2007: 847) and who are thus able to participate in the processes of service provision, including both infrastructure and governance[18]. Joshi and Moore argue that there are two main motivations for the use of coproduction: '*governance drivers* which respond to declines in governance capacity' and '*logistical drivers* which arise when some services cannot effectively be delivered because the environment is too complex or too variable or because the cost of interacting with large numbers of households is too great' (Boviard 2007: 855 quoting Joshi and Moore 2004). In the context of Kutch it is presumed that both motivations will be present: a post-disaster

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[18] Coproduction emerged out of a growing awareness that there was not 'a single producer responsible for urban services' (Ostram 1996: 1079), that the production of a service 'was difficult without the active participation of those supposedly receiving the service' (ibid.) that people of their own volition and through 'informal [social] norms and networks' (Evans 1996: 1130), maintained their own health, security, community and productivity without recourse to large-scale input from institutional actors and, further, that the boundaries between private enterprise and the public were permeable. It has subsequently become established as a development strategy; by promoting and enabling informal networks within communities and between communities and state, business and civil society actors development goals can be more efficiently and effectively achieved, whilst at the same time promoting social capital.

and still rapidly urbanising environment in which the level of infrastructural redevelopment necessary is vast but is hampered by widespread infrastructural destruction and a growing undocumented population. The notion that a good or service not only can be coproduced by the user but might be improved by such an arrangement (Ostrom 1996: 1082) is a radical shift from the previous model of client-provider which, it has been argued, had come to be seen as the natural relationship of the State/ civil society to the public (Ignatieff 1987: 413), a relationship of 'unequal power and influence' (Boviard 2007: 850) based upon a strict hierarchy, with those that give at the top, those that receive at the bottom and professionals (often enough) acting as facilitators of the providers' will in between the two. Possibly because of a desire for what is thought to be efficiency this hierarchical model can be seen even in participatory programs which have thus been "translated into a managerial exercise … domesticated away from its radical roots" (Cleaver 1999: 608). As a consequence they have lost much of their value as tools of empowerment.

This contrast between coproduction and participation is a significant issue for this research insofar as design participation already exists as a strategy to make more sustainable housing via empowering processes. However, for this research participation in design and building processes represents a significant problem, as it does not adequately address its originally stated and more valuable goal, which is the redistribution of power through the design, construction and use/ maintenance of a built project. This is discussed in depth in Section 2.5.3c, below.

2.5.1 How does coproduction happen?

In describing how coproduction works it is important to emphasise its inherent variety. Coproduction can best be defined by the instances of its occurrence. It is therefore more logical to examine a given situation and ascertain its coproductivity than to state categorically the characteristics of coproduction and find, if possible, enterprises which fit this. The same can be said of describing how coproduction works. Coproduction requires a breaking down of boundaries between the state and the public (Boviard 2007: 856, Boyle 2006: 11, Evans 1996b: 1120, Joshi and Moore 2004: 40), the creation of networked communities (Boviard 2007: 848) and acceptance that the relocation of democratic power into these communities, developing what Ostrom calls a 'polycentric system' of governance

(Ostrom 1996: 1082), is a good thing. All of these characteristics are built upon informal, relational processes. Indeed, it could be argued that what differentiates coproduction from more common participatory approaches to service delivery (especially participatory design) is that participation is a distinct activity, with a beginning and an end, whereas coproduction is an ongoing, evolving relationship. If, as is suggested, coproduction *is* explicitly empowering (Boviard 2007: 855) and empowerment is best understood and achieved via renewed or reoriented relationships between the powerful and the powerless realised in the production of social capital (Evans 1996b: 1130), then the relationship through which power is devolved is the function of coproduction and the material outcome of the process is the means to that end. In this way, whilst no coproduction formulae can be stated categorically, it is possible to suggest that coproduction can be achieved through openness, both of the state and the bodies it employs, and the intention to enact its policy based on the assumption that the public will, with assistance, improve the common wealth through devolved, essentially democratic means.

Following Ostrom's definition of coproduction , that is, it is a service produced by people not 'in the same organisation', which in the case of architecture is presumed to be an array or urban, architectural and infrastructural elements as well as more ephemeral social services such as education and capacity building programs, Ostrom posits four main conditions[19] which 'heighten the probability the coproduction [will be] an improvement over regular government production or citizen production alone' (Ostrom 1996: 1082), the first of which pertains to the technical aspect of service provision and the final three on processual concerns:

> 1. '… the technologies in use must generate a complimentary [sic[20]] production possibility frontier rather than merely a substitutive one.

> 2. '…legal options must be available to both parties. In centralized systems, many potentially productive options are restricted…

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[19] These four criteria are assumed to have an architectural application in the context of the case studies because the housing construction was a service, that is, was produced through organisational networks led by the state in pursuit of its social and urban policy objectives.
[20] The word *complimentary*, meaning 'conveying or expressing civility or praise; using compliments; given free' (The Chambers Dictionary 11th Edition 2008: 322) is used. It is presumed *complementary* is meant– 'completing; together making up a whole…' (ibid. 321).

3. '… participants need to be able to build a credible commitment to one another so that if one side increases input, the other will continue at the same or higher levels. Clear and enforceable contracts between government agencies and citizens enhance that credibility … It is also important to make a credible commitment not to undertake actions. If citizens come to believe that a government agency will bail them out if they do not perform according to their side of an agreement, citizens will be more likely to break the promises they make…

4. '… incentives help to encourage inputs from both officials and citizens.' (Ostrom ibid.)

The objective of these criteria can reasonably be interpreted as intending what might be termed the 'vernacularisation' of the processes of development. The construction of a 'complimentary production possibility frontier' in the first condition promotes an essentialisation (if not simplification) of the material systems involved in the production of services at point of contact with laypersons, so as to enable effective and purposeful actor interaction. No coproduction can occur if, for example, the state demands the use of technology which necessitates solely professional installation. Likewise, by requiring that the social processes (legal, bureaucratic, democratic, and economic as found in Ostrom's final three conditions) involved in a development are equally distributed, Ostrom promotes a deconstruction of boundaries and blending of roles on an organisational level so that customary processes meet at some middle ground. Traditional non-formal (rural and urban) governance has to be opened up to external observation, intervention and regularisation; modern democratic bureaucracies have to be untangled, their hitherto complex bureaucratic processes essentialised, made both transparent and malleable, responsive to the populations they purport to serve, thereby enabling (and therefore more likely ensuring) interaction by the communities with the structures of modern democracy.

2.5.2 Analytical Framework for coproduction

As laid out above, the four criteria offered by Ostrom, can be seen to constitute the principal identifiers of the system. If the four criteria are apparent coproduction is

occurring, to some degree. Ostrom posits no process of identification specifically relevant to architectural coproduction but the criteria themselves are identifiable and would remain so in an architectural development process. However, as described in detail in Section 3.5 and 3.6 both ethnography and design analysis enable the development of an analytical framework to this end. The supposition that the identification of social construction is not solely a matter of observing and noting incidents of certain technological or aesthetic products, or certain formulations of state and society actors, but requires an understanding of the nature of the relationships which make the phenomena, promotes ethnography as an integral aspect of the proposed research methodology, enabling as it does, the discovery of social relations and perceptions amongst individuals and groups and therefore incidences of coproduction. In addition, coproduction and vernacular architecture are, as stated, artefacts, the consequence of objective social processes manifest in material reality. As such they are composed of elements which can be viewed and documented too. To this end, the definitions of both themes are such that tabulated evidence of the projects as process and artefact are possible and can offer insights into them.

2.5.3 Participation *versus* coproduction

Arnstein stated:

> 'My answer to the critical what question is simply that citizen participation is a categorical term for citizen power. It is the redistribution of power that enables the have-not citizens, presently excluded from the political and economic processes, to be deliberately included in the future. It is the strategy by which the have-nots join in determining how information is shared, goals and policies are set, tax resources are allocated, programs are operated, and benefits like contracts and patronage are parceled [sic.] out. In short, it is the means by which they can induce significant social reform which enables them to share in the benefits of the affluent society.' (Arnstein 1969: 216)

Participation then is a very broad term and can describe any activity which attempts to promote inclusion amongst a social grouping in those political and economic processes

which affect their lives. Not all of its many varieties and applications are relevant to the context of this research, which is concerned with establishing the potential of coproduction to make better, more sustainable housing using case studies from a post-disaster context. Consequently, this research will limit itself to discussing to aspects of participation which operate at separate scales but which nonetheless interact: participation of communities as a strategic approach in the construction/ reconstruction houses (Lyons et al 2001: 1248), and participatory design (Sanoff 2006: 58). Both will be briefly described, and contrasted with the concept of coproduction.

As with participation as a general concept, which is predicated upon the assumption that it ensures 'greater efficiency and effectiveness of investment … [and contributes] … to processes of democratization and empowerment' (Cleaver 1999: 597), user involvement in the production of designed artefacts such as housing at a strategic level has over the years grown from ideas relating to the need for better political representation of the housed in any given architectural programme and in the planning of their environments (Hamdi 1991: 86, Weiland, Rosa, et al. 2013: 212) into architectural production based on the belief that participation in design is a way to manufacture better settlements. Further, housing through participation can become a mechanism for empowerment (Somerville 1998: 234[21]) which can produce varying levels of sustainability (Lyons, Smuts et al 2001: 1248).

Within architectural practice the value of participation is likewise seen as both more efficient (Turner 1976: 128) and intrinsically empowering (Sanoff 2008: 62). Indeed, just as Cleaver notes generally that 'participation in itself is considered by many as empowering, regardless of the actual activity undertaken' (Cleaver 1999: 598), in architectural practice the act of participation is now generally regarded as *a good thing* (ibid. 598), irrespective of the activity undertaken or its effect because of its stated links to sustainable development (Lyons, Smuts et al 2001: 1248). This has had the effect of rendering some applications of the approach meaningless, as was the case after the Maharashtra earthquake of 1993 (Salazar 2002a: 14) where the rhetoric of participation disguised the integration of 'NGOs and CBOs into neo-liberal development practices' which saw 'the norms of modernism … conspicuously reinscribed into the built environment' (ibid: 15). Participation in this context becomes tokenistic at best, manipulative at worst (Arnstein 1969: 217) and

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[21] Empowerment is here defined as when "people gain increased control over their housing situation. Such control can be individual or collective, over production or consumption, over investment or management" (Somerville 1998: 234).

essentially disempowering; arguably the only efficiency it produces is bureaucratic, satisfying a need to appear inclusive and conscientious by those in authority.

2.5.3a How does participation happen?

Participation as a strategic approach in architectural production happens through cooperation between concerned parties in pursuit of varied strategic goals (Sanoff 2008: 58). In practice, this means that the housing provider distributes power down towards the bottom of the development process, which in housing is the resident or resident group. This redistribution occurs via formal avenues, with the architect/ designer given the remit of undertaking participatory processes of schematic and programmatic design with the relevant community (See Blundell Jones et al. 2005 for a number of examples). The actual participatory design process is by definition site dependent and emerges according to the project to hand and the agencies and groups and individuals involved. Broadly speaking participation occurs through various iterative and reflexive *processes*, including cooperation, community organising, reflection and discussion, as well as back-and-forth negotiation in response to a community who serve as the 'voice' of local needs and what we might term *tactics*, which might include data analysis, publicity, community visioning, field trips, discussion and debate, presentations, workshops, educative programmes and events and 'getting-to-know-you' sessions (Guy 2002: 11, McAdam and Gueterbock in Blundell Jones et al. 2005: 254). The object of these exercises is to achieve transparency and intelligibility in the design process, to simplify and clarify what can tend to be confusing and obscuring mechanisms of procurement so that the process does not 'confuse the powerless' (Richardson and Connelly in Blundell-Jones, Petrescu et al. 2005: 84) but instead enables their participation.

As such, the process of participatory design remains top-down; power is *allowed* to filter down and participation is contingent upon the residents accepting the validity of the approach applied. In contrast to this, coproduction can be seen to centralise the resident to the development – they become the objective of the development.

2.5.3b Why is participation good?

According to Lyons *et al*, participation is characterised by empowerment and 'involves decentralising control and decision-making to civil society … involves action at the grassroots level, creating self-awareness and the transformation of society, leading to a negotiated power-sharing' and, for the poor (in South Africa) operates 'as a means of surviving, preserving some dignity and gaining control over the means to a livelihood.' (Lyons, Smuts et al 2001: 1235) In architecture, participatory design grew from less extreme conditions than those in apartheid-era South Africa, namely acknowledgment that the layperson is 'not consulted even about proposed developments in his own neighbourhood … [and] … planning and decision making at all levels are often deliberately kept secret.' (Cross in Cross 1972: 11) More recent literature stresses that now 'government policy in Europe and the USA has made participation a necessary part of public work' (Blundell Jones et al in Blundell Jones et al. 2005: xiii) it has become 'effectively institutionalised' and the 'potentially manipulated' process 'stifles the noises coming out' (ibid. xiv). As such, whilst appreciation of the inadequate provision for the disempowered in architecture and planning has been accepted for a long time, the organisation of the response ensures tokenistic engagement, if not effective non participation. (Arnstein 1969: 217) Hunnarshālā's work will be analysed in relation to this contention: does a coproductive methodology which adopts participatory techniques as part of a wider-ranging emancipatory programme of advocacy, education and support avoid the tendency towards manipulation seen in more customary participatory design?

In the context of Hunnarshālā's work in post-disaster reconstruction participation is seen as offering the 'potential for post-disaster housing reconstruction to break the cycle of poverty and dependence, reducing people's vulnerability to disasters and to other adverse events and conditions.' (Lyons, Schilderman, et al. 2010: 2). Further, because there is a 'strong link between participation and empowerment … [and] … a further link between the nature and extent of participation … and the sustainability of development gains in general and empowerment in particular' (ibid.) it is viewed as an indispensable component of all housing work.

2.5.3c Why is participation problematic?

Cleaver states:

'Heroic claims are made for participatory approaches to development, these being justified in the terms of ensuring greater efficiency and effectiveness of investment and of contributing to processes of democratization and empowerment…' (Cleaver 1999: 597)

However, Cleaver then suggests that this status is not founded on reality and that in fact 'there is little evidence of the long-term effectiveness of participation in materially improving the conditions of the most vulnerable people or as a strategy for social change' (ibid.). Demands for efficiency, she argues, is served 'on a small scale' by participation, evidence of its beneficial effect on empowerment and sustainability 'is more partial, tenuous and reliant on assertions of the rightness of the approach and process rather than convincing proof of outcomes.'

'Participation has therefore become an act of faith in development; something we believe in and rarely question. This act of faith is based on three main tenets; that participation is intrinsically a `good thing' (especially for the participants), that a focus on `getting the techniques right' is the principal way of ensuring the success of such approaches and that considerations of power and politics on the whole should be avoided as divisive and obstructive.'

Further criticisms of participation in housing are described by Hamdi who outlines a number of issues, including:

- the problem of attaining consensus in socially transient and culturally heterogeneous places or 'non neighbourhoods'
- the problem of applying essentially democratic programmes in 'a non-democratic political climate' causing participation to be viewed suspiciously
- the problem of unrealistically raising expectations that participation will fulfil a community wish-list, a problem consolidated by local governments' desire to appease by promising more than it can realistically provide
- the suppression of minority voices in a generalised participatory model through their fear of harassment

- the slow pace of participation and the increase in burdens on the administrators of a project.
- the lack of knowledge within a community and the possibility that people will 'do silly things' which they have to take responsibility for.
- the nature of participation as a strategy specifically for the poor. (Hamdi 1991: 83-84)

These criticisms, which have largely been reiterated by others more recently (for example, Lyons *et al* 2001: 1248-50) are applicable to the case study settlements, as described in Chapter Four.

2.5.3d Why and how is participation different to coproduction?

Coproduction is significantly different from participation for a number of important reasons. Coproduction is concerned with the actual processes and materiality of the production of an asset, both in its design and implementation. As Boviard states 'the coproduction approach assumes that service users and their communities can - and often should - be part of service planning and delivery' (Boviard 2007: 846). In contrast, participation is often only 'voice-based'; even participatory design strategies tend towards oral presentation and even when requiring physical input, tend to direct this towards rhetorical ends[22]. Furthermore, following Turner's notion of 'Housing as a Verb' (Turner 1971: 148-175), the issue of participation in the design of housing fails to recognise the nature of housing as dwelling, as an ongoing event in both its construction and occupation and 'what they do in people's lives' (ibid. 152), and not simply an artefact. Participation in contrast is envisaged as a discrete activity in the design process. As Sanoff states: 'Participation can be addressed effectively if the task of participation is thought of in terms of what is to be accomplished when there is an acknowledged need to involve community members.' (Sanoff 2008: 62)

Coproduction's necessarily constructive nature is effective materially and socio-politically. The process is predicated on the production of an asset, via residents 'making real decisions in a process of negotiation among neighbors and with project personnel'

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[22] This can be seen in numerous discussions of approaches to participatory design. For example The Architecture Foundation's 2001 'Creative Spaces' events (Puthod, C., P. Grover, et al. 2001) and the work of Fluid as described in Blundell-Jones *et al* (2001: 247-273)

(Ostrom 1996: 1075). In contrast, as the literature describes, participation in architecture in the form of participatory design does not require the action of production, the making of a thing, but rather presumes empowerment through engagement *per se*, in whatever form it takes. Engagement as described in the literature is an activity overseen by specialists/ advocates (Hamdi 1991: 86) principally as an end in itself, producing information which can then be mined as raw material by specialist designers; coproduction is designed to form sustaining processes and dialogue via incremental production of an asset. This 'making' can be seen as intrinsically empowering (Duncan and Rowe 1993: 1340-1) and inherent to coproductive processes because it enables incremental growth and maintenance, both of the asset itself and the bureaucratic process which legitimise it.

Coproduction in contrast situates the user/ client in the centre of the project (Boviard 2007: 846), in this way displacing the 'artefact'. The purpose of coproduction becomes the empowerment of the individual/ community through both the product and the realigned relationship between the user and the state/ civil society, what Evans calls '"embeddedness"… ties that connect citizens and public officials across the public-private divide' (Evans 1996: 1130), which is nourished by this process of devolution. This is not to say that coproduction simply demands a change in focus from product to client. The act of re-focusing development onto the user (people) would appear to demand a reappraisal of intentions and priorities to begin with. A product driven approach to development does not utilise the full potential of development as a democratic driver whereas coproduction, which insists upon the inclusion of lay-people in decision making at all levels and stages and ensures a distribution of power, embodies the principles embodied in Schlosberg's definition of environmental justice (Schlosberg 2004: 518) and Agyeman and Evans' conception of 'just sustainability' (2004: 35). Therefore, whilst a central intention behind the use of processes of coproduction is to provide services to people who are beyond the reach of more normal state enterprises (Joshi and Moore: 43) by 'locating user and communities more centrally in the decision making process' (Boviard 2007: 846) coproduction facilitates social development and the development of social capital (Evans 1996b: 1130) in the form of closer bonds between state, commercial and communal groups with the effect of promoting democratic and political engagement.

Beyond the somewhat prosaic concerns of 'benefits to service delivery' (Mitlin 2008: 357), democratic representation and environmental justice (Mottiar and White 2003: 23) which

characterises much of the justification for the use of coproduction, is for this research the notion that it can help develop a sustainable urban language and maintain a culture-rich global society through its capacity to realign development along more person- and community-orientated lines. In many contexts housing is not viewed as a basic service, and therefore not a concern of government. This is not to say that coproduction is therefore always an unsuitable strategy to address housing provision; in countries such as the UK and, in a different way India, the government does see housing as within its remit (in the case of Kutch, in the aftermath of a disaster[23]) Nonetheless, the use of coproduction in the development of urban, architectural strategies, by which local decisions and knowledge are incorporated into development processes, is not widespread. Why then might coproduction be a suitable development process for architecture, and how? The devolution of power (perhaps only a contingency of the tacit acceptance by the state of its inability to successfully provide services [Joshi and Moore 2004: 41]) and the consequent endowment with rights (and responsibilities) which is implicitly characteristic of (and arguably central to successful) coproduction, enables something approaching a community-orientated, localised agenda. In the context of a globalised knowledge environment this suggests a place-specificity which ensures a closer fit between the needs and desires of the community and their neighbourhood, society at large and the environment. This constitutes the bare bones of a blueprint for an architectural sustainability that seeks to produce buildings which promote an holistic approach to the social, environmental and economic needs of 'place'.

These sustainable credentials of coproduction are further augmented by the variety of solutions inherent within the local-global urban strategies that coproduction has the capacity to engender. Indeed, this research proposes that this coproduced local-globalism in architecture is the new face of the vernacular, a place- and people-specific modernity which, combing what is beneficial from the globalised and globalising agenda with local knowledge, produces a relevant, meaningful architectural hybrid. This can be seen to simultaneously promote Schlosberg's three pillars of environmental justice (Schlosberg 2004: 518); issues of empowerment towards democratic ends through the promotion of

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[23] This is particularly the case in the context of the shifting service-provision landscape and the emergence of, and normalisation of, the use of public-private partnerships (Von Hoffman 2009: 3) and PFI (Hodkinson 2011: 912) in service provision, which is housing in the papers cited.

greater public engagement in service provision lie beneath and underpin discussions of coproduction. (Boviard 2007: 855, Mitlin 2008: 351)

2.6 Vernacular architecture

In light of current debates surrounding 'sustainable architectures', vernacular architecture emerges as a locus around which ideas of socio-economic and environmental sustainability can be discussed. As with the term 'sustainable architecture' the literature on 'vernacular architecture' is complicated by the many housing typologies that either lay claim to the title or have the title imposed upon them or, indeed, withheld from them. However, for this research an approximation of a definition is necessary; the intention to ascertain the capacity of coproduction to engender a synthetic vernacular architecture is necessarily dependent upon the idea that vernacular architecture is something, has an identity that can be engendered[24].

The identification of vernacular architecture has to a great degree been codified within the immense number of studies into 'commonplace architecture' (Carter and Cromley 2005: xiv) produced since the inception of what is now called vernacular architecture studies (ibid.), so that certain aspects of any given building can be used to identify its heritage and identity and from this the shape and character of the culture that produced it. These same categories for identification however, can by extension also be used to ascertain 'vernacularness', whether a building's form can be judged to be within the spectrum of what is vernacular. This research will propose a common framework found in the literature to identify incidences of vernacular architecture within the research field, under 'normal' conditions (i.e. pre-earthquake vernacular environments), and to ascertain the vernacularness of reconstructed urban and domestic environments as conceptually conceived of (by the builders) during the processes of reconstruction, and latterly as had been realised at point of fieldwork, nearly a decade after the event.

Firstly in this section I will begin by discussing the various features of vernacular architecture as a building typology as it is commonly expressed within the literature. As

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[24] This is not to suggest that this review will attempt to manipulate a monolithic identity for vernacular architecture out of the literature, rather the opposite; for this research vernacular architecture's great strength is the implied potential of its inherently fluid character.

stated above, this is not a straightforward task simply because of the sheer volume of writing on these themes and although much work focuses on very particular aspects within the field, each will embody to some degree a conceptual understanding of the nature of the subject under discussion, therefore offering the possibility of being used within an entirely comprehensive literature review. To ascertain this this is not a realistic task. The research instead attempts to identify some of the principal authors and texts and use these as the basis for proposing the concept of vernacular architecture as an entity as it is depicted within the literature[25].

This is followed by a description of vernacular architecture in India, which attempts to set the work of Hunnarshālā within the geographical and social context in which they work. This raises another set of themes for the research analysis to engage with, as laid out in Section 2.6.1.

Because vernacular architecture can best be conceptualised as an inherently fluid socio-cultural phenomena, as is evident from descriptions within the literature, this section of the literature review will conclude with a proposition that this essential social quality is the key to understanding it as both a building typology and as a sustainable building practice.

Thirdly, by establishing thematic characteristics relating to vernacular architecture's identity the research can adopt the model of identification proposed by Thomas Carter and Elizabeth Collins-Cromley (Carter and Collins Cromley 2005: 46), expanded so as to include the implicit characteristics found in the literature. In this way a framework will be produced through which it will be possible to identify vernacular architecture in each case study pre-earthquake and from this (and in conjunction with other ethnographic data), the existence of a post-development synthetic vernacular architecture.

2.6.1 Themes in vernacular architecture

Non-modern

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[25] These themes are not discrete; rather they overlap and *mingle*, principally, perhaps, because they are not conceived of as separate themes.

Vernacular derives from the Latin word *vernaculus*, meaning 'native born'. (Oliver 1997: 4, 2006: xxi) Thus an understanding of vernacular architecture as a 'native born', that is as an architecture that grows only from the place of its construction, its immediate environment, flavours many of the contrasting descriptions found in the literature. This definition seems to portray vernacular architecture as the antithesis of what is seen as an imposed internationalist, Modernist agenda common to architecture in industrial and post-industrial economies, the towering new cities of Asia standing as the ultimate product of such an homogenising worldview (Doyle 1998: 783, Martin and Casault 2005: 3).

In this conception however the identity of vernacular architecture as that which looks local is seemingly over-emphasised, arguably reducing the typology to an image and by extension, to an aesthetic enterprise. On inspection, as Robinson demonstrated of the modern Southern city (Turner 1976: 54-6), and as Wood argues with the individual building in the Middle East (Wood 2007: 409), it is the social production of space in relation to the material (economic), social and environmental conditions which actually underlie these apparently Western urban typologies, leading to entirely new configurations based around local social needs and desires, and conditions. Thus the high-rise in Seoul or Cape Town can be as culturally specific, as much a genuine cultural response, as a crofters cottage in Scotland or a Dogon toguna and do not, therefore, symbolise the purported homogenisation that goes along with industrialisation and modernisation.

Endangered

Oliver's definition quoted above also plays upon concerns about the plight and future of many 'indigenous' peoples, their cultures and independence in the face of 'modernity' (Evenson in Bourdier and AlSayyad, 1989: 447, Waterson in Bourdier and AlSayyad, 1989: 480, Zetter et al. 2006: 3). Vernacular architecture, then, becomes something we stand to lose unless we make concerted efforts to document it, understand the processes and skills needed to produce it, and understand the meaning it has for those who, over the years, evolved it. This position, which perhaps grows out of the false antithesis of 'traditional' versus 'modern' (Robinson 2006: 65, Waterson in Bourdier and AlSayyad, 1989: 479), which paints the traditional as something wholly separate from, and untainted by polluting modernity, can be seen as somewhat ethnocentric (Robinson 2006: ibid). In the North vernacular architecture is largely defined as a specific set of historical building typologies

(Brunskill 2000: 226[26]) and as such we are seen to live in a post-vernacular culture. This view is then transposed to the South, on cultures which have a 'live' vernacular, instigating a preservational mind-set to architectures that have always been (and have been understood as being), fluid. This view of what constitutes the vernacular (old, static, folk) limits it as a housing typology in both the North and South: vernacular architecture in the South is preserved, to the detriment of those who use it, whose relationship to it is one of holistic utility, and to the typology itself, restricting it to a view of the traditional that is irrelevant in the 21st Century. Further this stance limits the vernacular of the North, disallowing it from evolving in line with contemporary needs and restricting its exponents' ability to learn from more dynamic vernacular examples in the South. This antithesis grows from modernity's essential posture, claiming for itself the characteristics of fluidity, dynamism and progression, constructing its validity from this (Berger 1979: 102-3, Habermas 1981: 4-5). Therefore to see tradition, which architectural Modernism in theory at least rejected (Evenson 1989: 158, Heynen 1999: 15), displaying many of the characteristics modernity claims as its own (Heynen 1999: 10, Larsson in Bourdier and AlSayyad 1989: 523), undermines modernity's own identity and claims to primacy as the philosophical posture for the contemporary world. By extension, modernist architecture's singular fitness for the age is brought into question. Likewise, if vernacular architecture is to be utilised in the pursuit of sustainable urban futures its exponents must be allowed to make fluid the increasingly calcified (Vellinga 2005: 3 & 6). Vernacularists must in turn allow for more 'cosmopolitan' views of modernity and the urban to enter the field (ibid.). Such a reinvigorated interpretation of vernacular architecture, based around an understanding of it not only as a techno-aesthetic or socio-technical response but as a product of particular social contexts, enables those inherently sustainable qualities of vernacular architecture to be re-appropriated (Rapoport 1969: 135). Through the work of Hunnarshālā, this thesis explores the validity of these propositions.

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[26] '…the closing years of the 19C. marked the end of any substantial vernacular content in even the humblest dwelling houses, farm buildings, or minor industrial buildings in the country. By 1900, the rich, middle classes and poor alike could afford substantial dwelling houses in permanent materials; their houses were subject to building regulations national in origin even if local in administration; the choice of materials and constructional methods was wider than ever, but wall of mass-produced bricks and roves of easily quarried slate were so cheap and universally available that any other choice was almost wilful; while larger architectural practices operating nationally, their innovations immediately published in magazines of wide circulation, left little demand for regional variation.' (Brunskill 2000: 226)

Non-professional

Closely associated to the above image-orientated view of vernacular architecture is the idea that vernacular architecture is 'non-professional', those traditional buildings created by 'by *the people* as a direct response to their needs and values' (Coch 1998: 68 – emphasis added) without the intermediary of professionals as understood to be present within current models of architectural production common to the global North. This form of 'popular' architecture (ibid and Oliver 2006: 4) stands in contrast to what Coch terms 'Representative architecture … [which is] … built by established power, which attempts to impress the observer and clashes with, dominates and often destroys the natural environment' (Coch 1998: 67). The implicit assumption to be gleaned from Coch's description is clear: vernacular architecture does not seek to impress the observer or dominate the environment. However, by definition shelter must dominate the environment on some level if it is to be effective (for example if it is to enclose space [Rapoport 1969:104]) and the ceremonial greathouses of the Kalaba (or Kalava) tribe in New Guinea), for example, must be constructed with the intention of creating some kind of impression, even if that is only a small part of their general objective (Rapoport 1969: 44, Crouch and Johnson 2001: 146.

Nonetheless, this interpretation of vernacular architecture as non-professional seems to be suggested so as to put it in contrast to the house-as-commercial-product, as it is implied are the houses of the contemporary North (Brunskill 2000: 226). Architecture of this kind is dependent upon standardised products and machine-fabricated components and as such it cannot be replicated outside of the modern industrial system. As a consequence, design is hugely influenced by available components: architecture emerges from the pages of manufacturer's catalogues. Moreover, as technology proceeds along a path of ever-greater complexity and building quality regulations evolve in line with technological capability, the application of these components becomes ever more complex. Thus, the lay person is unable to provide shelter for themselves. This notion plays to the perception in some quarters that the modernised person is increasingly dislocated from the self-servicing of their primary needs and is as such increasingly dependent upon a whole host of people who can. Vernacular architecture in contrast embodies freedom from professional

involvement[27], a set of locale-specific practices which can be adopted by any person needing to create culturally acceptable shelter from within the boundaries of their material environment.

Coch's definition does however usefully identify a core theme that encircles other conceptions of vernacular architecture found elsewhere in the literature, namely an understanding of 'the vernacular' as something other than that which 'we' understand to be architecture, implicitly characterised as buildings with the aesthetic, philosophical values of *professional* designers under-pinning them, which can be broadly understood to be the values of the market and the state (Hubka 1979: 27, Oliver 2006: 4). Vernacular architecture in contrast is seen as embodying the aesthetic and philosophical values of the community, the *locale*, which is at once both more specific (one's neighbours, ancestors, family) and because it is other-centred (the design considered as a socio-cultural construct within a continuum rather than a manifestation of individuals' desires to impress and dominate), is unconstrained, being open to flows of knowledge intra- and inter-culturally. This conception of vernacular and 'representative' architecture being manifestations of lay *versus* professional knowledge and practices, which are irreconcilable, seems to characterise much of the literature.

However, the definition of vernacular architecture as being 'all types of buildings made by people in tribal, folk, peasant and popular societies where an architect or specialist designer is not employed' (Oliver ibid.), which is indicative of a common view within the literature is, perhaps unintentionally, less exclusive than seems to be intended if only because it appears based upon a misconception of the nature of both design as an activity and of the working methods of 'specialist designers'[28]. It also seems to reify in some way the designer as a person apart, above and beyond the aggregation of meaning and understanding common to the rest of humanity (Glassie 2000:19). Oliver further asserts that vernacular architectural design is a response 'to experiences of conditions and use rather than … the application of rigorous method, analysis of the problems involved, or even by the 'lateral

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[27] See for example, Rudofsky's 1964 book *Architecture without Architect*, in which anonymity is imposed on the builders of vernacular architecture (Rudofsky 1964) although, as Oliver argues, such an idea is clearly flawed (Oliver 1969: 11-12)

[28] Cuff thoroughly describes architectural practice, disestablishing the apparent conception of the architect as isolated genius but rather as only a part within an interplay of numerous actors, agendas and processes (Cuff, D. 1991: 248).

thinking' that we call inspiration' (ibid: 5) again reiterating both an apparent misconception of the design process employed in everyday architectural work but also of the complex generative processes employed in 'tribal, folk, peasant and popular' built developments which is not, as Hubka points out, 'naturalistic determinism – as if these people, like birds, naturally make shelter' (Hubka 1979: 27). It seems implausible to insist that the professional as correctly conceived, that is one who 'publically confesses'[29] a degree of specialist knowledge in a given field will not manifest themselves in the production of 'vernacular cultures'.

Fundamentally, definitions such as Oliver's ensure a specificity that excludes so much, from Venturi, Scott Brown and Izenour's 'junkspace vernaculars' (Furjan 2007: 62, Rapoport 1969: 7, Venturi *et al* 1977: 6) to the 'vernacular of sustainability for the skyscraper' as described by Anthony Wood (Wood 2007: 401-2) and everything in between (Vellinga in Vellinga and Asquith 2003: 90). Further it excludes the possibility of the incorporation of new technology into traditional, lay building systems, adopting them because of new needs and adapting them to satisfy the specifics of the social and cultural context in which it is used, a process which might require some specialist advice.

A further implication of the assumed non-professionalism of vernacular architectural production as opposed to professional house construction within the context of traditional societies, is the assumption that the generation of vernacular architecture is not transactionary, that certain people who have specific knowledge of certain (perhaps low-tech) methods or specific skills relating to construction, even if only hard labour (Glassie 2000: 51), are not sought out for advice and that the giving out of such advice is not contingent upon the 'service' being returned (ibid. 26). This seems highly unlikely, especially in light of the range of non-self-built buildings (alongside self-built ones) considered vernacular by some authors (Carter and Collins Cromley 2005: xv, Glassie 2000: 68) or the use of relatively mass-produced materials in the production of self-built houses (for example, pan tiles or bricks) It may be that identifying transactions is difficult because they are non-formal, 'outside' an author's expectations and so pass by unnoticed (for example, bartering, lending, swapping, etc. *versus* rapidly processed contracts with cash

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[29] 'profess … pap [past participle - Latin] of *profiteri*, from *pro* publically, and *fateri* to confess'. (The Chambers Dictionary 2010)

enforced by judicially-enforced law) which actually hides essentially professional relationships.

Climatic determinism

One of the central criticisms of the perceived homogeneity of architectural modernity (Norberg-Schulz 1986: 8 and 14, Rapoport in Taylor (Ed.) 1989: 15, Valverde 2004: 33) is its lack of environmental specificity (Coch 1998: 67-8). Glass and steel may work in New York City (some of the time) but are irrelevant in the unremitting glare of the Middle East, for example, where such buildings require continuous mechanical ventilation, cooling and even heating. Vernacular architecture in contrast is painted as an architecture that grows from environmental conditions. Long-term residents of an area become embedded within their environment over generations and know the correct or most suitable constructional response to their climatic condition, a knowledge passed down through the generations. The focus on climatic responsiveness also embeds the resultant architecture within ideas of history, tradition, local knowledge and inter-generational learning, themes common to descriptions of the vernacular. In short, climatic specificity generates genuinely sustainable urbanism. Amos Rapoport, whilst emphasising that 'climate … is an important aspect of the form-generating forces, and has major effects on the forms man may wish to create for himself' (Rapoport 1969: 83) nonetheless questions a 'climatic determinist view … [which] … states that primitive man is concerned primarily with shelter, and consequently the imperatives of climate determine form' (ibid. 19) which he states is 'not true' (ibid.). Instead Rapoport suggests 'nonutilitarian factors seem of primary importance' (ibid.), particularly 'wants' or desire (Rapoport in Taylor (Ed.) 1989: 14).

Local knowledge

The view of vernacular architecture as climatically determined is closely linked to an interpretation of it as the built embodiment of deeply rooted local 'vernacular' knowledge, one which reposes in the subconscious of the community and which is inevitably drawn upon when new needs must be met. In this view the home builder is conditioned by history or custom to such an extent that his 'residential' choices are largely decided for him, including the methods of construction, form and so forth (Crouch and Johnson 2001: 2); they do not design and build as 'we' do; rather the community as a consciousness

aggregated over time *creates* architecture. However, as Hubka points out and indeed is demonstrated by an analysis of, for example, the often very complex bioclimatic strategies employed in many vernacular examples (Coch 1998:71-2), vernacular design may not look like design as one might be accustomed to understand it, but this is not to say that the process is not rigorous and tailored (Hubka 1979: 27, Rapoport 1969: 19). Not understanding this may be a similar problem to not understanding other types of client-professional relationship.

This being said, vernacular architecture evidently does embody knowledge of the locale. For this research however, the locale is always broad; architectural history demonstrates that the extraordinarily rapid diffusion of stylistic, formal and technological practices visible in architecture is quite normal.

2.6.2 Vernacular architecture in India

As a consequence of the broadness of the locale for current manifestations of vernacular architecture, the geographical site of buildings is reduced in significance. As such, the notion of 'Indian vernacular' is not deemed specifically relevant to this research. However, design influence on the work of Hunnarshālā need to be engaged with. Current Indian vernacular architecture of the kind Hunnarshālā are involved in producing can be understood as growing from both a geographical place (India) and an historical moment (Independent and industrializing in a globalised world). The content of Hunnarshālā's design work is the processes and artefacts of vernacular cultures specific to any given community, which are described in each case study as 'Precedent' (Sections 4.3.1, 4.4.1 and 4.5.1). These describe the normative building typologies and building practices which pertain to Hunnarshālā's development work, where applicable. An alternative, loose way of analysing this type of architecture is proposed in Chapter Five in relation to the notion of synthetic vernacular architecture in which the position of Hunnarshālā as designers within a 'nationalist' (Appadurai 2009: 14) design movement of 'modern vernacular' is discussed.

2.7 A definition of vernacular architecture

The myriad views of vernacular architecture can be grouped into a limited number of core themes within the literature. Vernacular architecture is commonly seen as a non-modern, non-professional, climatically responsive and now endangered building typology that is socially constructed out of local, lay knowledges[30]. Descriptions of vernacular architecture as 'both process and artefact' (Vellinga 2003: 2) are common in the literature, alluding to this essential characteristic of vernacular architecture as socio-cultural phenomena. Oliver demonstrates 'how dwellings in any culture are interdependently linked to the economic needs, cultural values and social relationships of their inhabitants' (ibid.), a popular, holistic view which underpins much writing on the subject. However, the nebulousness of such a definition is, it would seem, not necessarily intentional given Oliver's prior description of the 'true' definition of vernacular architecture and a similar argument is used by Wood to explain to explain how vast office-blocks in the Middle East qualify as vernacular (Wood 2007: 403-6), an architectural form one would doubt Oliver (and others) would consider even vaguely vernacular. However, Wood exploits an element (or indeed a weakness) in the description of vernacular architecture which is largely unexplored. If vernacular architecture is fluid, responding to the knowledges of the community as they develop through time, it cannot be, in its true form, an historical typology and it must have a present and future form which is equally responsive. If vernacular architecture is climate-responsive and the climate is in flux, the fluidity of the typology is guaranteed. If vernacular architecture is socially constructed it is always contemporary and, because the modern age is characterised in large part by the development of rapid, affordable and nearly ubiquitous global communication networks, this contemporaneity necessarily entails the trappings of new, industrialised technology and social processes.

Following this, it is possible to assert that vernacular architecture exists as socio-cultural phenomena. It is not a formal, aesthetic typology. It is not necessarily old. It is built by people in the world to meet their needs and is therefore in a state of flux. What is described as the non-professional quality evident in much vernacular architecture seems to attempt to categorically differentiate it from representative or monumental architecture, but arguably not modern architecture *per se* which can emerge out of equally informal arrangements. What links these two apparently opposing typologies is that all architecture embodies the social, cultural, technological and economic practices of those who build it and dwell in it and their spatial practices or preferences. (Vernacular architecture however directly reflects

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[30] Further categorisations are possible within these, as demonstrated.

these practices, lacking as it does the complex structures of mediation and obscuration on which the contemporary model of building development common to bureaucratised economies is established.) The implications of this to vernacular architecture can only be fully understood if one accepts the increasing ubiquity of knowledges in the contemporary world and the demands such a change in awareness has upon perceptions of cultures, serving to highlight the inherent fluidity of what may have been seen as static societies.

2.8 A definition of synthetic vernacular architecture

This fluidity not only validates a reappraisal of the definition of vernacular architecture but enables proposals as to its future development. Indigenous cultures are threatened by imposed processes of mass production characteristic of contemporary, 'modern' society. However, the move towards industrialised and largely urbanised futures is irresistible and, furthermore, is seen as having positive consequences (Satterthwaite 2007: 28, 49 63). Therefore indigenous architectural forms will be modified by the increasing contact between indigenous cultures and global-urban modernity. This is only problematic if vernacular traditions are seen as discrete and static, but not if they are viewed as amorphous and fluid, responding to the socio-environmental landscape. Vernacular architecture does however represent an ideal of good architecture, which is to produce buildings which embody the will and desires of those who are to live in them, as individuals and as members of a society in an environment. The contemporary human's knowledge and desires are globalised and their architecture, their urban realm, must reflect this if it is to satisfy them as people in the world. Having knowledge of the contemporary world, desiring it, and being able to produce it oneself are very different issues however.

It is in this context that this research proposes what is termed hereafter as *synthetic vernacular architecture,* a sub-category within the general vernacular architecture typology which describes buildings in which indigenous cultural practices and norms are augmented by contemporary scientific, social and technological knowledge through collaboration between lay people and professionals working coproductively through mutually beneficial relationships. These relationships, it is proposed, through which traditional lifestyles are encouraged to engage with modernity rather than simply be replaced by it, are concerned with synthesising the resonant social meaning of indigenous culture with the benefits of

both the architectures of modernity, which includes complex materials and technologies, health and environmental knowledge and regulated construction and procurement practices, and more broad democratic goals. As such, the concept of synthetic vernacular architecture presumes its potential capacity to redistribute power through not only the production and use of the social meaning of indigenous architecture but also through collective action needed to design, build and maintain it. This notion is predicated upon Arendt's conceptualisation of power as espoused in her book *The Human Condition*, in which she describes the necessity of collective action 'in concert'(Arendt 1998: 44) as a prerequisite for the generation of (social) power.

2.9 Analytical Framework for synthetic vernacular architecture

As outlined above, the literature on vernacular architecture is perhaps in essence characterised by an (generally implied) insistence on the non-modernity of the building typology, the numerous particulars attributed to it being in many ways things which cannot be ascribed to non-vernacular buildings. This is of course predicated on an assumed identity for modernity, an identity which is not definitively described but would appear to correspond to an Arendt-ian notion of alienation, of becoming separate from the world and from oneself through psycho-social abstraction, upon which the modern world is contingent and through which the 'stability of the world [is] undermined in a constant process of change.' (Arendt 1998: 251-2) The architectural language of modernity appears to be seen by vernacularists as emerging from this abstraction and instability. As such it is a new language, responding to an altered (if not entirely new[31]) paradigm, manifesting itself in industrialisation and post-industrialism and the attendant accelerated population growth and urbanisation. These huge demographic changes induced by industrialisation are still unfolding and the social landscape of the entire globe remains unstable as a consequence as unprecedented numbers of people move to meet their needs. Added to this are demographic fluctuations caused by new experiences of climate change.

However, setting aside the fact that such an approach seems to ignore the possibility of there being a spectrum of vernacular architecture, between what Brunskill's calls 'the extremes of the wholly vernacular and the completely polite' (Brunskill 2000: 28), it is the

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[31] Arendt 1998: 252, note 2

position of this research that it is in light of this context that modern[32] architecture's genius comes better into focus, its lack of place specificity in such a context providing neutral ground for a pluralistic society. New technology allows 'the modern' to be made entirely place specific, responding to the enviro-climatic and social needs of 'the site' on macro- meso- and micro-scales. In contrast, the idea that vernacular architecture is the antithesis of modern architecture (and therefore modernity) and changes (if at all) by evolutionary increments which only emerge from the locale, implies the inherent incapacity of vernacular architecture for broader application and thus risks pickling it in aspic and marooning communities who are dependent upon it. As the rest of the world races away on the path laid out by modernity certain peoples are left to carry the light for a traditional way of life that is no longer relevant even to them as people, almost as a museum piece: 'The Indigenous in Their Natural Environment'.

As suggested in Section 2.7, a more constructive view of vernacular architecture is to see it as a social construct, not a fixed material reality. Vellinga emphasised this point, writing that 'a more dynamic approach' to identifying vernacular architecture would allow the researcher to view 'tradition as a conscious and creative adaptation of past experience to the needs and circumstances of the present' (Vellinga 2006: 83).

To this end, this research proposes that Carter and Collins Cromley's 'Framework for Analysis' of vernacular architecture (Carter and Collins Cromley 2005:45), adapted in relation to the topic at hand and turned into a grid, provides a basis for analysis. This allows the phenomenon of the vernacular house or environment to be analysed not simply as a static artefact but as a constructed realty. The authors propose five categories: Time, Space Form (broken into Style and Type), Function and Technology which each tell the observer something about a building and the people and culture that produced it. 'Time', as an analytical tool relating to the identification of the age of a given building and for suggesting "'why this building – this behaviour – at this time?'" (ibid. 47), is of no relevance to this research because it is a given in the context of Kutch: there was a terrible earthquake in 2001 which necessitated reconstruction. The other four categories however do offer something, allowing the researcher to act anthropologically and construct a meaning of a

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[32] 'Modern architecture' is used to denote architecture that pertains to the modernist paradigmatic agenda, as outlined, rather than simply contemporary architecture, which may or may not.

building or urban area out of the artefact itself. Taken in conjunction with ethnographic data (observation, photography, interviews and conversation, etc.) and historical analysis, the researcher can suggest a building's socio-cultural purpose and meaning. Further, this approach becomes a means of addressing those underlying agendas outlined earlier in the literature review which serve as a theoretical basis for the work: environmental justice and human scale development which, as stated earlier in the chapter, move beyond concerns about the broader environment into concerns about individuals' capacity to self-actualise in badly designed, culturally deficient housing.

Space	How is it organised?		Identifying zones of human activity on the macro, mezzo and micro scale in relation to such things as race; gender; class.
Form	What does it look like?	Style	What what a buildings looks like implies about the makers of the building, their society and the building itself.
		Type	Primary characteristics – shape, orientation, plan type (e.g. circular; south-facing; single room)
			Secondary characteristics – construction techniques, materials, decoration (e.g. painted rammed-earth)
Function	How is it used?		Following Norberg-Schulz, four 'dimensions': 1. environmental control 2. frame for human actions 3. expression of the social milieu 4. cultural symbolization[33]
Technology	How is it made?		Identifying methods of construction, materiality; meaning.

Fig. 2.1: Framework for identifying vernacular architecture (Carter and Collins Cromley 2005:45 - 61)

This framework allows an initial description of built environments as a set of artefacts and processes which then allows for an assessment of 'vernacularness' and coproductivity.

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[33] Adapted by Carter & Collins Cromley (2005:59 - 60) quoting from Christian Norberg-Schulz, *Intentions in Architecture* (Cambridge: MIT Press, 1965), 109-30.

However, social ethnography is also required. Vernacular architecture as social construct is complex, a reality made appreciable by an ethnographic research approach which exposes it specificity. This specificity is arguably vernacular architecture's great strength and any attempt to understand its function and its applicability in other contexts will not succeed if it attempts to reduce or circumvent the complexity of any thing born of social interaction. An ethnographic mind-set embraces social complexity and the complexity of things made socially. The promotion of vernacular architecture in this research is a promotion of indigenous knowledge, not as something that exists and is 'out there', identifiable and discreet (Holstein and Gubrium in Denzin and Lincoln 1994: 263), but as an approach to development of sustainable architectures that is socially embodied and therefore 'live', that is *other*. In so doing, ethnographic methods help make a robust case that demonstrates the potential of approaches not commonly incorporated into contemporary urban development programs, of which synthetic vernacular architecture is one.

Chapter Three - Research Methodology

3.1 Introduction

In this chapter I attempt to set my research within the broader context of the ways in which research is done, and is in essence a description of, and justification of why I chose to adopt the strategy and tactics I did. I begin by setting the scene, explaining the 'story' of my research and its main theoretical threads; I suggest the primary characteristics of the research that the methodology needed to address. I then go on to delineate methodological precedent which, describing a) approaches which engage with restricted fields of data and b) studies which use qualitative approaches of ethnography and design analysis, validates the approach taken in this research. I then undertake an outline of the main characteristics of qualitative strategies and quantitative strategies, and how they differ. I then focus on the research methodology as a means of structuring the collection of data in the field. I then outline the research methodology of ethnography, of which I give a brief overview, and explain the polyphonic ethnographic approach I attempted to adopt. I then explain the idea of design analysis as a qualitative practice and explain how it added to my research. This is followed in section 3.5 by a description of the proposed methodological framework, which incorporated elements of ethnography and interpretative elements and then the methods or *tactics* I proposed to use to conduct my main data collection during two periods of fieldwork, and some notes on the development of the methodology over the course of conducting the research during two periods of fieldwork. The chapter concludes with some reflections on the methodological approach used in the research and the limitations of it as it was operable in the field, particularly with regards linguistic barriers, time in the field and the difficulties of my association with Hunnarshālā in relation to the case studies. I suggest alternative approaches that may have provided for more robust and thorough analysis.

I began the process of undertaking this project because I wanted to affect a change in the current practice of the architectural design of housing for low-income people. A great disparity between the housing people want is evident, and I presumed that there had to be another way, one that placed at least some import upon the socio-cultural desires of the people who were due to live in them. This cultural resonance could be seen manifest in

informal settlements in the South, where people, left to build for themselves, constructed homes whose forms and identifying patterns could be traced back through history and across the divides of class. But it rarely if ever happened in Britain. Why? The key, I felt, was (at least in part) the capacity to self-govern, to choose how and with whom one built and in what way one paid for it. Thus we arrive upon coproduced vernacular architecture, employed increasingly in the South and especially in contexts of post-disaster where people, keen to modernise but also keen to maintain their cultural identity, employ the expertise of organisations which can help them implement owner-led housing development, producing a *synthetic vernacular*, an architecture that brings together their heritage and contemporary technological and spatial knowledge[34]. This architecture is coproduced, produced by actors not '"in" the same organisation' (Ostrom 1996: 1073) but who work in conjunction with one another through an organisational nexus, and who have the same basic goal: good quality, affordable, sustainable housing. This concept demands clarification. This clarification process requires research. This research requires a strategy for the investigation, what could be termed a research methodology, which if well designed will expose the nuances of the hypothesis. Finally, this particular research needs a case study, which is how I came to Hunnarshālā.

3.2 Methodological Precedent

In identifying relevant precedent for this research methodology I have read broadly. The nature of the topic has opened up a very large range of possible strategies, from the fields of architecture, development, urbanism, anthropology, sociology and economics. In the interests of simplicity however I have drawn directly on only a limited number of projects and have perhaps only referenced these in essence rather than in practice or detail. A frequently cited work of research into architectural practice in Cuff's 'Architecture: The Story of Practice' (1991) which takes an ethnographer's interest in the 'culture' of architecture and the processes of production. Secondly, I drew on Duyne Barenstein's work 'A Comparative Analysis of Six Housing Reconstruction Approaches in Post-Earthquake Gujarat' (2005), which describes tactics for generating data through a mixed methodology, but with a quantitative bent. Beattie's 'The Market as Hybrid Space: Re-

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[34] This issue is discussed at greater length in Appendix 1, in which the overarching theme of structural violence and its importance in justifying the use of a post-disaster housing to discuss vernacular architecture is more fully explained.

Reading Barabazaar and the City' (2005) also at least intimated at such a loose approach, being built around qualitative and historical-interpretive research methodologies, and combines participant observation, architectural and graphic analysis and interviews, as well as archival research and theoretical studies. Finally, Lara's 'Popular Modernism: An analysis of the acceptance of modern architecture in 1950's Brazil' (2001) most explicitly adopts a mixed methodology to study a topic concerned with lay perceptions of socio-cultural and historical artefacts. Accepting the interdisciplinary nature of architecture, Lara adopts a methodological framework which allows him to investigate the broad range of concerns he has in his subject, as with Beattie combining again ethnographic and interpretive-historical research methodologies. In so doing, Lara implies the weakness of using a single research methodology to investigate architecture as a socio-cultural artefact; to understand how people know architecture it is necessary to investigate the many ways people interact and relate with it.

However, because a study of this kind is concerned with a limited pool of examples, it faces criticism that it produces limited value in terms of broader application and the reach of its conclusions. Also, it may be seen to lack the critical objectivity that comes through comparative analysis, through which a certain levelling-out can be seen to occur. However, this study's intention is not to generate absolute rules; rather it is intended as a mechanism for learning about alternative approaches to architectural production through the illustration and investigation of a specific example. The research uses a single organisation to talk about three case studies, each a reconstruction and development project instigated in the wake of the 2001 Kutch earthquake and each described through the architectural precedent, the design intention and the built realisation of each settlement, using both artefactual and oral data to interrogate the efficacy of a coproductive development approach.

Such an approach, whereby 'particulars' are used to suggest 'universals', is evident elsewhere in the literature. When describing the work of three organisations engaged with issues of poverty in Mumbai, Appadurai takes a specific instance and suggests its much deeper implications (Appadurai 2001: 23-43). In this case, the Society for the Promotion of Area Resource Centres (SPARC), the National Slum Dwellers Federation (NSDF) and Mahila Milan, members of a network concerned with acquiring access to urban infrastructure and rights (the 'Alliance'), are described through intimate engagement by the

researcher as they manifest what Appadurai terms 'deep democracy' (ibid.). This engagement by the researcher, which at once explains process within the organisations and other inter-institutional arrangements, is seen as suggesting methodological possibilities ('a partial effort to show how the anthropological study of globalization can move from an ethnography of locations to one of circulations' [ibid. 25]) and also a new conceptualisation of the nature globalised democracy.

Similarly, King writes how 'personal histories are embedded in larger histories, personal geographies in larger geographies. What may, at the time, seem to be the 'smaller' histories of, geographies, and sociologies of, for example, individual families, households or communities, are also part of 'larger' histories of regions, nation states, and empires. We are products of our circumstances.' (King 2004: 189). This follows criticism he makes of Mitchell's 1972 study *The Indian Hill Station: Kodaikanal* in 1976, in which he had suggested 'the importance of political, social and cultural factors, without which the hill station would not have been developed, is seriously underestimated' (King 1976: 156). Rather, he suggests, 'the development of the hill stations can be explained by reference to the three main variables of culture, technology and the dominance-dependence relationship of colonialism' (ibid.). In pursuit of this King proposes a methodological approach which uses an examination of linguistic 'terminology as a guide for socio-spatial arrangements and the economic and political *relationships* which they represent' and the examination of language 'to investigate the etymology and application of selected items in the urban nomenclature of the colonial third culture as a means of gaining insights into the social, economic and cultural *processes* of colonialism' (ibid.). King proposes three strategies for acquiring this oral data, including participant observation, cartographic evidence and an authoritative historical glossary of relevant colonial phrases (ibid. 71). King combines this with reference to 'the urban forms and spatial areas to which they gave rise' (ibid. 44) with descriptions of the physical form of the architecture, (see for example the description of bungalows in Chapter 6, p.123 – 155) using information gleaned from, one presumes, on-site observation and from analysis of historical texts, and oral and artefactual sources, including architectural drawings, photographs (both composed and incidental – see Figure 6.5, p. 137 and Fig. 6.13, p.140) and illustrations (see Fig. 6.11, p.145), as well as maps and plans (see Fig. 8.2, p.188 in relation to New Delhi), both by the author and others. King's approach then describes the use of space within specific colonial societies and even within specific building typologies, but nevertheless presumes a 'global dimension' to the

discussions on the 'fundamental problems of how social and cultural factors influence ... the nature of environments and how these environments relate to social processes' (ibid.).

In a similar vein, in his analysis of colonial architectures and urbanism in India, Myers describes his method as 'Studying the actual planning processes that colonialism produced, looking at architecture and urban planning and pairing them with the responses of those whose spaces were being planned' (Myers 2003: 11). This, he suggests, has numerous values. Not only does it mean 'getting more of a sense of the people involved in these evolving dynamics, including the people in those urban majorities' but it provides the research with a 'thorough grounding in the actual urban landscapes and in the biographies of those who helped shape them, paired with those who lived in them and gave them meaning' (ibid.). Through this the research can discern more accurately the reality of the field, 'a picture of ambivalence, conflict and contradiction in the expression of administrative power or urban-planning ideology, as well as local responses to these, a picture necessary to seeing the "entanglements" in the operation of power'[35]. Further, as Myers notes:

> 'By adding a personal dimension, we can also see the ways in which this elite related to the colonized middle and the urban majority in the implementation of their plans … regimes had bureaucratic structures that relied on the cultivation of friendships with the colonized as a means of facilitating the adoption of social programs.[36]' (ibid.)

This programme of research can in part be viewed through the description and analysis of architecture through data contained within discussions carried out through extensive correspondence held in archives between key actors relating to the urban development the actors were overseeing. This is augmented by evidence from architectural drawings, which are evidently the focus of much of the correspondence, and which are seen to make evident the nature of the spaces as politicised constructions (ibid. 87-88 and 91) and 'demonstrates the problems in seeing colonial spatial planning as merely alien Western

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[35] Citing 'Sharp, J. P. Routledge, C. Philo, and R. Paddison (Eds.). 2000. *Entanglements of Power.* London: Routledge

[36] Citing Robinson 2000: 67-92. "Power as Friendship: Spatiality, Femininity and "Noisy" Surveillance." In *Entanglements of Power,* edited by Sharp, J. P. Routledge, C. Philo, and R. Paddison (Eds.)

imposition against indigenous resistance', but instead suggests 'negotiated spaces' (ibid. 91).
Myers also suggests his own experiencing of the architecture discussed in his subject sites
('the only fencing that remains now…' [ibid. 90]) and uses his own on-site photographs to
illustrate the discussion.

Neither King nor Myers undertake illustrative spatial analysis of buildings using visual
research methods as does Jabeen in which a similar multi-faceted qualitative approach is
proposed as a means of getting closer to a number of variables (Jabeen 2012: 74), in pursuit
of 'research on adaptation to climate change by the urban poor' with the 'challenge for the
researchers … to discover innovative approaches to adaptation that can bring positive
change to diversified groups living in cities' (ibid. 17). This also permits the research to
engage with nuance: Jabeen identifies the heterogeneous nature of the urban poor as
significant in their capacity to 'access assets' (ibid. 19), focusing specifically on 'gender
relations for climate context' (ibid. 84). In researching such complex terrain, Jabeen
proposes not only a framework to study gender relations (ibid.) but also visual research
methods as part of an analytical framework for the built environment (ibid. 86). Citing
Pauwels[37], Jabeen states that visual research methods are 'grounded in the idea that valid
scientific insight into society can be acquired by observing, analysing and theorizing its
visual manifestations' (ibid. 90). Built environments are seen as 'continuously transmitting
messages to people' (ibid. 91). the researcher reads these cues and the actor's within the
environment and 'construct, organize, analyze, and present evidences for projects of
empirical inquiry to challenge or support concepts, theories, and models …[38] the way I
valued the visual study was to establish the linkages between ideas and reality' (ibid.). This
can be undertaken using a variety of methods, including observation, drawing/ sketching
and 'diagramming', photography and mapping. Jabeen uses this data as a mechanism for
valid analysis and subsequently 'extensively used diagrams, tables and charts to illustrate
and analyze the findings.' (ibid. 93)

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[37] Pauwels, L., 2011. An integrated conceptual framework for visual social research. In E.
Margolis & L. Pauwels, (Eds.) *The Sage Handbook of Visual Research Methods*. London: SAGE
Publications, pp. 3–23.
[38] Citing Wagner, J., 2011. Visual studies and empirical social inquiry. In E. Margolis & L.
Pauwels, (Eds.) *The Sage Handbook of Visual Research Methods*. London: SAGE Publications,
pp. 49–71.

As with these above described methodological approaches, this thesis is predicated on the notion that the researcher has the capacity to have access to the human subjects' interpretation and use of the built environment at design, realisation and use stages, as a mechanism for discovering its significance to the subjects themselves. Using a combined strategy of qualitative and interpretative elements, as outlined below, the research proposes that through this the researcher can gain meaningful insights into the organisation, structure and efficacy of a coproductive architectural approach, into its effect in the sphere of housing production (here defined as a synthetic vernacular architecture) and also into its value as perceived by the residents. In addition, such a methodology permits the researcher to explain how coproduction changes vernacular architecture as both a set of design and building processes, and also as built forms. A combination of oral data, historical records, architectural and illustrative drawings, archival sources and visual research methods, particularly photographic evidence (Jabeen 2012: 92), as well as on-site observation and participant-observation strategies would all go towards establishing a picture of the reality of the field as it occurred for different actors within the research. By analysing the production of buildings through such varied sources triangulation could occur, all elements together serving to explain how coproduction affects vernacular constructive practices towards a synthetic vernacular architecture typology. As Jick writes: 'organizational researchers can [through triangulation] improve the accuracy of their judgments by collecting different kinds of data bearing on the same phenomenon' (Jick 1979: 602). As such, Jabeen's useful phrase resonates; I would establish 'linkages between ideas and reality'. (Jabeen 2012: 91).

3.3 Research Questions

Thesis:

> Synthetic vernacular architecture is a sustainable architectural typology and can be produced through coproduction, as manifest in the work of Hunnarshālā.

The research has two main themes: vernacular architecture and coproduction in the context of Hunnarshālā's work in Gujarat. A number of secondary themes can be linked to

these two primary themes. The research's aim is to identify links between coproduction and the development of vernacular architecture (Can coproduction create vernacular architecture?), and the mechanisms of production (How does coproduction create vernacular architecture?), that is, the relationships and strategies used in such a process. Below I have restated the primary research question and three further secondary questions which the research intends to address through the fieldwork. These do not constitute 'preconceived ideas' as to the likely data of the research, but are intended to function as Malinowski's 'foreshadowed problems' (Malinowski 1922: 8-9 quoted in Hammersley and Atkinson 1995: 25), identified complexities likely to need researching in the field if the hypothesis is to be thoroughly investigated.

The initial research question is:

1. Can the coproduction of vernacular architecture serve as a model for sustainable architecture?

Three assumptions underpin this question, the first of which concerns the definition of sustainable architecture, discussed in Section 2.4. The very real importance of the idea of sustainable architecture is largely uncontested although interpretations of it in practice are often so varied as to seem irreconcilable (Guy and Moore 2007: 15). This research hypothesises, however, that social, material and intellectual ownership of the urban sphere by those people directly affected by its existence is a key element in achieving a measure of social sustainability and further that this idea of ownership is a thread that runs between the many 'sustainabilities'. The second assumption is that vernacular architecture is sustainable, an assertion complicated by the fact that, as with sustainable architecture more generally, the meaning of 'vernacular architecture' is not entirely fixed both within current literature on the topic and within common understandings of it, as discussed in Chapter Two and, furthermore, my initial research has demonstrated a difference in the meaning of 'vernacular' between the global North and South, as they are commonly understood, complicating the research and analysis process by rupturing notions of conceptual *firmness* and necessitating deeper reflexivity. The third assumption is that the concept of coproduction as understood in current research is both applicable to, and evident within, the architectural sphere and that it is in some way different as a practice from the current participatory approach to architecture.

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Three further key questions therefore arise:

     1a.   What constitutes vernacular architecture?

     1b.   What is coproduction?

     1c.   How can vernacular architecture be coproduced?

These questions, in conjunction with the stated intention of identifying social processes as well as physical artefacts relating to coproduction and vernacular architecture, suggest the suitability of ethnographic methodologies. As is made evident in the literature review, vernacular architecture (as with architecture in general) is in part a social construct, is 'socially conceived'[39]. Similarly, coproduction is in part a social product, that is, a product of the society in which it occurs. Their identification is therefore dependent upon an understanding of them as artefact[40] (both processes and as realised products) within the society that conceived of and generated them. Ethnography, as the 'art and science of describing a culture' (Fetterman 1998 quoted in Genzuk 1999) in such a way as to 'respect the irreducibility of human experience' (O'Reilly 2009: 3), provides the most suitable methodological framework for examining this aspect of vernacular architecture insofar as the research is not dealing with ideas that can be adequately described through statistical, quantitative data, but is reliant upon the intuitive analysis of social processes through the observation of, and participation in distinctive cultural endeavours. Moreover, the ethnographic 'account' is socially constructed as well, growing from 'iterative-inductive research' (ibid. 3) based on an ongoing and evolving, reflexive investigation of the subject, and the investigator who stands as not only as an actor within the subject's world, but as someone who is 'equally positioned, interconnected, and involved in the social and cultural relations under study' (Cook and Crang 1995: 7), as an interpreter of the witnessed reality.

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[39] This idea is clearly elucidated in Nas and Prins with regards the idea of 'house' as 'a process, an ongoing activity of creating shelter, of being housed, of housing' (Nas and Prins 1988: 115) and is beautifully exposed in Heidegger's conception of building as dwelling in *Poetry, Language, Thought* (Heidegger 1975: 145-)

[40] Here artefact is defined generally as "an object which has been intentionally made or produced for a certain purpose" which "depend[s] on an author's intention to make an object of certain kind" (Hilpinen 2004). 'Knowledges' can likewise be constructed by persons (Pinch & Bijker 1984: 399) and it is in this sense that both vernacular architecture (as a set of cultural practices) and coproduction (as an organisational process) are described as artefacts.

The ethnographic approach is most explicitly relevant to the third question in the above list, 'How can vernacular architecture be coproduced?' which will be addressed through the fieldwork in Bhuj, using participant observation methods, interviews, participation in the activities of the communities and Hunnarshālā. As a separate aspect of the methodology, but working in conjunction with ethnography, analysis of built artefact will be required. Embedded within the question 'How can vernacular architecture be coproduced?' is the question 'Can vernacular architecture be coproduced?'. Investigating this will require analysis of vernacular architecture as was, and as is developed through Hunnarshālā's processes. What was this person's house physically like? What is their new house like? Such an approach will attempt to uncover perceptions of the vernacular as a built, urban form, and of coproduction as a development strategy in its own right, and as a means towards the production of vernacular architecture.

Ethnography is also relevant to the first two questions above, which are concerned with commonly understood conceptions of the nature of vernacular architecture and coproduction. These can be interrogated as socially constructed within the contexts of both their conception (the academy, civil society, government) and realisation (the field). As such, this research's position is that the literature on these two ideas emerges out of socio-environmental conditions[41]. Therefore, when appraising the literature in relation to the fieldwork data, and when situating the data within a wider academic discourse, it will be necessary to engage with literature which describes the influences of place and culture on the knowledge of knowledge. Also more straightforwardly, the first question requires a description of vernacular architecture as it is found in the context of the fieldwork.

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[41] Such an analysis has already been suggested by Ostrom in her paper '*Crossing the Great Divide…*' where she states that 'coproduction is not … universally advantageous. Nor is it a process that will occur spontaneously because substantial benefits could be achieved' (Ostrom 1996: 1082), suggesting that whilst coproduction may seem, from the confines of the academy, like the obvious or even natural response to deficiencies in public service provision in testing environments or where government capacity is limited, it does not follow that coproduction will always occur or may not even be beneficial in the field. As such, coproduction is environment specific at its conception and as realised in the field. Thus Ostrom's approach is economistic, arguably applying an interpretation to the field which mirrors her own view. Other writers have likewise applied their own interpretation to their data to instances of coproduction in from other settings. Likewise, early interviews conducted in the field suggest the possibility of definitions of vernacular architecture as being socio-culturally specific, meaning that definition and discussions of it are localised as well.

To this end and in order to more clearly understand the nature of coproduced vernacular architecture and the methods used by Hunnarshālā in its production, three case studies were selected. These were intended to provide a window into their working practices, enabling the research to examine the realisation of Hunnarshālā's intention and possible discrepancies between the finished product and intention. This again intimated at the second interpretive string to the research methodology, through which I investigated 'what defines and constitutes the phenomenon' (Lara 2001: 62) of coproduced vernacular architecture, and presented 'a holistic portrayal of the setting or phenomenon … as the respondents themselves understand it' (Groat and Wang 2002: 177). Further, as stated earlier, coproduction is most easily identified by the particularities of its occurrence; the case study approach will therefore allow the research to analyse both the levels (how much coproduction is occurring) and type of coproductivity (assuming different coproduction strategies are required for different contexts) and to see whether coproduction as a method of urban development allows Hunnarshālā to fully realise its intention of sustainable architectural development. The case study will also facilitate a critical analysis of the literature on coproduction and Hunnarshālā's methods in relation to this. Likewise built projects will enable an analysis of Hunnarshālā's claim to produce vernacular architecture, again by comparing the case study's reality to the literature on the topic. The case study site will be examined through architectural analysis, participant observation and, because of vernacular architecture and coproduction's nature as social artefacts, and are therefore representative of the people who use and make them, through interviews with people involved in the development of each project.

3.4 Methodologies

In the following section I will briefly outline the function of the research methodology. I will then outline the debate between quantitative *versus* qualitative research. I will then illustrate a suitable research methodology to address the questions posed above, detailing a 'combined strategy' (Groat and Wang 2002: 341) of interpretive design analysis and ethnography which will draw upon the wide range of sources and resources available to me both in Gujarat and here in the UK and which will utilise participant observation, design/ architectural documentation and analysis, archival research and interviews as methods or tactics.

3.4.1 What is a research methodology?

A research methodology is the structure of the research component of the study. Methodology refers to the "'mid-range" aspects of the research process that are common to a broad range of disciplines' (Groat and Wang 2002: 8). This also indicates that research emerges out of broader philosophical stances and will require more specific, focused methods or tactics of data collection to resolve it. Groat and Wang put it thus:

> 'philosophical stances are more usefully understood as systems of inquiry within which more specific choices about methodology are made … the *strategy* [methodology] is the overall research plan or structure of the research study. In contrast, the *tactics* [methods] are the specific techniques used, such as data collection devices, response formats, archival treatment, and analytical procedures … A research design [used as a synonym for research strategy/ methodology] is "an action plan for getting from here to there"[42] where *here* describes the investigator's research question(s), and *there* describes the knowledge derived from the research. In between the *here* and *there* are a set of steps and procedures that may be highly prescribed or emerge as the research proceeds.' (Groat and Wang 2002: 10-11)

The methodology emerges out of the research questions, as 'foreshadowed problems' and out of experience in the field. It is not possible to define exactly the processes necessary to get 'from *here* to *there'* when *there* is something of an unknown, but it is possible, through preparatory research and through careful analysis of the nature of the study and the context in which it is to occur (that is, in qualitative research, the context in which the phenomenon occurs), to establish which events and activities are going to help in all likelihood describe explain the hypotheses.

3.4.2 Quantitative and Qualitative Research Strategies

There are two distinct research types: quantitative and qualitative. This distinctiveness does not mean that there is not or cannot be overlap between these spheres. The

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[42] Yin, R.K. *Case Study Research* (Newbury Park, Calif.: Sage Publications, 1984): 19

methodological differences between the two do not necessarily refer to other differences in research methodologies such as hard versus soft approaches, which can be conflated with indicate levels of scientific validity. Simply, quantitative research 'assumes an *objective* reality and a view of the researcher as *independent of the subject of inquiry*' (Groat and Wang 2002: 26). Quantitative researchers 'collect facts and study the relationship of one set of facts to another. They measure, using scientific methods that are likely to produce quantified and, if possible, generalizable conclusions'. (Bell 1987: 4) Qualitative research, in contrast, 'assumes a subjective reality and a view of the researcher as interactive with the subject of inquiry' (Groat and Wang 2002: 26). Researchers who pursue qualitative strategies are 'more concerned to understand individuals' perceptions of the world. They seek insight rather than statistical analysis. They doubt whether social "facts" exist and question whether a [such a] scientific approach can be used when dealing with human beings.' (Bell 1989: 4) However, the assumption that these two approaches necessitate particular research methodologies is not correct: 'quantitative data and deductive methods … is not an invariate and necessary relationship … there is not a one-to-one relationship between that system of inquiry and a particular research design' (Groat and Wang 2002: 28-29).

In practice quantitative research most commonly centres on the collection of and analysis of variation within large data samples, in an effort to establish patterns. These patterns can then be used to establish 'cause-and-effect explanations' (Groat and Wang 2002: 26) and to reveal theories relating to the object of study. Qualitative research 'necessitates an *inductive* process of inquiry that seeks clarification of multiple critical factors affecting the phenomenon' (ibid. 27) involving the study of the object/ subject 'in their natural settings', that is 'the objects of inquiry are not removed from the venues that surround them in everyday life' (Beattie 2005: 59), in an attempt to 'make sense of, or interpret, phenomena in terms of the meanings people bring to them' through the 'studied use and collection of a variety of empirical materials' (Denzin and Lincoln 1998: 3). Critically, qualitative researchers 'not only ground their work in the empirical realities of their observations and interviews' (Beattie 2005: 60) but that they interpret and make sense of the data as encultured people. Rather than there being a singular technique in qualitative research, the researcher adopts approaches which best answers their hypotheses, often combining methods or tactics, an approach termed bricolage by Denzin and Lincoln (Denzin and Lincoln1998: 3). The reality of the field, then, becomes the governing influence for the

research, the researcher responding to the conditions by tailoring their tactics according to need.

Qualitative rather than quantitative methodologies are most suitable for my research. The concern of this research is human process which, like culture generally, is fluid and not static and therefore cannot be examined meaningfully for representative, universal characteristics because, defined by its tendency to change, it will less reliably deliver the same results twice. Further it cannot be 'removed' from its context because a) it is its context and b) a new ('neutral') context will change it. It has to be examined *in situ*, as it occurs. This is particularly pertinent in the context of research for which oral data is part of the landscape of the site as it relates to specific architectural contexts, more when one takes into account the social interaction gaining this data demands. In witnessing it I have to interact with it and be a part of it so as to better understand the meaning of the oral accounts. As such the reflexivity possible in qualitative research is not only desirable but essential; to pretend otherwise would be to deny myself as a human person with agency and, moreover, to deny the inherent untidy nature of ethnographic research. Further, post-fieldwork, only by being reflexive can meaningful analysis be arrived at. As a consequence of this constructivist nature however, qualitative research methodologies have to be assiduously designed so as to result in solid data and testable theories. Failure to do so can result in a whole host of negative accusations as to the nebulous, subjective and relativistic nature of the research.

3.4.3 Ethnography

O'Reilly describes ethnography thus:

> 'Ethnography is a methodology – a theory, or set of ideas – about research that
> rests on a number of fundamental criteria. Ethnography is iterative-inductive
> research; that is to say it evolves in design through the study… Ethnography draws
> on a family of methods, involving direct and sustained contact with human agents,
> within the context of their daily lives (and cultures), watching what happens,
> listening to what is said and asking questions… It results in richly written accounts
> that respect the irreducibility of human experience… acknowledges the role of

theory… as well as the researcher's own role… and views humans part object/ part subject. (O'Reilly 2009: 3)

It involves, '[I]n its most characteristic form … the ethnographer participating, overtly or covertly, in people's daily lives for an extended period of time, watching what happens, listening to what is said, asking questions – in fact, collecting whatever data are available to throw light on the issues that are the focus of the research'. (Hammersley and Atkinson, 1995: 1) Through this, ethnography 'bears a close resemblance to the routine ways in which people make sense of the world in everyday life' (ibid. 2); it is the researcher's job to tell the tale of what occurred or is occurring in these 'everyday' lives. In a postmodern age social researchers have become 'part of the social world they study' (ibid. 16), and the job of ethnography is arguably more complex than it once was, demanding a reflexivity that admits of the possible impact of the observer on the actors and therefore within the action.

The research is concerned with the practice of architecture as a human, social event, as social action, as [a] culture. As Marcus states, 'ethnography … is centrally interested in the creativity of social action through imagination, narrativity, and performance' (Marcus 1994: 390). An ethnographic research methodology allows me to examine Hunnarshālā as a social entity participating in the manufacture of culture and artefact by observing and participating in their processes. In the above quote, by stating the desirable sources of ethnographic data (imagination, narrativity, and performance) Marcus also hints at the likely tools of ethnography, namely observation, conversation and writing. It is this creativity, in the sense that an ethnographer constructs the story of the event or process through a multitude of knowledges drawn from the field, which makes the ethnographic approach both attractive and suitable. The numerous actors involved in coproductive architectural development could create a framework of information which reveals the shape and structure of Hunnarshālā's processes through ethnography, if suitable ethnographic tactics are applied.

Architectural training attempts to endow the student with the idea that solutions to the human problem of shelter grow from the demands of the social and environmental context and therefore good architecture, which is socially resonant, emerges from narratives of need and perception. A valid research methodology of architects as coproducers, and of the people and processes involved in the production of 'their' architecture will be one with

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the capacity to interrogate these narratives. This capacity is evident in ethnography. However, because the research is multi-focused, concerning itself not only with the perceptions of a wide range of actors, but also with more concrete problems of the analysis of old *versus* synthetic vernacular architecture as designs in Bhuj[43] I propose to combine an ethnographic approach of interviews and conversations, and participant observation with what Lara calls 'interpretive' research.

3.4.3a Ethnographic Approaches

Modern Ethnography

Modern ethnographic practices are usually seen as developing as a consequence of a shift in anthropology towards 'collecting data first hand' (Hammersley and Atkinson in Denzin and Lincoln 1998: 249), although there is debate here. This development occurred in the nineteenth century in relation to the development of hermeneutics which is 'the study of the principles of understanding historical texts' central to which 'was a recognition that people of the past were different in culture from those of today' and that 'these differences cannot be properly understood by seeing them in terms of deplorable deviation from the norms of the observer's here and now or as signs of cultural backwardness' (ibid.). This understanding of cultural differences was then applied to non-Western societies. What then emerged was the 'methodological problem of whether and how other cultures could be understood' (ibid.). This problematic has since spread to ways of understanding the researcher's own society as well, particularly in relation to ethnography's adopted identity, which is as a 'natural science of society' (ibid. 250) and the ethnographer's job which is, 'through the rejection of speculation in favor of empirical investigation' (ibid.), to discover 'sociocultural laws' (ibid. 251). Opponents to this positivist agenda, whereby the ethnographer as social scientist attempts in some way to investigate their subject/ object using the scientific method so as to produce quantitative data, emerged. However, for anthropologists, 'influenced by hermeneutics, social research was distinct from physical science because in seeking to understand human actions and institutions we could draw on

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[43] Migrants are particularly evident in the communities with whom Hunnarshālā work. This means in many cases that the traditional architecture of Bhuj is not the traditional architecture of the people, who may have come from an entirely different socio-environmental condition.

our own experience and cultural knowledge, and through that reach understanding based on what we share with other human beings, despite cultural differences' (ibid. 250). Other researchers questioned the suitability of an approach which had the goal of applying universal laws to human sciences, in which the concern was 'understanding particular phenomena in their sociohistorical contexts' (ibid.). However, nowhere was there a wholesale rejection of science in either anthropology or sociology, 'only conflicting interpretations of it' (ibid.), best exemplified (in sociology) by Robert Park and the Chicago School who attempted to construct a synthesis of 'scientific and hermeneutic influences' (ibid. 251).

Post-modern Ethnographies

Modernity in ethnography gave way to postmodernity. At the heart of this shift was a growing disquiet that the positivist approaches of modernity suppressed individuals and their accounts in pursuit of social or human science 'laws' based on the presumption of a stable, external social reality that could be recorded by a stable, objective observer who was generally absent from the writing. This reality was however an amalgam of the voices from the field 'mediated … and assembled … into a text that reordered reality according to a particular interpretive logic' (Beattie 2005: 64), an approach which rendered the resultant research something like a story. These traditional ethnographies did not 'attempt to connect mobile, moving, shifting minds (and their representations) to a shifting external world' (Denzin, 1999: 31) and, essentially, the postmodernist 'came to doubt the possibility or advisability of maintaining a scientistic objectivity while engaging in the intense personal involvements that were at the heart of fieldwork' (Sanders 1999: 669).

From this the notion of postmodernity grew, 'powered by the widespread feeling that the conditions of social life (especially in the West, and especially in the frame of post-war American hegemony) were undergoing a fundamental transformation, a breakup of the world order, systemically conceived, into fragments that have not as yet assumed new, readily identifiable configurations', which resulted in a 'world of established but unstable institutions rapidly generating emergent forms of diversity' (Marcus 1994: 384). This notion of a postmodern, deconstructed and unstable world has to a great degree defined the accepted means of 'knowledge production', producing work that 'has been a seductively attractive mode for defining radical, contemporary cultural criticism' (ibid.).

What this meant in practice was an emerging sense that all ethnographies were to some degree 'cultural fictions' which silenced 'incongruent voices … [and excluded] … irrelevant personal or historical circumstances' (Beattie 2005: 65). All ethnographies were thus seen as literary, meaning that ethnography is/ was first and foremost an exercise in writing, in being a writer, which is always self-referential and to some degree fictitious. This is borne out by Clifford's assertion that his writing 'should be viewed not as contributions to science, but as 'ethnographic fictions' (ibid. 66) insofar as the phrase suggests 'the partiality of cultural and historical truths … Ethnographic writing can properly be called fictions in the sense of "something made up or fashioned", the principle burden of the word's Latin root, *fingere*. But it is important to preserve the words [additional] meaning of not merely making but also of making up, of inventing things not actually real' (Clifford and Marcus 1986: 6 quoted in Beattie 2005: 66). In addition to this, human sciences had to realign themselves to deal with the restructuring of the global order that occurred in the twentieth century, with changes to colonial power and particularly the near complete disestablishment of the British Empire, which resulted in what might be termed a post-colonial attitude.

Some were more radical still in their critique of the positivist underpinnings to mainstream ethnography,[44] 'Since the realities ethnographers explore are merely representations, fictions, or other postmodern, post-colonial, late capitalist chimera, systematic collection of data through disciplined and analytically focused long-term involvement with real social actors is misguided or entirely futile' (Sanders 1999: 670-1). Thus the goals became only to present 'the narratives of participants undiluted by analysis and providing great detail about the trials and tribulations suffered by the recorder of the narratives' (ibid. 671)[45].

This has had consequences in the field and in the conceptualisation of the field as well, particularly in relation to the dominant narrative of decolonisation, with the 'ethnographic rhetoric and writing' of the modernists becoming seen as unrealistically confident of being

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[44] It needs to be emphasized however that positivism in the social sciences was not killed-off by this new uncertainty and the debate goes on still. Central to the argument is the positivists' contention that postmodernity as a research stance still lacks rigor in the ethnographer's collection of data and analytical procedures.

[45] Clinton Sanders goes on in this paper to offer a 'personal wish list for the future of ethnography', calling for 'fewer artsy-craftsy literary exercises presented as ethnographies', amongst other things.

able to describe what actually occurs in the field. What has emerged is 'three separate strands of critique … [which] … included (1) the exposure of the "messiness" of fieldwork as a social science method through an outpouring of "trial-and-tribulation," "confessional" accounts; (2) the contextualization of anthropology in the history of colonialism … and (3) the not-yet-pointed critique from hermeneutics of anthropological styles of interpreting language, culture, and symbols" (ibid.). This has in time reoriented anthropology away from its historical function of (objectively) describing culture 'toward its long-standing but underdeveloped project of cultural critique' (Marcus 1994: 385).

Criticism of postmodernity in ethnography is evident, particularly in relation to the perceived redirection of the account of the field from a positivist confidence to a confessional post-positivist insecurity. This critique is clearly outlined by Sanders who suggests that, in contrast to the 'ethnography-as-text' argument, people live lives based on concrete realities, not as 'cinematic representation or textual accomplishment or fields of desire' (Sanders 1999: 674) and that the field is composed of 'real people who are doing their best they can to make their way through the situations and interactions that constitute their everyday lives' (ibid. 673-4). The tortured ruminations of the researcher as to the possibility of knowing the other in the field is not swept away by such an argument, but it certainly brings into relief a disparity of value between the researcher and the researched, a disparity which should temper any tendency towards excessive reflexivity in my own research.

Polyphonic or dialogic writing forms developed out of this postmodern sense of uncertainty, emerging as an experimental form of writing that could get closer to expressing the object/ subject of the research. 'The central idea is that, instead of imposing his or her authority on a text as an impersonal narrator, the author should withdraw and let the subjects speak for themselves' because all discourse 'is contextual, immediate and grounded in the specifics of the situation' (Beattie 2005: 67). Therefore, understanding is limited to those who are 'in' the speech, who are constructing it, making 'a small dialogical world of unique meaning and utterances' (Denzin 1997: 38 quoted ibid. 68). This world, Denzin argues, is exclusive; even if one enters into this world through participating in the dialogue 'understanding will be problematic'. Polyphonic ethnography is predicated upon the sense that one should therefore express the data from the field directly, relaying the numerous voices, stories, excerpts and writings as they are, expressing a rich tapestry of collaborative

voices in the 'work of documentation' in which the ethnographer's own 'descriptions and glosses are fragments among fragments' (Clifford and Marcus 1986: 15 quoted ibid. 69). This approach has the effect of disestablishing the primacy of the ethnographer's view, who 'no longer holds unquestioned rights of salvage' but who 'co-authors' the fieldwork with the subject/ object of the research, and therefore generates a 'version of culture that resists any final summation' (ibid. 69). In this way it is intended that the subject/ object avoids being limited by the prejudices of the researcher (Marcus 1994); the researcher serves as a conduit for the unmediated story that exists there, in the field.

Polyphonic ethnography embraces the many voices of the field and does not seek to 'equalise' them, to create a neat, harmonious sound that has no rough edges. These characteristics of polyphonic ethnography made it a desirable methodology for the research. The pluralist agenda that underpinned the work presumed multi-vocality, a polyphonic sense to human knowledge. Such an approach is necessary in an increasingly globalised world, where knowledges have become fluid between previously discrete environments. The subject of the research is the use of coproduction to create a new 'synthetic' vernacular architecture, using the work of Hunnarshālā in post-earthquake Kutch as a way of interrogating this practice. The many voices from the field would bring to this topic a richness which any examination of the physical artefacts never could, particularly when combined with design analysis, as outlined in Section 3.4.4. This is particularly important when the nature of both vernacular architecture and coproduction's definition in this research, which is as a social product, a product of social actions and which emerge through networks and relationships, rather than as a consequence of a top-down development program. As relational practices both vernacular architecture and coproduction are 'uneven' and do not present a smooth plane of knowledge and practice to the external observer. There are points of intensity, of influence, moments of action, reflection and negotiation; there is an historical narrative (personal and communal) which may be a powerful driver, a here and now, needs and aspirations. Polyphonic ethnography as a research methodology can get closer to experiencing this (By approaching the field with the intention of making a polyphonic ethnography I would be free of the baggage of presupposed conclusions.) and re-expressing it as well. However such an agenda did have its problems due to the fact that I spoke very little Gujarati or Kutchi, and therefore had to operate through a translator. I discuss this methodological concern further later in this chapter and in Chapter Five.

3.4.4 Design Analysis

The analysis of old and new vernacular architectural designs not only serves as an illustrative tool, but grounds the research in the concrete reality of the context and to some degree provides it with solid, objective 'data'. By documenting and cross-referencing new and old buildings it will be possible to compare, for example, shape, plans, façadal treatment or number and size of openings. In this way it will be possible to say that Building 1 is different from/ the same as Building 2 in ways x, y and z. However, to act as a triangulating force demands that the design analysis produces data that can be cross-referenced with the ethnographic data produced through participant observation and interviews: to ask of somebody whether they are aware that their old house had two windows whereas their new one only has one barely constitutes new or vital knowledge (and would be absurd).

Design analysis conducted in advance of ethnographic work could very easily fall into the trap of trying to get people to verify a physical reality (which doesn't really need verification). Research which combines these two methodologies the other way round, performing an ethnography in advance of analysing the building firstly does not run this risk of leading the research but also provides itself with a structure around which one can analyse the building fruitfully, as a socially constructed entity. A person may speak of their wedding being celebrated in their garden, and the meal which accompanied it, cooked in three different houses. In light of this, a design analysis method could look at designs of old communities and houses for signs of social and cultural 'potential' (how they were constructed and organised), and examine new housing in relation to this socio-spatial capacity. Again, if an interviewee says 'I remember running between the houses in the old town, and cooling off under the tree by the well' and expresses some sense that such behaviour is no longer possible for the children, I am provided with an immensely potent seam of analysis of the design. I can dig further, by trying to find out what (architectural entity) made such behaviour possible. This of course does not invalidate seemingly prosaic concerns; indeed, the capacity to do seemingly minor things like dictate the colour of one's door can take on huge significance if a person is disallowed from doing it and can bathe everything else in a negative light.

Design analysis also allows the researcher to interrogate oral accounts and compare memory and perception with physical reality. This may sound hardnosed and somewhat counter the reflexive, constructivist ideas expressed earlier but it is an important consideration if a thorough account of the processes and relationships which are involved in coproductive architectural development are to be ascertained. An old man recalling how he once dozed in the sun on his verandah every day is only a relevant piece of information if he actually had a verandah to begin with. Forming an opinion as to the capacity of coproduction to produce a socially and culturally resonant urbanism is only reasonable if accounts of the old vernacular architecture are at least vaguely accurate. However, such interrogation simultaneously operates to identify differences of perception of artefacts and processes – as per a 'Heideggerian' approach to house-as-setting-for-dwelling, this research necessarily accepts that house buildings are (or can be) more than the sum of their material parts to those who dwell within and around them. The strength of the kind of ethnography proposed of course is that it not only hears but accepts such polyphony as valid.

A key aspect of qualitative research is interpretation. Empirical data in the form of observations (including design analysis) and interviews is described, inevitably, through the prism of personal, cultural experience; as Groat and Wang state 'researchers … play an important role in interpreting and making sense of that data' (2002: 176) and this results in narratives. The researcher is first and foremost a person in the world with an identity and history, with ideas and opinions; this is the foundation of any research in which the researcher is 'attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them' (Denzin and Lincoln 1998: 3). The researcher expresses the story revealed in the data as an encultured being. This is no different if the data is about the physical form of houses and the urban realm if the data is analysed qualitatively, in relation to personal accounts of it. As a researcher I will interpret the oral account as objectively as possible, but must remain sensitive to other ways of knowing. The same must be true of the analysis of design, to that which constitutes ideas of dwelling, home, shelter, community and so forth in the eyes of those who create and dwell there.

The fact that the notion of synthetic vernacular grows out of the idea that the dual concepts of coproduction and vernacular architecture are best defined as social constructs does not do away with its physical reality. Simply put, synthetic vernacular exists and can be

described, as can old vernacular buildings. Design analysis, by which the researcher describes both the realised building and the processes involved in the whole lifecycle of the building (conception, construction and maintenance) is a means by which the researcher can do this. How a building or buildings are put together, how they are conceived, what contextual or cultural considerations have a bearing upon the design and what social practices are evident within the design can be described and analysed comparatively. As such, in the case of this research, design analysis enables me to describe the process of realising a coproduced vernacular architecture and to expose the actuality of what I have termed synthetic vernacular architecture.

Proposed design/s can be seen to be the negotiated result of participatory practices and, in the case of owner-led projects, construction processes. They contain (or even manifest) historical evidence of these negotiations and they (hopefully) manifest this negotiated design solution in their form, setting, detail and technology, between differing parties, vernacular traditions, modernity, new construction practices, old and new technologies, materials, and so forth. They are documents which (hopefully) detail and make evident the polyphony of coproduction. A further benefit of design analysis as part of a mixed-methodology is in its capacity to expose this through careful examination of the fabric, and the careful analysis of this fabric in light of ethnographic and archival research.

3.5 Proposed methodological framework

Below is a chart detailing the research framework and methodology and proposed methods to be used in the research into Hunnarshālā:

Overall Framework	Research Methodology	Data Collection Methods/ tactics
Qualitative	Ethnographic	Semi-structured interviews with residents and NGO/ government actors; unstructured interviews with members of Hunnarshālā.

		Participant observation
	Interpretive	Physical inventory and archival documentation of houses and urban structure in reconstructed communities.
		Archival research

Fig. 3.1: Combined research strategy, based on Lara (2005: 60)

The research methodology is composed of two elements: ethnography and 'interpretation'. Ethnography allowed the examination of Hunnarshālā as a social entity engaged in social activities, through interviews with relevant actors and through participant observation. An interpretive research methodology will allow me to examine the physical artefact (the 'synthetic vernacular' housing) that is produced through Hunnarshālā's coproduction, in relation to historical precedent, theory and in relation to common lay and professional interpretations of traditional dwelling/s. The purpose of the research methodology to this project then is, in light of the generally constructivist epistemology, to generate varied data from a broad spectrum of informants and sources, thereby facilitating triangulation.

3.6 Research fieldwork

The research fieldwork was composed of two periods in Kutch. During a pilot study I undertook in September – October 2008 I examined three separate projects Hunnarshālā had proposed to describe their working practices. These projects were chosen because of their differences rather than their similarities and therefore described the potential for varied practice through the coproduction of vernacular architecture. They would also describe how Hunnarshālā's approach operated in varied contexts and therefore how an approach which used coproduction and vernacular architecture as contingencies of local knowledge might have wider application within the architectural development sphere .

The initial period of fieldwork in Gujarat was conceived of and worked as an opportunity to begin to learn the terrain, to begin to acclimatise myself with the particularities of the context, cultivate contacts (Cook and Crang 1995: 14), and negotiate access to suitable groups or individuals (O'Reilly 2009: 6) and to familiarise myself with Hunnarshālā, the umbrella organisation Kutch Nav Nirman Abhiyan (KNNA) alongside whom they work, the communities with whom they work, the projects themselves and other concerned actors, such as government officials and connected NGOs. The necessity of approaching the 'field' in such a manner became very clear once in the field, especially when meeting with the various communities and individuals with whom Hunnarshālā worked; social and cultural customs demanded a level of reticence when making inquiries in an attempt to 'gain an insider perspective and to collect insider accounts' (O'Reilly 2009: 110). As a consequence the research at this stage mainly involved becoming recognised and known and building trust, although a number of interviews and discussions were undertaken (See Appendix 3).

The second period of fieldwork undertaken in March 2010 was therefore informed by a relatively solid appreciation of the nature of the field. Revisiting the communities I had previously been to and spoken with, I undertook twenty semi-formal interviews during this period (Appendix 3), as well as informal discussions and conversations and observation of a number of community meetings, all of which involved institutional actors. As per Malinowski's 'foreshadowed problems', it had been possible to extrapolate from theoretical studies, from analysis of what I had already discovered in India whilst conducting the pilot study on my first visit, and from archival research what it might entail and what 'tactics' (Groat and Wang 2002: 10) might be suitable in the given socio-environmental context that I would encounter in Kutch. These tactics had to logically descend from the overall research topic. Composing or structuring research 'pre-field' is essential for the researcher, according to Hammersley and Atkinson:

> 'Certainly, we must recognise that, even less than other forms of social research, the
> course of ethnography cannot be predetermined. But this neither eliminates the
> need for pre-fieldwork preparation nor means that the researcher's behaviour in the
> field can be haphazard, merely adjusting to events by taking the 'line of least
> resistance'. Indeed … research design should be a reflexive process which operates
> throughout every stage of the project.' (Hammersley and Atkinson 1995: 24)

If as previously stated the research pertained to a pluralistic epistemology, the research methodology had to employ tactics which were able to reveal varied voices. This would, it was hoped, bring about a certain polyphony (See Clifford and Marcus 1986: 15) and it was towards this that the above described mixed research methodology was proposed for the fieldwork (Section 3.5 above), incorporating elements of ethnography, formal design analysis, and archival research. Each of these elements taken alone would not describe the researched topic but together triangulated, enabling me, the researcher, to 'locate the exact position of [the] object.' (Groat and Wang 2002: 361).

3.7 Tactics

The proposed combined ethnographic-interpretative strategy was composed of methods or tactics, as shown in Fig. 3.1. These are outlined below, and describe in brief what was in reality a lengthy process of collection, collation and analysis. Of particular importance in research of this kind is the nature of the ethnographic elements; the researcher's actions in the field through which the data was gathered and verified through triangulation. The approach and its limitations are discussed in Section 3.9.1.

3.7.1 Community discussions / Focus groups

It was not known if community discussions and/ or focus groups would be possible, depending as it did on Hunnarshālā's program. There are problems associated with the value and veracity of the information that arises through group discussions of laypersons, particularly relating to pre-existing social hierarchies which can manipulate social groups and obscure relevant voices. However, 'they provide rich material for ethnographers for their content as well as the patterns they reveal' (O'Reilly 2009: 79) and were thought to be relatively easy to organise in Bhuj. I had hoped to conduct small group discussions within the case study community and with Hunnarshālā as well; this did not transpire to be possible. Instead I participated as a participant-observer in community meetings undertaken by Hunnarshālā, taking notes and photographs, observing activities (particularly those relating to the nature of the engagement between different actor-groups, such as institutional actors and community bodies), listening in where possible and later examining

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discussing information gathered in these meetings with actors within Hunnarshālā. These did not always pertain to the same information I had initially wanted to discover, but did reveal other data relating to how 'participation' in design, community action and organisation and owner- and community-led development was enacted by Hunnarshālā and by the people who constituted their clients.

3.7.2 Individual interviews

Individual interviews were very easy to organise, as I found on the fieldwork and involved two main groups: community interviews and institutional interviews. I had good access to both individuals and their communities, members of NGOs and government people, through the people I knew in Hunnarshālā. This simplified or changed issues of access, although it didn't erase them. Previous interviews carried out during the pilot study in September-October 2008 within the communities were not as productive as anticipated. I had assumed, perhaps a little romantically, that community members would have holistic autobiographies ready for the telling, and would situate themselves and their communities neatly in time and space, clearly delineating their lives as a series of discrete, complete events which would, on first reading, expose the trials and tribulations of their dealings with KNNA/ Hunnarshālā. As Cook and Crang state 'It is a mistake to assume that there is a pristine Platonic reality under the muddle of our public utterances to which really sharp research tools can cut unerringly through' (Cook and Crang 1995: 10). Thus such an unrealistic assumption collapsed almost immediately I arrived in India, let alone Bhuj when it became apparent that social structure and a lack of time and money necessitated near-perpetual work for a large percentage of the population. In such a position it was extremely naïve to expect people to have constructed linear self-histories of the kind I had hoped for, leaving aside the contested notion that history is linear and progressive. As a consequence, even though my dealings with the different communities were mediated by people from KNNA who were known and trusted, and I was sensitive in my approach, the information I had presumed to find just below the surface was not there. The narrative I had projected onto the situation did not seem to be a narrative that actually existed. This is not by any means to say that the story of the projects, the people, the processes and so forth were not there within the fabric, the discourse and the imagination of the community, but simply that my assumption about its 'shape' and location were misplaced.

Nevertheless, my conversations with communities and individuals instead produced data which engaged with the thesis, but not in the way I had anticipated. Undertaken by-and-large within the extents of individuals homes, and always attended by numerous other interested neighbours and family members, the interviews took between twenty and forty minutes and would follow a roughly planned trajectory, initially discussing the new house and new neighbourhood in subjective, experiential and use terms, and then working back, discussing comparatively their pre-2001 home and neighbourhood. I would work questions relating to the production of their old and new houses into the general 'experiential' story. Through this, elements of histories were ascertainable and so the 'dynamic' of both the earthquake and the subsequent redevelopments were placed in the contexts of lived narratives of some form. These events were, in this way, situated, lent humanity and a depth of meaning that any dry consideration of the statistical facts of the disaster and reconstruction would miss.

Similarly, interviews with institutional actors were semi-structured, but rather than seeking experiential and subjective qualitative information, the objective was to discern the agenda of the organisation, the precedent and intention of the organisation at each case study site and the perceived satisfaction of these objectives. An organisation like Hunnarshālā is not monolithic in its approach or identity; to an outside observer there seemed to be a great deal of responsibility devolved down through the organisation. A semi-formal approach to interviewing was seen as a way of allowing difference to come to the surface and was also seen as a way of allowing the organisation to 'show itself', each interviewer's responses and suggestions informing the following discussion (formal and informal) and indicating suitable people with whom to talk. Through this method interviews conducted with actors within Hunnarshālā and other directly linked organisations that make up KNNA highlighted key themes within their agenda, and variations between the focus and emphasis of not only the different NGOs but also within single organisations.

Hunnarshālā/ KNNA's faith in strategies which promote empowerment and emancipation seems to have grown out of a belief in owner-led development, a strategy which inherently emphasises not only the importance of lay and/ or local knowledge in development, but also the importance of professional knowledge in synthesis with this. This idea of the efficacy of what I have termed 'synthetic vernacular' underpins the urban models of

Hunnarshālā also. The conversations also addressed problems relating to synthetic vernacular architecture, such as an over-reliance upon traditional systems when something newer is required, such as green technologies, and also problems more specific to the Indian/ Gujarati context, such as the ubiquitous intersection of tradition and hyper-modernity, or the collapse of caste divisions that occurs in the city.

3.7.3 Design and Technical analysis

As part of the mixed-methodology proposed, design analysis formed an integral part of the research. This involved an examination of both old and contemporary architectural precedent through ethnographic methods (How is the place/ space/ building used?) and through more direct practices of visually surveying and documenting buildings as they are and were, in terms of their spatial, formal, aesthetic, material and technical or constructional characteristics both as 'complete' artefacts and as on-going processes, using both field examples and archival sources. Due to my limited time in the field, the necessary rapport with individual residents could not be established in general and therefore requesting to undertake formal architectural measured surveys was not deemed appropriate. However, note-taking and photography in conjunction with architectural and visual data from Hunnarshālā allowed for sufficiently thorough analysis.

3.7.4 Libraries and Archival Sources

Hunnarshālā had an extensive library, a substantial part of which were works on their context of Kutch, which informed their designs and processes. In addition, Hunnarshālā documented their own work extensively, (often a criteria of receiving charitable funding) as have architecture students and graduates who came to Hunnarshālā for work experience or whilst on gap years. A number of these students had also made Kutchi culture and architecture the subject of their theses, all of which were preserved in the Hunnarshālā library. This constituted an invaluable resource, evincing a wide range of interpretations of the processes Hunnarshālā went through. There were also architectural documents available in the library, some of which documented the context as it was before the earthquake in 2001 and before reconstruction occurred. These were useful as sources for aspects of the design analysis.

Further to this, a lot has been written about the region and its peoples and their urban context already, both academically and in works for the general public and these can be found in many good libraries in the UK. Because of time limitations (and because of the very slow public transport system) I was not been able to examine resources held in public or academic libraries in India.

3.7.5 Networks

Having already been to visit the context of the research, and therefore having watched how Hunnarshālā operate in this context, I was aware to some degree of what was needed to secure 'good data' in Bhuj; this can best be understood as 'networks'. My close friend inside Hunnarshālā had been my key to all further introductions but, perhaps more so in India than elsewhere, it is very easy to nurture contacts, even from brief introductions or from passing acknowledgments on the street. In this way I gained access to a wide range of very relevant people, from the regional Collector, to local planning officials, Delhi and Ahmadabad-based academics and researchers, Kolkata-based architects and regional NGO workers. Through these contacts it was possible to begin to establish a sense of Hunnarshālā as an interconnected body involved in the coproduction of architecture. Of course, I had to be selective in whom I chose to establish links with; some people's strength of desire to be linked with Hunnarshālā exceeded the strength of their actual connection. Because of both time and clarity it was important that I accurately established the network of actors involved in Hunnarshālā's coproductivity and was not side-tracked by well-meaning contacts.

Gaining access to the organisation via a friend had both advantages and disadvantages. My access to very good archival and documentary data was assured, as was my acceptance by senior members of the organisation, of whom my friend was one. Further, I was introduced to relevant case study projects quickly, my friend understanding the gist and agenda of the research readily, and access to these projects was established easily through his association with Hunnarshālā and because he had, by and large, worked with the communities in question. Of course, there was a down-side too, in that I became a de facto member of Hunnarshālā with the associated status which can be presumed to have affected

the way in which I was viewed, perhaps not negatively but certainly not in such a way as to promote the free and frank exchange of views one might have hoped for. This is discussed at greater length in Section 3.9.1, below.

Issues of access and approach were made easier by my relationship to Hunnarshālā and KNNA, who arranged and participated in many of the interviews I conducted, which imbued me with credibility and status by association. Consequently I was viewed with less suspicion as a researcher than I might otherwise have been and people were more forthcoming, trusting me because of Hunnarshālā's apparent trust in me. Also, being apparently part of Hunnarshālā meant that I was, to some degree, a known entity to the people. However, whilst useful insofar as it gave me an 'in' to groups that were otherwise beyond my reach, this association was not entirely beneficial. Problems became evident as the fieldwork progressed, the presence of Hunnarshālā/ KNNA (in person or as the unstated omnipotent spirit) seemingly tongue-tied interviewees, brought about self-editing (of information) and reticence to be straightforward, and engendered forms of behaviour which I presume were not normal (overt politeness, subservience, etc.). However, whilst this seriously limited the value of the information garnered from communities, it tells a story about the nature of the development system used by Hunnarshālā, and about development full stop, reflecting particularly on the depth of the professional-lay divide in their work which, although it can be seen anywhere the 'two worlds' meet to cooperate, are clearly more evident where the divide between these social groups is so great, as found in Kutch. Whilst this then explains Hunnarshālā's approach which seeks to disestablish this engrained sense of hierarchy but which, of course, has found its expression within the world of NGO-provided subsidised housing.

An unanticipated and critical problem was that the rural communities spoke only Kutchi, rendering many of my contacts unusable; especially those who understood the project and could not only translate but also transmit my meaning accurately and intuitively. Conversations conducted with a Kutchi-English translator were problematic in that the translator, being inexperienced and not entirely sensitive to the specifics of the project, filtered the responses to my prompts too much which led to me asking either inane or overly nuanced questions, compounding my problems. Certainly this brought in to question the research methodology of Interpretative Phenomenological Analysis I had initially proposed to use, which is based upon a sensitive analysis of verbatim transcripts

(Reid et al. 2005: 22). This can be put down, in great measure, to inexperience on my part but certainly necessitated further fieldwork, during which I applied ethnographic approaches more suited to engaging fruitfully in such a context.

3.8 Notes on Methodological Development

The research, based upon an understanding of both vernacular architecture and coproduction as artefacts which are socially constructed, and therefore socially *embodied*, is necessarily pluralistic. The identification of social construction is not however solely a matter of observing incidents of certain technological or aesthetic products, or certain formulations of state and society actors, but an understanding of the nature of the relationships which make both coproduction and vernacular architecture. Ethnography therefore serves not only as the research methodology but also part of the theory that underpins this research. Coproduction and vernacular architecture *as social constructs* are irreducibly complex (O'Reilly 2009: 3), a reality made appreciable by an ethnographic research approach. This specificity is arguably vernacular architecture's great strength and any attempt to understand its function and its applicability in other contexts will not succeed if it attempts to reduce or circumvent the complexity of any entity born of social interaction. An ethnographic mindset embraces social complexity and the complexity of things made socially. The promotion of vernacular architecture in this case is a promotion of indigenous knowledge, not as something that exists and is 'out there' and identifiable (Holstein and Gubrium in Denzin and Lincoln 1994: 263) and discreet, but as an approach to development of sustainable architectures that is socially embodied and 'live', that is *other* and therefore demonstrates the potential of approaches not commonly incorporated into contemporary urban development programs.

This chapter has described the research methodology as it was designed during the undertaking of the doctoral study. The agenda taken in to the project, described in the first section, formed the thesis. In turn, this was broken down into a series of questions which were seen as necessitating a qualitative research framework composed of ethnographic and interpretative methodological elements. The agenda was tested during a pilot study and the possibility of certain methods was investigated and reviewed. Specific tactics were proposed to realise these two elements, including discussion groups, individual interviews,

design and technical analysis and archival research as well as observation whilst located in the communities. The second period of research, undertaken with a translator and driver and minutely planned to maximise the limited time available, revealed large quantities of data through these methods. During the two periods of fieldwork formal interviews with 33 people were undertaken. These are presented in Appendix 3. In addition, a number of brief discussions with significant actors, including planning officials, city engineers, NGO workers, architects and educators as well as many different professional and non-professional participants engaged specifically with the reconstruction work in Kutch were undertaken. Many members of each community added their voices as well. Community forums and meetings were attended, all of which involved institutional actors.

Once back in Britain, data was reviewed and further library-based research helped create (or expose) links that were not immediately apparent. The process of writing and analysis became part of the research process; the action of writing research becomes a route to greater understanding of the data to hand. Likewise, the action of looking at photographs as one selects them promotes greater understanding of the context the researcher was in (although with evident limitations); being in the field was not the easiest place to understand it, particularly as the research periods were short but also because attention had to be focused elsewhere much of the time, for example on the people I was interviewing, or on the activity of taking photographs.

The ethnographic and interpretative elements (see Fig.3.1, above) methodology was seen as being means to 'richly written accounts that respect the irreducibility of human experience … and views humans part object/ part subject'(O'Reilly 2009: 3) as well as a way of understanding Hunnarshālā as a social entity participating in the manufacture of culture and artefact by observing and participating in their processes. The tools of ethnography, (observation, conversation and writing) were seen as both being viable ways of engaging with the field in this research, taking into account external pressures of time and resources, and also suitably creative, facilitating the 'construction' of the environment through a multitude of knowledges drawn from the field.

Likewise design analysis, the 'interpretative' aspect of the diagram above, which was conceived of as a means of triangulating ethnographic, particularly oral data. This was

promoted as a way of achieving 'hard' data but, as with ethnography, design analysis was noted to be interpretative, but of a material artefact, not of stories. The case studies described the physical reality of the architectural development through three primary phases (Precedent; Intention and Realisation) which were necessary for describing the four stages of development (Negotiation; Design [programmatic and architectural]; Production; Maintenance) proposed to occur in the coproduction of vernacular architecture (Fig.3.2 below)

Negotiation	**Precedent** (red)		
Design	**Precedent** (red)	**Intention** (yellow)	
	Precedent (red)	**Intention** (yellow)	
Production		**Intention** (yellow)	**Realisation** (green)
Maintenance			**Realisation** (green)

Fig. 3.2: Primary Phases and Development stages.

As with most of the ethnographic research, most of my contacts in Kutch were suggested by those within the NGO groupings I was researching and by-and-large introductions were through this avenue too. There are obvious problems with such an arrangement, ones which became clear once in the field. Firstly, this may (almost certainly) have meant I got a certain 'kind' of community actor, ones who were, perhaps uncommonly, engaged or who had an unusual tale to tell. Only further research would be able to ascertain this. Secondly, many I spoke to were functionally primed interviewees insofar as they respected or relied upon the organisation in some way. (It should be stressed; there were absolutely no instances of the organisation attempting to actively influence this research or other actors in any way.) Thirdly, much of what I saw was what the organisation thought most closely met the needs of the research's agenda, again, all with only the kindest intent. Having engaged with the organisation over a number of years however, it is clear to see that the projects are fairly indicative of their general development approach and were not anomalies.

The proposed methodologies principal problem was simply that of time; research in the field was limited to two short periods totalling six weeks in all. A more by-the-book ethnographic approach would have been to settle into the environment to such a degree as to allow more subtle interpretation based on a deepening understanding of the particulars of the culture at hand. Consequently it was necessary to modify my methods and my expectations. My first field visit did allow me to learn the terrain, both physically and socially and to foreshadow the problems my thesis would throw up in Kutch. In this way I was well prepared for my second visit, and had organised in advance much of my work. It was during this time that I moved away from an overt reliance on oral, ethnographic data and adopted an approach which used more architectural analysis, working from both direct engagement with buildings and archival sources, triangulating this information through discussions with various actors. In this way, a more robust triangulation was produced.
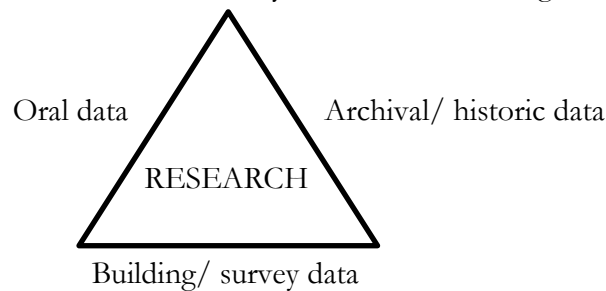
Fig. 3.3: Method triangle

Whilst I employed a translator who became relatively sympathetic to and in-tune with the research, problems inevitably arose. I had requested verbatim translation but it was clear there was initially a measure of 'simplifying' taking place which, until identified and addressed, rendered interviews less useful as tools in relation to a variety of methodological approaches I'd hoped to use, particularly those relating to polyphonic ethnography. Less oral data than I had wanted was collected which necessitated that it become a ratifying element as a consequence, used in the analysis, rather than a principal source. Likewise, architectural analysis was not possible in the way I'd envisaged (measured, in-depth surveys) principally because I was a stranger, not embedded in the community and therefore did not have the standing to undertake such research. Thus photographic evidence was used in conjunction with less formal observation and design drawings procured from the agencies who oversaw the design, such as Hunnarshālā.

In this reflexive way the research methodology developed *from* the field, responding to the conditions presented and collecting data as it became available; it was through this that the manner of presenting the case studies in Chapter Four was devised. Ideally, more time and resources would have allowed for more time in the field in which to get to know and be known by the subjects. Of course, this would have produced a very different study.

3.8.1 Limitations

The research began with extremely grand ambitions. In the final analysis I had to deal with that which was to hand, those phenomena I could document on my visits to Gujarat. My analysis had to emerge from the data I collected and I could only suggest conclusion that followed logically from the data.

The initial presumption was that an overarching narrative would be visible in the literature which would in turn result in my forming comprehensive definitions of the processes and artefacts I would observe. But the literature refused to offer up a singular definition to any of the central research themes and I headed into the field unsure of what I was looking for. Only when the data could be laid out and looked across could I begin to see something that approximated a cohesive narrative. Lengthy analysis through writing and re-writing, drawing and diagramming then suggested ways the research could reach beyond itself and suggest more broadly applicable propositions.

During the fieldwork I undertook thirty three (see Appendix 3) direct, semi-formal interviews with both institutional and communal actors, eight of whom were women. Six of these women were from within the communities, two from NGOs. All were middle-aged. Seven of the men directly interviewed were institutional actors (all bar two of whom were middle-aged); community actors were all middle- and late-middle-aged. Community actors interviewed at Hodka were all Harijan caste; at Junawada interviewees were either from the Kohlis, Rabari of Bihil tribe and were herdsmen by tradition. At Sadar Nagar interviewees were from various caste groups, which some people reiterated and others didn't mention. All community interviews were only with Hindus, but not by design. Most interviews were attended by numerous people who would participate as well, often helping the interviewee refine and add detail to their responses and thoughts. Most interviewees

from within communities negotiated their answers with these participants. Thus the interviews contain a far greater number of 'voices' than just those people I directly interviewed. Because I had been advised by Hunnarshālā that the rural areas of Gujarat, and even Bhuj, were by-an-large socially conservative places and un-mediated contact with women was inadvisable, I did not pursue or have many informal discussions (i.e. direct interviews) with women from within the communities. In any case, the research would have been improved markedly if, through the building of a deeper connection with the communities, I had been able to hear more from those people whose voice was not heard, particularly women and young people whose engagement with the domestic environment was more broad than that of men (who often worked away from the home either all day, or for even longer, very extended periods of time) and, we may presume, who are therefore instrumental in creating the spatial, formal and aesthetic characteristics of the village environments, if not the material and technical sides as well.

A similar concern that emerged through the analysis and was commented upon by my supervisors was that the fieldwork at Junawada, Hodka and Sadar Nagar (although to a lesser degree), appeared to unearth very singular narratives, that differences of opinion at all scales (within households, between households, between families, neighbourhoods and at even broader scales) which perhaps speak of significant local and cultural power-relations, had been either ironed-out during the analysis or hadn't been voiced during the fieldwork. One suspects that this is hardly representative of reality; it is reasonable to presume there was a range of thoughts on the housing studied. Indeed, the application of an ethnographic approach was intended to generate something like a multi-layered web of stories to augment to more concrete data, thereby establishing the veracity each actors' description. At Sadar Nagar this unevenness was most visible, with many tales of dissatisfaction, fear, anger and frustration intermingling with ones of nuanced satisfaction. However, on the face of it, there was also a great deal of joy – the place was quite evidently not functioning well but it wasn't all bad either, with the beginnings of incremental development appearing and an intriguing hybridity emerging in the architecture. This of course speaks of a critical methodological problem, one that would have been remedied to some degree by more time in the field and also by my not being so closely linked to agencies in charge of the development.

In light of these problems, it can be stated that the research would have benefitted from a longer period of fieldwork. Any pretence at a subtle anthropology was abandoned when, due to economic, work and time constraints, my initial research idea of spending a decent stretch watching and learning the field had to be heavily pruned. As it was, six weeks of research unearthed a lot of varied and interrelated data but the research objectives had to be modified nonetheless. From that data I produced this study but more time would certainly have resulted in a deeper and more refined description. Amongst those things I would have liked to have undertaken given more time were:

- More interviews with a broader range of institutional actors, particularly those involved in government.
- A deeper engagement with the communities which might have permitted of both a more scholarly description of their (communal and individual) ideas about synthetic vernacular architecture and an actual analysis of lived-in homes.
- Engagement with 'silent/ silenced' parts of the communities, such as young people and women, whose voice was by-and-large inaccessible to me as a researcher or had obviously been mediated away through social custom, lack of knowledge/ trust (in me) and general goodwill towards the objects of my study, amongst other things.
- Greater reflexivity both in terms of what information I searched for and how I searched for it.
- The possibility of 'emancipating' myself from agencies such as Hunnarshālā and KNNA whose working processes I was viewing. Limited time ensured I remained close to these agencies as they facilitated rapid access to communities but there are obvious problems associated with this, as outline in section 3.9, above.

Coproduced vernacular architecture is principally engaged with conceptions of justice, as previously stated. The above modifications to the approach, specifically to and in the field, would have enabled the research to dig deeper into the enormously complex social distributions of power found in the case study communities, which in many ways provide the proposed architectural development strategy with its validity. As it was, the heavier weighting on architectural data and the interpretative analysis of it, although an authentic way of understanding communities' ambitions for their housing, was a necessity of the type and duration of the fieldwork undertaken.

Chapter Four - Case studies

4.1 Introduction

In this chapter Hunnarshālā are described, both as it perceives or identifies itself and its agenda and as it is viewed by others. This is summarised in tabulated form, which can be read as description of the ideal form of a Hunnarshālā-led development, as understood from the fieldwork. Following this, three case study examples of Hunnarshālā's practice will be described: the settlements of Hodka, Junawada and Sadar Nagar. Each presents what was promoted by Hunnarshālā as being both a different process and architecture of reconstruction as conceived of and implemented by Hunnarshālā and were selected through discussion with Hunnarshālā because of this.

The case studies are presented in the order in which I encountered them, not hierarchically, and are firstly described in general terms and following this, more specifically through three core phases of development:

1. architectural precedent on the settlement, cluster and house scale
2. the design and development intention of Hunnarshālā
3. the realisation of this intention in the completed architectural and urban forms

This descriptive structure is intended to enable analysis. The data is presented in a way which correspond to the theoretical framework established in Chapter Two, in which definitions of coproduction, vernacular architecture and their purpose as means towards promoting a 'just sustainability' through a Human Scale Development approach to the production of housing, are formulated in such a fashion as to allow for identification in the field. In each of the core phases the developments are described in terms of being artefactual and processual entities. 'Precedent' establishes the context of each project, drawing on historical evidence of architectural and social forms. 'Intention' establishes the 'ideal' architecture and urbanism as conceived of by the network of involved actors, through an analysis of early proposals and oral statements in relation to precedent, and also of the desired development processes undertaken. 'Realisation' describes what has been built, examining the reconstructed or new communities through interpretative and

ethnographic methods in relation to precedent and intention, and how it was built; the development processes that actually occurred. The implementation of the proposed methodology is also described.

This is followed in each case study by analysis of the data, towards investigating the thesis that 'Synthetic vernacular architecture is a sustainable architectural typology and can be produced through coproduction, as manifest in the work of Hunnarshālā'. The research questions presented in Chapter One and the literature review in Chapter Two suggested a number of hypotheses which were deemed relevant to answering, in some form, the thesis. The research process itself, presented in Chapter Three, presumed its own effectiveness in gleaning adequate data out of the field. These aspects assessed in light of the data are the subject of this chapter.

The research undertaken in Kutch was based on a thesis which described a process of architectural development which seemed to provide a route out of the impasse which appears to beset so much housing for low-income and marginalised groups. The proposition of a synthetic vernacular architecture, 'real' vernacular architecture emerging through the coproduction of lay and professional knowledge as a consciously modern typology, has been suggested through the analysis of the literature as a route to genuine sustainability, promoting empowerment, emancipation and democratisation amongst communities whilst at the same time respecting their socio-cultural norms in relation to the construction of space and artefacts. Again following from the literature, such a process would promote environmental justice too, gaining for the communities, representation, recognition and rights. It was evident from the literature that similar agendas were being undertaken in various parts of the world in the pursuit of a better architecture for marginal populations, characterized by an architectural agenda based on formal and technological hybridity and fluidity of processes. The research proposed a thesis statement in relation to this, giving this architecture a name (synthetic vernacular) and suggesting a means of its realisation (coproduction).

Chapter Two suggested a number of questions that emerged from the thesis statement, beginning with:

Can the coproduction of vernacular architecture serve as a model for sustainable architecture?

Three further key questions arose:

1a. What constitutes vernacular architecture?
1b. What is coproduction?
1c. How can vernacular architecture be coproduced?

These questions could be addressed through the work of Hunnarshālā, operating in the wake of the 2001 earthquake in Kutch, India and the data would enable a more thorough discussion of coproduction as a means of producing architecture, highlighting areas where it fails in this regard.

The data from the field is presented in each case study through two questions: 'What was done?' and 'What was made?', the first pertaining to processes, the second to artefacts. This data is then analysed data in relation to the questions outlined above, which can be condensed into two simple questions:

1. Was it coproduction?
2. Is it vernacular architecture?

These questions are addressed in each case study in turn, relating the data back to those definitions of the core research themes developed through the literature review, including theoretical concerns. The chapter will begin with a summary of the themes of vernacular architecture and coproduction as found in the literature review followed by a discussion of the process of research as undertaken in Gujarat. The chapter finishes with a reflection on what I did and how I did it and what I might do differently now.

What is coproduction?

The literature review defined coproduction as being identifiable through four criteria – appropriable technologies, equal access to legal representation, credible commitments via contracts to ensure parity of inputs and incentives to encourage inputs from both parties - 107

as set out in greater detail in Section 2.5.2. The literature review suggested that, were these conditions apparent in architectural production, coproduction was occurring, to a lesser or greater extent. A suitable research methodology would be to discern to what extent because, even if externally the conditions seemed to be in operation, each condition was to some degree subjective; for example 'legal options' are predicated upon the perception of a/ the law and of equal access to it across class, affluence, caste, ethnicity, religious, gender and age groups.

Is it vernacular architecture?

The literature review defines vernacular architecture as:

> [a] socio-cultural phenomena … built by people *in the world* to meet their needs and is therefore in a state of flux.

Working from this definition it proposes a synthetic vernacular typology which is a traditional conception of vernacular architecture (Carter and Collins Cromley 2008: 7 and 8-9[46]) in synthesis with a comprehensive (and pluralist) idea of modernity, as it appears in the sphere of architectural production, as described in Chapter Two, Section 2.7.

Synthetic vernacular architecture is identifiable both through the means of its production (coproduction) and through what may be called traditional vernacular characteristics. As such, normative methods of analysing vernacular architecture found in the literature allow the researcher to describe accurately buildings in relation to their 'ideal' (i.e. acceptably non-hybrid) form, thereby establishing their 'vernacularness'. By describing the precedent, the intention and the realisation of the architecture and/ or urbanism the researcher can propose similarities (or not) between the two, thereby ascertaining to what degree the

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[46]   p.7: 'a type of architecture … that emphasizes the intimate relationship between everyday objects and culture, between ordinary buildings and people.' p.8-9: [numerically common buildings] 'are the ones that most closely satisfy people's needs.'

architecture satisfies both vernacular ideals and manifests coproductivity through the processes of its conception, production and maintenance.

Carter and Collins Cromley's 'Framework for Analysis' (Carter and Collins Cromley 2008: 49-62) was proposed as a tool for viewing the buildings as vernacular artefact (see Chapter 2, Section 2.9, Fig. 2.1) and from this the analytical framework was devised, presented as a set of tables. The tables presented in the text and at full scale in Appendices Three, Six, Seven and Eight) describe the engagement of the six principal actor groups with the development projects (Actors- x-axis).

Community - collectively

Community – individuals

Civil society - Hunnarshālā

Civil society – others

State

Other/ business

The tables are organised into four stages of development ('Action' – y-axis) which are seen as being stages both inherent to vernacular architecture[47] as defined in the literature and also as necessarily following from Ostrom's criteria as applied to the sphere of architectural [co-] production:

1. Negotiation
2. Design (programmatic and architectural)
3. Production
4. Maintenance

Each development stage is analysed in terms of Ostrom's four criteria; a deficit of complementary technologies and incentives and unequal access to either law or enforceable contracts lessens the existence or chance of coproduction being in evidence. A lack of all or any of Ostrom's criteria at the negotiation, design and construction stages would mean

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[47] These vague stages are likely in architectural production in general, although perhaps not in the stipulated order.

coproduction was not meaningfully in evidence and therefore that synthetic vernacular architecture was not being produced.

It would have been fortunate if the architecture encountered in the three case studies lent itself to generalisation. This section of the thesis could then have simply described the normal way of things and, in describing the reconstructed communities, the similarities and dissimilarities would have made themselves evident. Unfortunately for this research human communities tend towards specificity, a reality perhaps more immediately apparent in traditional settlements which have not undergone the visual homogenisation characteristic of many modernisation programmes (Duyne Barenstein, Joshi et al. 2005: 1). The dual concerns of vernacular architecture and coproduction further militate against generalisations, contingent as they are on social and physical context. Each case study displays a particular urban identity: Hodka is rural, Junawada suburban and Sadar Nagar a suburban relocation site. Each context had differing needs and capacities and engaged different institutional actors and different sources of revenue. Emergent and changing knowledge modified Hunnarshālā's approach throughout the process of reconstruction.

Nonetheless, as described in Chapter Two, it is possible to identify broad themes within the urban and architectural forms found in the region which appear to be associated with social practices and which serve as loci for the analysis. Specifically, familial and caste structure, which appeared to play an important role in the self-identification of the communities with whom I engaged can be seen to have informed the development of traditional architectural forms, as does gender [48]. Further issues of privacy, socialising, environmental control and employment (work) are also formative[49]. This is ratified by the literature, which points to the generative influence these factors have on the emergence of the widespread use of, for example, clustered and courtyard housing in both urban and rural settings (Tyabji 2006: 70-2 and 76-79, Udamale 2003: 34-46). However, this chapter focuses only on the practices and processes undertaken in the redevelopment of Kutch by

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[48] Kutch "has a social history of community division by caste and religion. […] Caste-based sections of villages create significant segregation; a minimum of social interaction happens between these groups. […] Gender inequality is one of the prominent socio-economic vulnerabilities in the Kutch region […] [w]omen consistently fall in the lowest socio-economic stratum and have received the poorest care in the realm of personal health." (Thomas et al. 2011: 3)

[49] There is considerable 'overlap' between these categories, architecture emerging holistically out of the numerous simultaneous demands of a client and site.

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Hunnarshālā; this will be referenced back to precedent in the subsequent analysis of Chapter Five.

4.2 Hunnarshālā

Below I will describe the organisation Hunnarshālā as they understand and promote themselves, as they are understood by others and as they act. I will describe their organisational form, agenda and development processes both as intended and as undertaken. The research engaged with Hunnarshālā as a corporate whole, whilst being aware at the same time of the differences which existed within the organisation and which were to some extent affective on their practice but which is not seen in this research as being the critical issue. Hunnarshālā's practice encompassed a spectrum of ideas and methods around key agendas and it was these that were seen as facilitating the most accurate description of synthetic vernacular architecture. I will suggest that the organisation, as they engage with development, embody Appadurai's notion of 'deep democracy'.
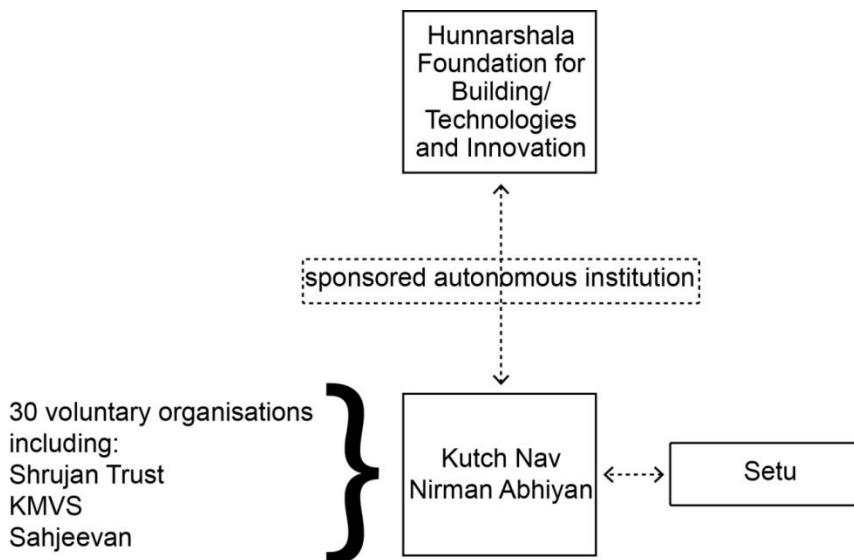
4.2.1 Form

Fig. 4.1: Organisational structure of KNNA, showing 'location' of Hunnarshālā.

Hunnarshālā were established to meet a particular architectural and urban design need evident within the polyphonic and highly fluid social and developmental conditions to be

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found in Kutch after the earthquake of 2001. Mindful of the poor reconstruction practices undertaken after the Maharashtra earthquake of 1993 (For example, see descriptions in Duyne Barenstein, Joshi et al. 2005 and Salazar 1999 and 2002a & b.) and the high social and economic costs attributable to ill-thought out and sub-standard constructions, and working from increasingly well-established principles of the efficacy of participatory development processes, Hunnarshālā promoted what may be described as a knowledge-transfer approach to reconstruction, which viewed the indigenous building practices and architectural forms common to the region as being the most suitable means towards creating sustainable and valued urbanism. In partnership with other civil society actors and private businesses, Hunnarshālā devised means of augmenting local building practices with contemporary enviro-technical knowledges so as to promote not only improvements in the physical design of traditional environments, but also so as to promote greater equity of access to the fruits of democratic society. Principally, this work was undertaken in conjunction with Kutch Nav Nirman Abhiyan (KNNA), the central organisation of a multidisciplinary network of non-profit and civil society organisations which work towards a common goal of social, economic and environmental development in the Bhuj-Kutch region. Each subsidiary organisation feeds information about specific needs from the specific contexts in which they are engaged back to KNNA which in turn organises appropriate responses back through the subsidiary organisations and its network of contacts and *setus*[50]. Hunnarshālā exists as a collaborative non-profit partner to KNNA, assisting and augmenting the overall development programmes instituted by KNNA, working primarily, but not exclusively, on urban and architectural elements, their work incorporating design, engineering, community organisation and mobilisation, social work and education.

As partner of KNNA, Hunnarshālā have access to a region-wide network of collaborative partners, and many grass-roots organisations, developed over the 25 years of KNNA and

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[50] The Setus, an innovation of KNNA, were established three days after the earthquake as a response to the large quantities of information and requests that flowed in to the organisational centres in the aftermath of the disaster. They were given an official mandate to act as facilitating bodies located within village clusters that through discourse could establish common goals out of disparate needs and present comprehensive demands to the state. The Setus are, in reality, simply 'trained, qualified socially qualified human resources who were placed in clusters of twenty-two villages and who were constantly re-assessing the needs very clearly, facilitating, guiding the people, enabling people to become far more self-driven rather than relief or donor-driven and ensuring that there was equity to … whatever extent was possible in the resource distribution and mobilisation. But the key role of the Setus was actually creating a policy feedback to the state. So if a policy was being drawn up by the state then Abhiyan would, through the Setus, open it up as a referendum to the communities [sic.], get sponsors and then, with recommendations, bring it back to the state.' (Quote from interview conducted with Sushma Iyengar (KNNA), 03.10.09)

Hunnarshālā's existence, through which a great range of approaches and knowledge can be drawn upon. Hunnarshālā, independently and through KNNA, also have good associations with local and Gujarat State government, and strong ties with local and global donor organisations. Principally however, Hunnarshālā's (and more broadly KNNA's) approach appears to be (and is stated to be) predicated upon the notion of owner- or community-driven development processes as the only viable means towards long-term, sustainable improvements in the socio-economic, environmental and cultural condition of the economically weak and socially marginalised. In Gujarat this was seen as including a very broad range of people according to Alka Jani of KMVS[51], principally lower caste groups and women, but also religious minorities.

4.2.2 Agenda

4.2.2a Parampara

Hunnarshālā promote vernacular architecture as a means to sustainable communities. Taking as their starting point the common social processes of the communities with whom they work, and the traditional urban forms that have been evolved to best satisfy these particular cultural 'shapes', Hunnarshālā 'design' into these accepted processes contemporary, scientific, technological knowledge, for example, earthquake-resistant concrete ring-beam construction. This method, by which the vernacular is appropriated and appropriates, validates vernacular technical solutions through scientific experimentation, demonstrating the contextual (technical, environmental and social) suitability of it. In this way Hunnarshālā have been able to present vernacular architecture as a valid approach to housing in its own right, and in conjunction with new technologies. This approach emerges from what Sandeep Virmani described as the Indian' conception of vernacular traditions, in Hindi, *parampara*, which contains the same sense-meaning as the English 'tradition' but which also translates as 'a process of change' (Sandeep Virmani; interview 30/09/2008).

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[51] KMVS are an NGO under the KNNA umbrella, primarily involved in the development of female education and emancipation through the promotion of indigenous skills and crafts in the contemporary commercial market place. Alka Jani was the principal of KMVS during the research.

'The assumption is [that] tradition is a process of change. In Hindi… in the Indian language the word *parampara* is used for tradition. And the word *parampara* means… *param* [means] 'which is', [and] *para* means 'is away from what is'. That means you're in a constant process of change. Actually the word 'tradition'… in Hindi means 'a process of change', not being constant' (ibid.)

As such the vernacular agenda of Hunnarshālā can better be understood as embracing the progressive, fluid notion common to indigenous Indian ideas of it rather than a static idea of tradition which (perhaps inadvertently) seems to flavour other non-Indian conceptions of it.

However, because Hunnarshālā's approach is primarily centred around promoting the independence and self-organisation of the communities with whom they work, and their ability to live within the modernising context of Gujarat as they would wish to, Hunnarshālā pursue (and are justified by) built projects whose central aim is to promote new (and, as is often the case since the earthquake, re-establish old) social empowerment practices relating to the production of the built environment. To this end, Hunnarshālā promote technology that is low-maintenance or which can be replicated successfully by unsupervised lay-people, and help reveal socio-urban processes and processes of synthetic-vernacular design (both those which already exist within the community and ones addressing contemporary urban issues). Through this communities can affect positive modernising change within the social context of self- or community-building (which are characteristics of many traditional societies), thus maintaining a social as well as technical continuity with the past. In this way, Hunnarshālā hope to enable traditional communities to live alongside or within what can be termed the modern urban realm (for ease of identification), offering a different but equally viable life. As such, they propose a revivified vernacular, one that is inherently progressive, embracing those aspects of modernity which have been lacking, particularly in relation to the interface of architecture and social relations, revivifying the customary conception of tradition as 'a process of change'.

4.2.2b Sustainability

The *parampara* notion of a tradition as a progressive 'journey' fits with ideas found within discourses on vernacular architecture, that it is intrinsically linked to environmental

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conditions (in the broad sense) as they fluctuate over time, season-to-season, year-on-year and over the long life cycles of societies and cultures. As such, Hunnarshālā accept a notion of vernacular architecture as inherently pliable and sensitive to change. In the contemporary age, when appreciation of the links between human action and climate change have been consolidated through scientific and technological analysis, this notion therefore lends itself to a sustainable agenda; the environmental condition of climate change (which is very evident within Kutch in for example the decline in natural resources such as thatching grass and the spread of the alien plant species, as well as altered weather patterns) necessarily becomes an unavoidable spur of architectural language. Hunnarshālā and the broader KNNA network therefore attempt to produce 'culturally, socially, environmentally sensitive housing' (Sushma Iyengar, interview 03/10/2008) by both accepting as an organisation, and by promoting in the communities with whom they work through Setus 'appropriate environmental sensibilities' (ibid.) in relation to the [re]establishment of urban and architectural forms, both in relation to climate and the local and broader global environment, and in terms of more singularly socially-orientated agendas of education and empowerment.

4.2.2c Owner-driven reconstruction

The proposition, that traditional forms of architecture contain the seeds of a sustainable architecture and urbanism, is manifest in the use by Hunnarshālā of an Owner-Driven Reconstruction (ODR) agenda. ODR is 'a reconstruction approach that enables home owners to rebuild their houses themselves (by hiring the necessary skilled labour), through a guided combination of financial and technical assistance, and a regulatory framework that would ensure access to good quality and affordable construction materials' (Duyne Barenstein and Iyengar 2010: 164). Arguing that because most people in India build their own homes already (stating that 135 million of India's 180 million houses are already self-built (ibid. 185) in ways that best meet their cultural and economic needs and desires, ODR 'may be considered the most natural, empowering and dignifying approach towards reconstruction… [encouraging] … people to do what they normally do – build their own homes' (ibid. 164). It is not the only way in which houses can be or are built in contexts such as that found in Kutch (See for example, Duyne Barenstein, Joshi et al. (2005), Lyons (2009) and Lyons, Schilderman, et al., (2010).) It is, however, the approach most relevant to the case studies being viewed in this research, which does not function as a comparative

analysis but which instead views the organisation as a mechanism for learning rather than a focus in their own right.

This approach, in keeping with ideas central to coproduction, promotes a polyvocality, both reinforcing the value of local/ indigenous and traditional knowledge whilst simultaneously accepting the necessity of (indeed the advantages of) external expertise, influence and support, in pursuit of plural agendas of cultural and environmental conservation within a framework of social emancipation, education and democratisation and, as indicated in much literature on post-disaster reconstruction, material security, in the case of Kutch in the form of 'seismic-resistant construction techniques', intended to function 'as an opportunity to provide hands-on training for the future and to link housing safety issues with livelihoods'. (Kennedy et al 2008: 27)[52]. This external influence is necessary but complex:

> '… you allow an owner-driven process to take place and people do what they think is appropriate; why should you think what you think is correct? Because what is correct? If he thinks a cement wall and a cement roof is good for him or her than that's their choice. It's not as if they're blind to choices; they have seen the world around and lived in mud houses, they have seen the cities and they're taking a choice. So what right does anybody have to change that?' (Sushma Iyengar; interview 03/10/2008)

Consequently, ODR is ideologically assertive (for want of a better word) of necessity. It is predicated upon a belief that traditional environments are generally sustainable and should be maintained, nurtured and augmented so as to preserve that which is good in them whilst promoting the elimination of those elements which are not orientated towards contemporary ideas of justice and physical well-being.

As a determinedly context-specific approach to development, in both application and outcomes, ODR is necessarily diverse; it takes the form it needs to and produces

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[52] The issue of seismically safe design, whilst central to the concerns of Hunnarshālā, is not central to this thesis although research and testing of such technologies, and their integration into built fabric formed a major part of the organisations work. Introducing this theme in detail is beyond the scope of the thesis, which instead is concerned with the influence of coproduction on an architectural typology.

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architecture accordingly. Nonetheless, certain principles are apparent: 'home owners …
rebuild their houses themselves (by hiring the necessary skilled labour), through a guided
combination of financial and technical assistance, and a regulatory framework that would
ensure access to good quality and affordable construction materials' (Duyne Barenstein and
Iyengar 2010: 164). This leads to certain tactical approaches in practice: community-led
design and construction with emphasis on the use of local materials in conjunction with
customary crafts and craft workers; community/ client control of finance; access to fairly-
priced (price-controlled) materials; technical design and support for communities (and
individual families therein) in pursuit of seismic safety in conjunction with indigenous
building practices and skills; inter-agency cooperation in response to, and support of,
community-led objectives; the production (and maintenance) of an enabling environment,
including access to systems for 'grievance redressal' (KNNAb 2008:9) and regulatory
oversight and control, particularly with regards structural safety. (KNNA 2008a, KNNA
2008b, UNNATI 2006: 5, Boonyabancha: 2006).

4.2.2d Governance in India – 'Deep Democracy'

That Hunnarshālā operate within the field of Indian civil society organisations and their
location within the development and civil society branch of architectural production
indicates another important aspect of their identity, which is their role within the broad
theme of governance as currently realised in contemporary India. In itself this is too big a
theme to attempt to describe comprehensively in this thesis, and therefore Hunnarshālā's
nature as third sector body involved in development as an aspect of governance in India is
the basis for the following discussion, particularly in relation to the nature of the building
work being explored.

Hunnarshālā can be seen to fit within the notion of 'deep democracy' (Appadurai 2001: 42)
that has emerged alongside the current phase of globalised democracy in which civil society
acts from within local community contexts hand-in-hand with the poor and in unison with
a global network of partners and sympathetic actors. Whilst deep democracy as a phrase
'suggests roots, anchors, intimacy, proximity and locality' (ibid.) and in practice, requires
such locale specific strategies as 'inclusion, participation, transparency and accountability'
(ibid.), it also relates to the lateral reach of such organisations and the communities in
which they operate, and their 'efforts to build international networks or coalitions of some

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durability with their counterparts across national boundaries' (ibid.). However, for Appadurai the true depth in deep democracy is the formation of poor communities capable of engaging 'in partnerships with more powerful agencies – urban regional, national and multilateral' (ibid.) in pursuit of justice for themselves and for their associates. The notion has been interrogated in terms of ideas of "governing beyond the State" by NGOs (Zérah 2009: 874) and with issues associated with non-governmental participation in urban governance, which it is argued, can lead to NGO co-option by the state, the reinforcement of existing local power dynamics and labour informalisation (ibid.).

This form of multi-actor, globalised governance is evident within the context of post-earthquake Kutch. The sheer scale of damage caused by the 2001 earthquake and the evident lack of reach of the state that it exposed, necessitated the assistance of a very large, global network of state and non-governmental agencies in both delivering basic and vital services and in providing resources, not least technical expertise. To this end, Hunnarshālā's work as part of a local NGO network (Kutch Nav Nirman Abhiyan) augmented state, national and international government (UN Disaster Management Team, Asian Development Bank and World Bank, for example) rehabilitation programmes, and operating at times in conjunction with *panchayats*, constitutionally mandated village-level bodies, democratically elected to represent the needs of the communities within local and regional government, independent local NGOs elsewhere in the region (UNNATI, for example), in communication with international agencies operating in the area (for example the Red Cross, CARE India and Misereor), in collaboration with agencies further afield through knowledge sharing (Slum Dwellers International, for example) and drawing on scholarly evidence, positioned them within the general trend towards contemporary notions of a globalised participatory democracy. To this end, the notion of a coproduced synthetic vernacular architecture, the primary function of which is empowerment via the production of 'the house', operates as a component in the actualisation of a deep democracy; indeed it embodies the notion. This puts it in contrast to participatory design which operates at a site-specific scale to affect immediate improvements in the design (and therefore production) of artefacts, and may well serve as a tool within a deep democratic agenda but does not appear to pertain to this end in and of itself, unlike coproduction. For this research it is this context which constitutes the significant political context, rather than post-disaster scenarios. Furthermore, because the research was not in many respects dealing with a post-disaster context but one which had, over the intervening seven to eight

years, largely re-established itself (with varying levels of success), the more significant reality was that of the emergence of new democratic structures, certainly 'enabled' by the earthquake, but nonetheless largely independent from it. As such, Appadurai's notion of deep democracy is much more significant to this research, although it is not used as the theoretical basis of the research which is more concerned with the processes of housing production.

4.2.3 Processes

The processes by which Hunnarshālā's co-create buildings are varied because the architectural approach emerges from an ODR agenda. There are nonetheless certain characteristics to each project which can be gathered into a something like general description of their processes which will be expanded upon in the three examples of Sadar Nagar, Hodka and Junawada described below. This general description is tabulated in Appendix 4. The table expresses a speculative 'ideal' development process as understood through the case studies and through the descriptions of those people who composed Hunnarshālā at the time of the fieldwork.

As Appendix 4 illustrates, Hunnarshālā work as an intermediary between the state and communities and are endowed with control over the design and building of construction and reconstruction projects. Further, both state and charitable funding is channelled through them, giving them a very great measure of financial control as well. However, Hunnarshālā centralise the recipient communities in the urban development process, and consequently the communities needs and wishes, by handing control of the funding over to the community (how money is spent and on what, etc.), as described later in this chapter through each case study. In so doing, Hunnarshālā's intent is not to represent the state to the communities but rather become advocates of the community to the state (personal interview with Sushma Iyengar 03/10/2008). In this way Hunnarshālā, working within the financial and regulatory constraints of the State, and bringing to bear on the development process an architectural-technical know-how, attempt to empower communities, enabling them to promote their own ideas as to how urban development should be done to best meet their needs in the given context. This approach ensures a critical place specificity that

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may otherwise be absent from more centralised approaches. In this way indigenous and/ or local knowledge becomes central to Hunnarshālā's work, in synthesis with their technical knowledge and the development goals of the state and national and international organisations.

Coproduction for Hunnarshālā in this context operates on a number of scales and to serve a number of purposes, each with diverse significance. Firstly, the coproduction is *organisational* or *strategic*, requiring the coordination of the needs and requirements of varied actors' agendas, from national and regional government to local *panchayats*[53] and families. In general these agendas are closely aligned beforehand (in short, sustainable social, economic and, latterly, environmental development) but nonetheless a clear and authoritative plan of action and process is required. Secondly, the coproduction is *social*, requiring the interplay of local, non-institutional actors with the particular community for a common benefit. Whilst informal private transactions (for services, goods, etc.) are ordinary, the widespread destruction visited upon Kutch by the earthquake has demanded a level of development which far exceeds anything normally encountered. In such a context of massive need transactions with building material suppliers, for example, alter drastically, requiring new approaches to acquisition. In this instance, Hunnarshālā's role is both organisational and managerial, establishing and overseeing secure links between individuals, communities and private enterprises. A further aspect of this social coproduction can be seen intra-communally, new associations (and perceptions of capacity) emerging through the development work, for example between women and men. Thirdly, the coproduction is *technical*, demanding the synthesis of traditional socio-spatial and technical knowledges embodied within communities, with Hunnarshālā's modern techno-scientific knowledge and practice. As with social coproduction, technical coproduction has social consequences, emerging as it does from communal discourse.

Hunnarshala's processes of development are as varied as the projects with which they work. Linked only by the common thread of the 2001 earthquake, the traditionally distinct communities require very individual programmes of development. This is demonstrated in the three exemplar projects described below, none more so, paradoxically, than in Sardar Nagar where the heterogeneous, composite community that makes up the population of the relocation site have so far failed to implement to any great degree collective processes.

[53] *Panchayats* are elected village or town councils in India.

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In contrast, homogenous communities, such as those in Hodka and Junawada, have proved to be more inclined towards collective production arrangements that utilise the resources and skills to be found located outside their communities. Consequently they have proven to be 'easier' to work with, readily adopting a collective vision of communal needs and requirements and, consequently, a willingness to engage in the necessary complex and incremental negotiations with multiple state and civil society actors.

Superficially, the processes of development undertaken in Hunnarshālā's work at Junawada, Hodka and Sadar Nagar appear comparable to customary participatory development practice, involving community consultation, participatory design and where required self-/community-build. However, both as part of a larger network of emancipation- and education- orientated NGOs and in conjunction with state bodies who are ostensibly sympathetic to alternative redevelopment practices (see Gujarat State laws made in the wake of the earthquake), Hunnarshālā have been able to pursue a deeper engagement with the communities in pursuit of more robust, actual emancipation. Each project is taken as an opportunity to promote democratisation and modernisation, which can be seen to serve the objectives of the state, of civil society and of the communities themselves. This is well evidenced at Sadar Nagar which, despite the manifest and continuing failure of the state and the community (as a whole and as a set of individuals/ families) to pull in the same direction, has become a test-bed of social action programmes designed to foster genuine 'cross-cultural' engagement.

In short, Hunnarshālā does not permit of a singular description. It is rather a body that is defined by the instances of it occurrence (much as I argued with coproduction). Whilst it has a reasonably definable agenda, loosely emancipation, education and contingent empowerment (or better perhaps 'recognition, distribution, and participation' [Schlosberg 2004: 518]), the projects it has undertaken are extremely varied. Because of the grass-roots and community-led approach it takes, this has produced great variety. Using three instances of Hunnarshālā's work in post-earthquake reconstruction, I will describe what was undertaken and by whom. In the following chapter I will analyse these projects in an attempt to identify the nature and type of coproduction undertaken and vernacular architecture produced, and the approaches effectiveness at addressing issues of 'environmental justice'.

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4.2.5 Summary - Precedent, Intention and Realisation

Each of the descriptions of the three case studies following this are organised according to Precedent, Intention and Realisation, described above, which corresponds in turn to the historical context, the notion of an 'ideal' architectural form as constructed by those actors involved and finally what was eventually built. As the case studies demonstrate, whilst it is possible to describe a speculative development model (see Appendix 4), architectural form at domestic, cluster and settlement level is almost entirely dependent upon the conditions (that is, the social and environmental context) on site, conditions which are accelerated by coproductive reconstruction approaches. Kutch has great variety in the type, scale, form, aesthetics and construction of its indigenous buildings (as the literature suggested should be the case with vernacular architecture) such that rebuilding work that purported to be site-responsive would necessarily be varied too. In addition to this, the site in a coproductive development, because it is concerned with networks of relationships, takes on a social or political aspect, with issues of budgets, inter-and intra-agency cooperation and overarching cultural structures (such as caste, creed and gender roles) affecting the design of peoples' homes. As such, it is not possible to propose a synthetic vernacular formal house typology as characteristic of the work of Hunnarshālā; the organisation's approach is to attempt to react to the social and environmental conditions to hand rather than presuppose an architectural solution, a fact borne out by the design variety to be seen in the three case studies.

Nevertheless, as Appendix 4 illustrates, certain themes can be seen within an idealised development, emerging from the principle of owner-driven reconstruction, to which each actor is (or must be) orientated. ODR demands different things from each actor-group. Hunnarshālā's process begins with a careful analysis of the site as a socio-cultural (artefacts and processes) space through ethnographic and quantitative data gathering (observation; dialogue; surveys; technical analysis) and through documentary and archival evidence and through participatory exercises. This in turn drives an agenda of attaining legal recognition for the community as a means to land rights and rights to compensation (where applicable), through representation by communities themselves via legitimate local democratic bodies. Finances in this model are community held, distributed into the community at various levels to spend on built fabric according to need, with safe-guards in place to reduce the chance of misappropriation. Synthetic vernacular technologies are devised according to

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local custom, in conjunction with contemporary technological know-how to produce appropriable construction systems which will ensure future safety. Hunnarshālā assist with the acquisition of materials using these funds through self-organising and self-regulating trading schemes which increase the chances of value being attained in the marketplace. Secure future development within a community is assured through replication of the initial processes, possible due to the attainment of legal rights of tenure.

4.3 Sadar Nagar

In this section I will introduce the first case study, the post-earthquake suburban relocation site of Sadar Nagar. The case study is set-out in five parts, each part constituting an element of the 'data' acquired through fieldwork and bibliographic and archival research. So as to enable an analysis of Sadar Nagar as an example of coproduced synthetic vernacular architecture, the data description is presented in a chronological way, thereby permitting a comparative analysis between precedent, intention and realisation in terms of the artefactual (interpretative), oral (ethnographic) and observational (ethnographic) evidence. The description begins with an outline description of the site, the origins of the development and the forces that gave shape to these, particularly the institutional post-earthquake reconstruction decisions which shaped the agenda, production and form of the development. This is followed with a) a description of the various contextual precedents that have been influential to this scheme, b) an exploration of Hunnarshālā's design intention through an examination of their designs on paper (i.e. prior to construction), and their written and spoken rhetoric before, during and after the projects had been implemented, and c) a description of the built reality as witnessed by the various actors involved in the development project, i.e. through ethnographic and interpretative methods. A summing-up will complete the section. It is worth stating that the divisions created in these case-study descriptions, whereby the production, actors and artefacts are treated as separate entities, as are the precedent, intention and realisation, is not an entirely satisfactory approach to describing the reality of the field; indeed it has somewhat hampered the processing of the data by creating as it does false distinctions which then have to be observed *contra* reality. Rather, the divisions are there simply to provide a framework for the sake of 'literary' progression and continuity.

Context

The city of Bhuj has two distinct identities: on the one hand the city is viewed as an historic, modernising Gujarati city, rich in folklore and infused with memories from its 500 year history as a princely state. On the other, it is viewed as the casualty of a vast earthquake in 2001 which rendered down much of the intricate architectural fabric and necessitated an almost total reappraisal of the city's identity in response to the emergence of a modern paradigm in this old place. It is this tension which governs this research's approach to Sadar Nagar as an architectural and social context.

Sadar Nagar is a suburb of the Bhuj metropolitan district. Established after the 2001 earthquake-Sadar Nagar originated as a temporary site for the earthquake-affected poor. An area of 20 hectares to the 4 km east of Old Bhuj (see Fig. 4.2 below) and home to more than 3000 families, Sadar Nagar was, at the time of fieldwork, in many ways a very useful example of a post-disaster reconstruction project: moments of good and largely complete urban and architectural planning and construction interspersed within a general atmosphere of incompleteness and decay. Sadar Nagar however cannot be 'read' outside the context of its emergence, which is the earthquake and the destruction of Bhuj. Simpson and Corbridge describe it with an evocative narrative:

> In India, 26 January is Republic Day, a national holiday. The celebrations of 2001 marked the fifty-first anniversary of the promulgation of the Indian Constitution, and flag hoisting ceremonies were underway throughout the country. In Bhuj, Suresh Mehta, then Minister-in-Charge for Kachchh, was waiting in the Government Rest House for the celebrations to commence. Fifty kilometers away, in Anjar, a procession of schoolchildren was making its way joyfully through the town. At 8:46 a.m., an earthquake measuring between 6.8 and 7.9 on the Richter scale struck the region.

> Kachchh bore the brunt of the tremors and accounted for more than 90 percent of the fatalities in Gujarat. Around 1 percent of this sparsely populated and relatively inaccessible area lost their lives. Most of the damage to life and property was concentrated in central and eastern zones of the District. Before the earthquake, Bhuj, the modern administrative center and an ancient seat of kingly rule, was a

bustling commercial town famous for its well-preserved architecture and craft traditions … On the morning of the disaster, Suresh Mehta was in the town. Realizing what was happening, he sheltered in a doorframe as he had been told to do since he was a child in the event of an earthquake. After the shocks had subsided, he made his way by car and later on foot to hoist the national tricolor, as was his duty. He recalled how the air was full of dust, the town was wrecked … and how fallen buildings impeded his passage; but he was one of the lucky ones. More than 2,000 people died in Bhuj, or about 1.72 percent of the town's population. (Simpson and Corbridge 2006: 571)
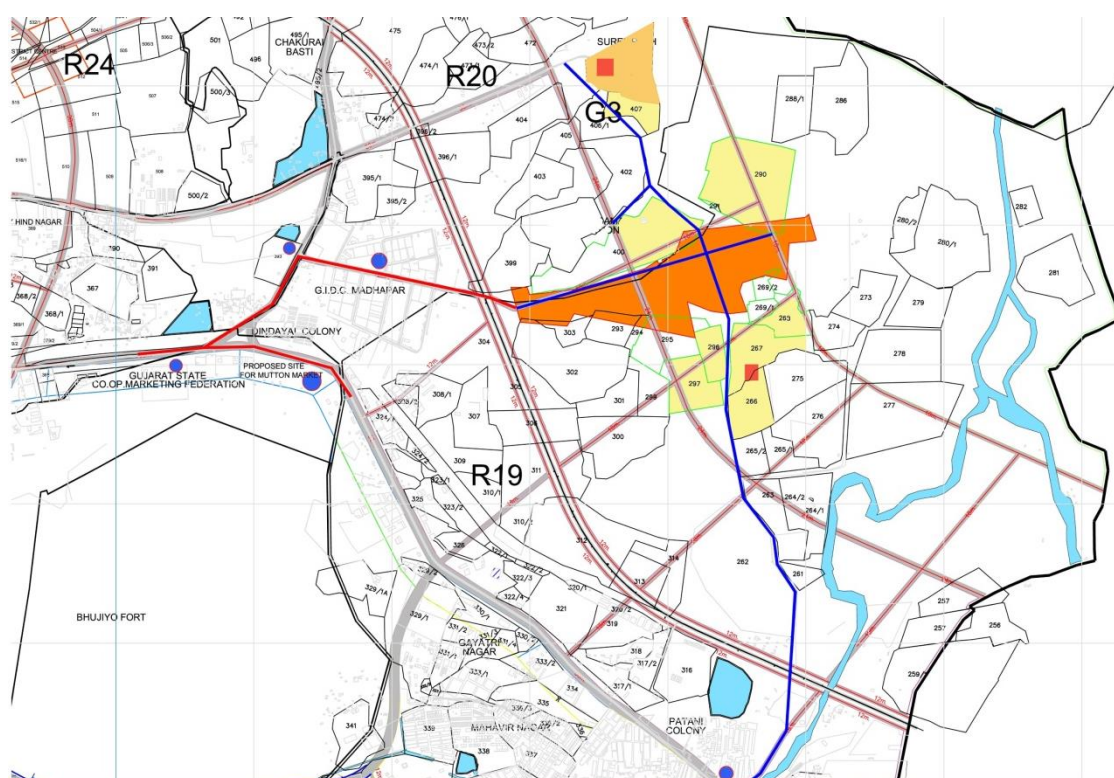

Fig. 4.2: Sadar Nagar (in orange) to the east of the city (Image courtesy of Hunnarshālā.)

Sadar Nagar is orientated east-west off the main road leading north-west out of Bhuj proper. The settlement was established on functionally empty land to accommodate households from earthquake affected urban areas but, due numerous institutional, bureaucratic and communal factors, not least a lack of desire amongst the population to even *be* there, did not receive as much focused attention as it needed to flourish. Consequently it rapidly threatened to become a permanent slum whilst the rest of the city and region was rehabilitated. Households (i.e. families and their house) in earthquake affected urban areas were classified in two ways. Firstly, five categories (G1, G2, G3, G4

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and G5) were defined representative of the level of severity of the damage done to their dwelling by the earthquake, with G1 indicating mild damage (to the house) and G5 indicating total destruction of the house. Action on the dwellings (and other buildings) was taken in relation to this classification. Residents in buildings categorised G1 (mild damage) to G4 (badly damaged) were compensated where necessary and the housing was repaired. G5 dwellings were cleared, which necessitated the re-housing of those residents not be able to find housing themselves elsewhere. A secondary classification was devised in response to the redevelopment programme undertaken in Bhuj which involved improving access and security in the city through road-widening and slum clearance (see Fig. 4.6), which necessitated the demolition of large swathes of housing, both formalised and that which had been constructed by people who had no legal rights to the land or who were without documentary proof of tenure. These 'cleared' residents had to be re-housed too and were categorised either as Development Plan displaced (DP) where legally housed or development plan unauthorised households (DU) where legal tenure was not in evidence. Finally, as part of the redevelopment of Bhuj, landlords were offered some funding to renew their earthquake-damaged properties in exchange for allowing the continued tenancy of the existing residents; most landlords refused, preferring instead to evict their often very poor tenants and rebuild on their own (thereby regaining full control of their property); the evicted tenants thus also required rehousing, but did not constitute a 'bloc' as did the DP and DU households.
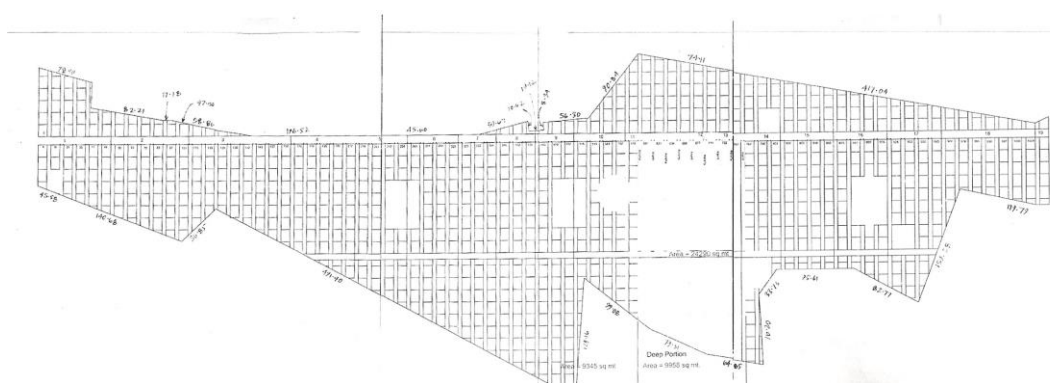

Fig. 4.3: Layout of housing for earthquake-affected at Sadar Nagar. (Source: Hunnarshālā internal document) The uniform, grid-like plan suggests an egalitarian agenda which belies the caste and creed-division designed into it. (See Fig. 4.4 below.) (Plan from internal Hunnarshālā presentation document, March 2005)
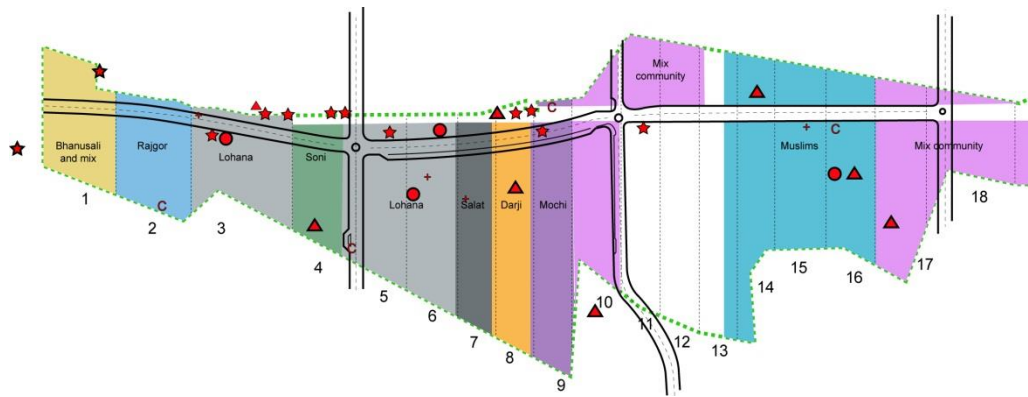
Fig.4.4: Sardar Nagar 2001 showing initial zoning according to caste and religion, as instituted by state authorities. Each colour represents a different caste or religious group (i.e. Muslim). See Appendix 5. (Plan from ibid.)

As suggested, the social form of Sardar Nagar can be seen as a central contextual influence. On establishment directly after the earthquake in 2001, the area was divided into caste and religious zones (see Fig. 4.4 above) and the re-located people from Bhuj allocated a temporary shelter according to this. These groupings were evident within Old Bhuj before the earthquake although they were not seen by those I spoke to as being as distinct, having emerged organically as the city developed, permitting a measure of community across social divisions. Sardar Nagar was, in contrast, made up of 'many strangers' according to one resident. Newer immigrants into Old Bhuj from the countryside appeared to co-operate with this [self-] segregated condition, establishing caste and ethnic settlements, often informally where space permitted. As such, the establishment of caste 'zones' within Sardar Nagar's is not new and sits within an established pattern. The separate zones for Muslim residents within the masterplan for Sardar Nagar (sky-blue colour) also mirror a common characteristic of 'social organisation' elsewhere in the region, particularly amongst poorer communities in which the Muslim population is often found.

The lowly paid, often informal work common to the region (and to India generally – see Sengupta, Kannan, et al. 2007: 1) constitutes a key conditioning factor in the development of a suitable architecture for the area. The funding arrangements established after the earthquake, through which each re-located household was given compensation and a plot of land in Sardar Nagar (the cost of which was deducted from the compensatory grant) by the Bhuj Area Development Authority (BADA), necessitated the provision of external funding to cover the costs of building a house, particularly from civil society organisations but also from the financial sector in the form of credit. This money was given with various criteria attached which dictated to a great degree the processes of building and the low-cost

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technologies used, as well as the architectural forms which had to be designed to allow for incremental construction.

The two subsequent case studies describe the division of roles and expectations between men and women in the communities. Sadar Nagar differed in that, as an essentially urban community, the types of ordinary social engagement between the sexes manifested more urban characteristics in that they did not appear to be prescribed by custom (particularly those relating to hierarchy and dominance), as I later encountered in more rural places but were, rather, spontaneous, reactive and fluid. As such, women and men interacted relatively freely, a situation which enabled me as a foreign male researcher to engage with a broader segment of the community. The existence of a more equal relationship between women and men can be viewed in two distinct way; on the one hand it can be seen to act as precedent for the development process insofar as the housing provider arguably entered the process knowing that, having been given a platform from which to interact and intervene, female community members would work to ensure that their needs and desires are met to some degree. On the other hand, it is possible that the housing providers (both Hunnarshālā, other civil society actors including international aid bodies, and government) influenced the participation of women and as such it was functionally coercive, even if beneficial.

4.3.1 Precedent

Precedent in this research refers to the formative social and material conditions which can constitute a grounding narrative in an architectural development. This may include historical or contemporary architectural, urban and social elements.

Ascertaining what may constitute precedent at Sadar Nagar is not easy insofar as the place is newly built and the community newly formed out of many diverse groups and places. As such, and in contrast to both Junawada and Hodka, there is no singular narrative thread found in or attributed to the community as to social and architectural identity, but rather a polyphony of disparate and often conflicting voices. Following this, urban and architectural precedent within the cultural languages of the community (what the form of 'housing development' is understood to be) are diverse and not, on the surface of it, entirely

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reconcilable. Nonetheless, the research has identified certain commonalities in both rural and urban Kutchi architecture through observation and relevant literature which allow an analysis of cultural continuity within the urban development as intended and realised in Hunnarshālā s' work. These commonalities are of particular relevance in a place such as Sardar Nagar where the heterogeneous social composition could be deemed to place certain demands on the architectural and urban form. Further, Sardar Nagar is a suburb of Bhuj and therefore part of the urban sphere; it can, broadly speaking, be understood within this continuum, as having characteristics of the urban as it is found in Kutch. As a relocation site its lack of history, its rawness, will diminish as it takes its place within the city. It is in this temporal context that Hunnarshālā s' intention has to be read, that although Sardar Nagar is presently a new environment to be sustainable it needs to have history built into it so that as it is subsumed by the expanding city it sits easily within the cultural continuum of what has come before.

Architectural precedent

The architectural precedent, which necessarily had a bearing on the form of Sardar Nagar (insofar as the intention of Hunnarshālā was to design within the existing vernacular traditions found in the region), is as suggested, both urban and rural in origin. There also appears to be common architectural and urban themes amongst the various domestic forms found in Kutch, as identified by Udamale (Udamale 2003) and observed during the fieldwork, consistent urban and architectural characteristics relating to privacy, approach, socialising, 'ghettoisation', environmental control, craft-work, craft-decoration and what may be termed 'zoning' on a macro (city/ village), mezzo (neighbourhood/ cluster) and micro (house/ threshold or *otla*) level, ways of forming a house, a street and a neighbourhood which, whilst social practices have changed, have endured over time and between communities.

As such the *pols* of Ahmedabad (Fig. 4.5 adapted from Raman 2003: 6 cf. VSF, 1998[54]).), the courtyard houses (and even, from observation, contemporary informal settlements) of pre-2001 Old Bhuj (Fig. 4.7), the clustered housing of the *harijan's* in Bidada, southern Kutch (Fig. 4.9 adapted from Udamale 2003: 56), and the Jat communities of Banni (see

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[54] Vastu-Shilpa Foundation, 1998, *JethaBhai ni Pol, Kadia, Ahmedabad*, Ahmedabad, VSF cited in Raman 2003

Fig. 4.41 adapted from Jain and Jain 1992: 123), all manifest a similar approach to spatial, architectural organisation as well as to traditional *salaat* construction practices (Tyabji 2006: 68). Emerging to some degree from the climatic conditions of the region (Udamale 2003: 40), this spatial continuity not only implies the intention for a level of 'stability' within socio-spatial practices (if not in realisation), but also a connection between social and built form. This in turn suggests the reasonableness of establishing an housing typology suitable for a neighbourhood composed of disparate social groups from a wide geographical area; it can be construed that those people due to live in Sardar Nagar will expect houses to have certain elements arranged in certain ways in which they can undertake particular and general activities in culturally relevant ways both in relation to and in response to specific environmental and social conditions. This is not to say that a singular housing typology is in evidence in Kutch; as Max-Neef's analysis of human needs demonstrates, whilst needs may be stable and definable, satisfaction of these needs is very varied (Max-Neef 1991: 16-17).

Fig. 4.5: Pols, Ahmedabad. The clustered housing, radiating off small private courtyards or *chowk*, serves as a locus for familial/ caste interaction; pols tend to be inhabited by discrete social groups (source: adapted from Raman 2003: 74.6). The urban informs the architectural in such a condition; the layout and fabric is concretely set and expansion has to occur vertically which, in light of available materials, technologies and money, occurs along established lines, in line with precedent. The above figure indicates intensifying levels of privacy (pink = public, red = most private).

Fig. 4.6: Old Bhuj, post-2001 Development Plan renewal, showing the 'clarified' road layout with emphasis placed on porosity and the contingent decline of the pols-like urban form. (Adapted from Tyabji 2006: 238)

Settlement - cluster – house

Fig. 4.7: Old Bhuj, pre-2001. (Adapted from ibid.)

Old Bhuj was a complex web of interconnected lanes and alleyways linking primary streets. As can be seen, however, many of the more major roads did not afford passage out of the area but dead-ended at neighbourhood *chowks*. These spaces were the setting for neighbourhood activities, particularly relating to religious practice around temples situated at intersections. The intersection of smaller roads and lanes would serve the more immediate locality as a place for social gathering. Each 'block' would have been centred on

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a familial or caste *chowk* onto which a few houses would have opened. Such a group of houses are known as a *falia*. The high death-toll in the earthquake was in part attributed by both experts and locals alike to the extremely dense network of narrow alleyways with few thoroughfares, which did not allow people to get away from falling buildings.

As can be seen from the above map (Fig. 4.7), the traditional urban street pattern displays considerable density and limited 'porosity', instead demonstrating a tendency towards quite specific clustering based around family and caste. Also, a specific hierarchy of importance in terms of the social functions prescribed for it is also displayed (Fig. 4.8). The main *chowk* (1) is used both as a market and as a *maidan*[55]. It is a large, open public space situated at the intersection of the main streets and functions as the 'the hub of community and economic activities' (Udamale 2003: 42). The intersections of smaller primary streets function as major communal spaces as well (2), generally providing the setting for a temple or similar civic/ social building (ibid.), tertiary street intersections serve as neighbourhood centres (3) and the narrow lanes that stem from these leading to *aangans* (4), *chowk* onto which five or six houses face, used by these houses for shared social occasions. This pattern is still in evidence in places in Bhuj, although radically altered by the development plan. The domestic intimacy evident at *aangan*-level may also help explain the tendency towards caste-based social-grouping (Raman 2003: 13). This ordering can be seen at *mezzo* level too, as described by Sanjay Udamale in the Harijan community in Bidada (Fig. 4.9).

1.
Shared door front ~ aangan

2.
Neighbourhood space

3.
Main street *chowk* as community space
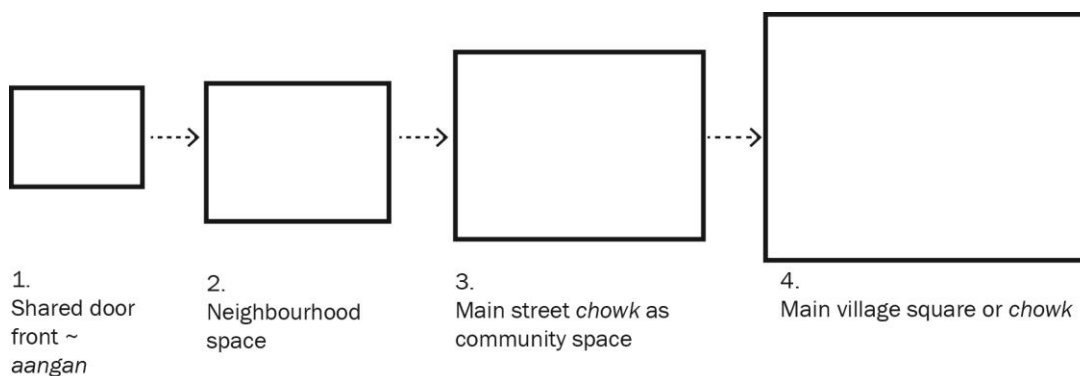
4.
Main village square or *chowk*

Fig. 4.8: Hierarchy of open spaces in traditional Kutchi urban form. (adapted from Udamale 2003: 42)

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[55] A *maidan* is an open space or parade ground used for public displays.
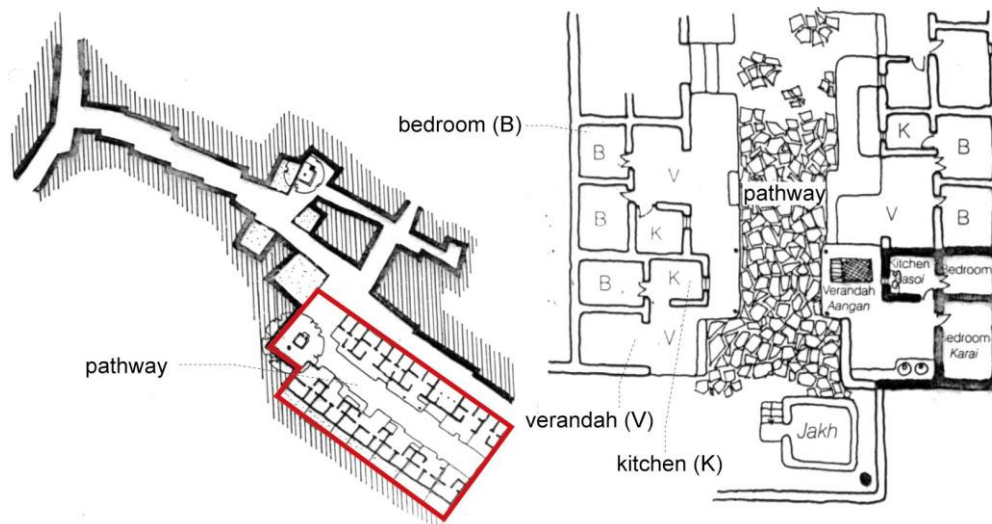
Fig. 4.9: Harijan community, Bidada, southern Kutch (adapted from Udamale 2003: 56).

The Harijan community in Bidada established the main road through the community as a communal courtyard or *chowk,* thereby controlling approach into their community and establishing the street as a semi-private space. A temple marks the junction between this semi-private road and the village at large. The individual houses relate to courtyard-street, fronting it with verandah which serve as both a buffer to unwanted intrusion and as a semi-private places in which to meet visitors. They are not a 'garden' so much as an open room, satisfying the same function as the *falia*-type cluster does in Banni settlements, although to a lesser degree. It is common for men to sleep on the verandah. Beyond each verandah is more private still, although 'available' to the verandah and street beyond, and is where food is prepared and daily work is undertaken. Thus there is the capacity for dialogue between home and street, between public and private, but one that can be controlled. The bedrooms, set at the back of the houses as far back from the street as possible, are entirely private.

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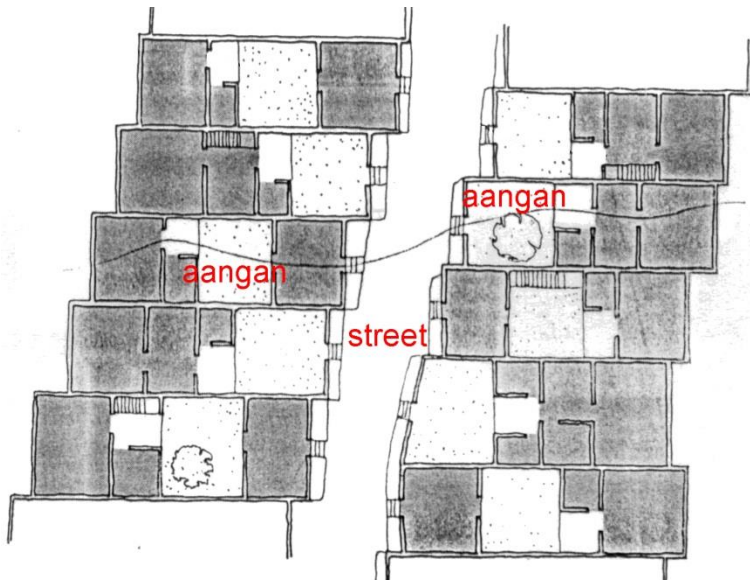
Fig. 4.10: Plan of houses forming a street of terrace-type housing, Bidada, Southern Kutch (adapted from Udamale 2003: 40)

aangan   street aangan
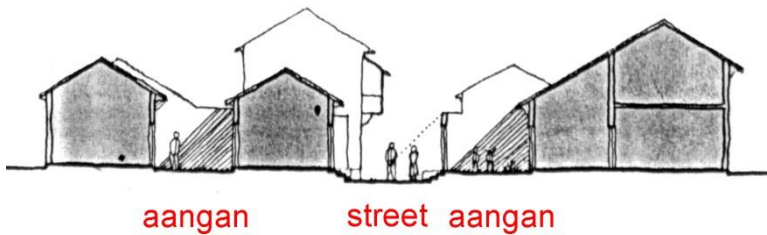
Fig. 4.11: Section of street with terrace-type housing, Bidada (adapted from ibid.)
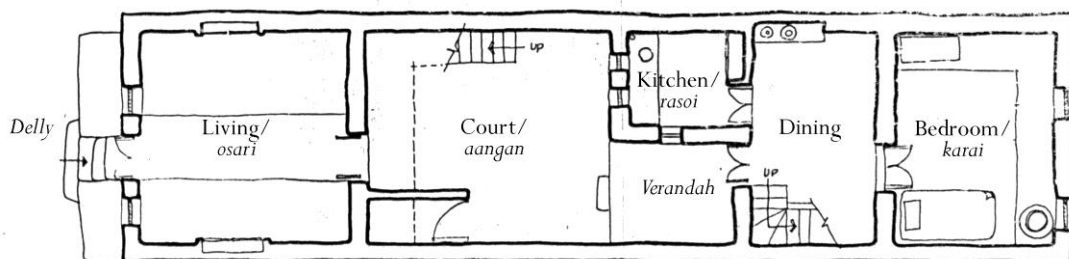
Fig. 4.12: Plan of terrace-type house, Bidada (adapted from ibid.50)

4.3.2 Intention

Development Process

Hunnarshālā's involvement in the planning of Sardar Nagar on both the urban and domestic scales was informed by architectural precedent from the region, drawing upon commonalities of spatial organisation found between rural and urban environments. Whilst precedent informed the design process, it cannot be said to have dictated it. Rather, as

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designers involved in global discourses on material, social and environmental culture and further, being aware of the persistent demands for the perceived fruits of modernity voiced by the communities (like clean water and bus routes), Hunnarshālā approached Sardar Nagar with a *synthetic* agenda, that is, with view towards integrating culturally embedded notions of dwelling on both a personal and communal level, with broader socio-cultural concerns, such as climate change and agendas of social emancipation. This synthetic approach is, then, composed of architectural/ artefactual and social elements. These are not discrete but emerge simultaneously and symbiotically out of the discourses within and about the community as a social and material entity.

In conjunction with their associate organisations within the KNNA fold, Hunnarshālā's method is based around an 'owner-driven reconstruction' (ODR) approach. ODR is 'a reconstruction approach that enables home owners to rebuild their houses themselves (by hiring the necessary skilled labour), through a guided combination of financial and technical assistance, and a regulatory framework that would ensure access to good quality and affordable construction materials.' (Duyne Barenstein and Iyengar 2010: 163) However, the approach does not disallow expert intervention, the aim always being to 'build back better'; in conditions prone to natural disaster for example, hazard-resistant housing technologies constitute a basic need not currently available. Expert assistance can address this, as seen in the employment of concrete ring-beams in houses in Sadar Nagar.

The ODR approach, as implied in the above quotes, has both a philosophical and practical grounding. On the one hand it promotes an idea of the possibility of empowerment and dignity through the creation and maintenance of urban environments by the residents, on the other the idea that it is a practical way of best improving the conditions of the poor or destitute. Both these aspects are evident within Hunnarshālā's professed approach and are predicated upon an idea of social development, that through the renewal of domestic and urban environments through the application of culturally resonant, technologically contemporary artefacts and processes, they can 'change the perspective of the lower castes' (Prashant Solanky, Hunnarshālā – interview 24/03/10) so that they see themselves as valuable, competent humans and at the same time help them acquire decent homes. For this agenda to function effectively it is necessary to centre the development process around the community by stimulating the community to agitate for themselves. The primary or foundational process within Hunnarshālā's application of an ODR agenda is the nurturing

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of social groups and networks therefore, of creating a 'grassroots' movement. These grassroots will, it is intended, become the source of their own recognition and representation and,

Through the establishment of an active grassroots movement Hunnarshālā intend to elevate the community's status in their own eyes and thus as they are perceived by others, particularly through education in marketable craft skills. Through this it is intended that the community are enabled to influence the physical form of their urban and domestic environments in ways not possible when they were viewed as being only capable of receiving state or charitable largesse. As craftspeople they are more likely to be viewed as competent and capable of playing a useful role in design and construction. It is in light of the community's potential influence on the design process that Hunnarshālā advanced meaningful architectural precedent; because the concerns of the community were accepted as valid, the common donor-led reconstruction schemes were demonstrably not culturally relevant or sustainable (Jigyasu 2001: 13, Salazar 2002: 15), the cultural forms of dwelling in relation to social processes common to the community, as well as traditional methods of construction in combination with contemporary state-required elements, were accepted by state and civil society organizations as being a better way of making good places to dwell.

As a consequence of this more grassroots approach to establishing the design agenda, Hunnarshālā produced a series of masterplan and unit designs that emerged from a synthesis of vernacular and contemporary approaches. An understanding of the vernacular grew out of precedent as demonstrated, but also through dialogue with the community, in the form of workshops, meetings and community design sessions. Aspects of contemporary building practice came from regulatory bodies, such as Bhuj Area Development Authority who stipulated structural capabilities, spatial characteristics (particularly distance between building units and accessibility by emergency services) and tested and approved new technologies introduced by Hunnarshālā, such as stabilised rammed-earth construction, which they promoted as means of promoting aspects of their own agenda. Further, by the time masterplanning was commissioned financial conditions had been established; there was a fixed and low per unit budget. Such low funding necessitated both donor assistance and alternative construction materials and techniques, the price of regular building materials having inflated due to scarcity and need after the

earthquake. Designs which could be built incrementally as money became available to a population mostly occupied in the low-income informal economy were also devised.

Settlement

The masterplan can be taken as approximating the ideal of the designers, working within the various conditions imposed by the site, clients and brief. Fig. 4.13 shows the initial masterplan, based around the principle of community living and drawing on the regional tradition of courtyards or *chowks* as a means towards climate control, privacy and security. Further, it allowed for a replication of the social groupings and contingent sense of community that had existed in the new residents' previous housing. The plan also implies that the networked, porous quality of traditional rural settlements such as at Dhordo (see Fig. 4.41 below), also perceptible in Old Bhuj (that is, the Old City contained within the now derelict city wall), was approached as a necessary characteristic of traditional urban spaces. This has been designed within the framework of a gridded road system.
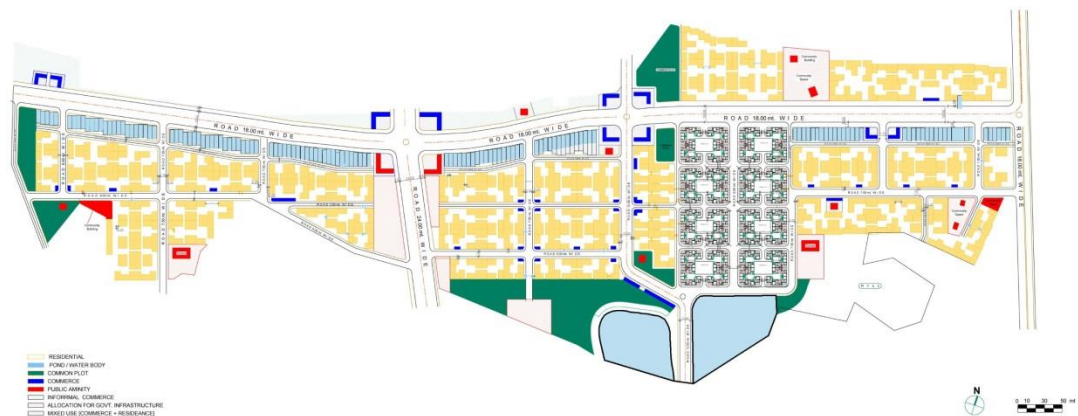
Fig. 4.13: Master Plan showing proposed transport, commercial (dark blue), public (red), common land, partly used as community farm (green) and residential (yellow) layout. The plan is relatively definitive, even going so far as to allocate space for 'informal commerce' (green hatch – land along north side of main east-west road). ODR cluster-housing has been proposed for the entire site (yellow polygons in the plan but shown in detail in part) as have pavements and an extensive sewerage/ water system. (Plan from internal Hunnarshālā presentation document, March 2005)

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Fig. 4.14: Detail of Master Plan ~ Neighbourhood. The variety possible in a ODR cluster scheme is intimated in the above plan, with an attempt to show how residents will be able to extemporise around a theme on a domestic/ familial scale and in relation to the urban fabric more broadly, inviting engagement at a number of scales, whilst all the time keeping in line with new regulation. (Plan from ibid.)

Cluster

The housing approaches the problems associated with other models of reconstruction architecture, particularly that of social dislocation (Salazar 2002a: 8) and also a lack of distinct space in which to live and work, by grouping clusters of around twenty houses around a communal *chowk* or courtyard, accessed off the primary roads at each side. In this way, the clusters retain a sense of privacy and (potentially) a distinct identity. Each cluster is composed of four smaller clusters of between five and eight individual housing units, again orientated around a smaller familial *chowk*. This can be seen to be directly drawing upon the traditional Kutchi form of a raised plinth acting as the platform for a number of *bhunga*, *chowk* and *chamod,* exemplified in Banni construction (See Fig. 4.42 in the Hodka case study ~ Headman's house, Ludiya).
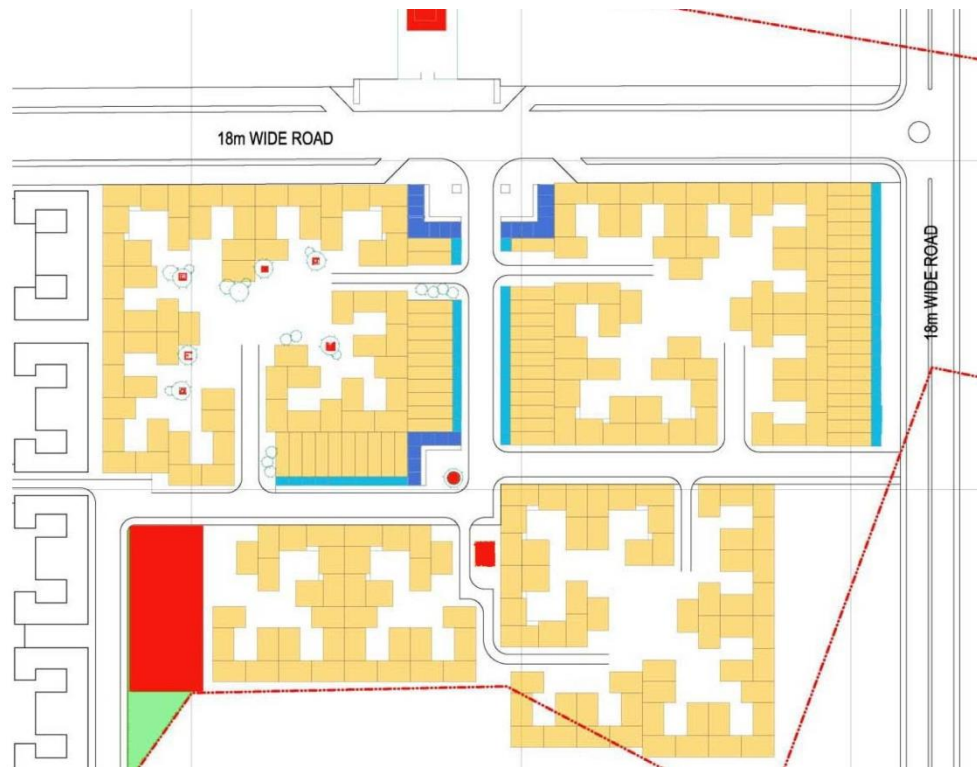
Fig. 4.15: Detail of Master Plan (Fig. 4.14, above) ~ Clusters. The ODR cluster housing approach appears to be systematic insofar as it promotes a set of typologically appropriate and more-or-less identical basic 'core units', designed to invite appropriation and alteration. The designer in this approach provides a 'structural framework', a flexible architectural and urban context.

Fig. 4.16: Model of housing cluster at Sadar Nagar. The 'scale of engagement' common to traditional Kutchi housing is apparent, (main street; community *chowk*; cluster *chowk*; domestic *falia*; *otla*; living room; bedroom), theoretically enabling traditional use. The abstraction of the plan becomes intelligible in a model and was a principal tool of Hunnarshālā in explaining their ideas to the community. Likewise, the intentionally vernacular design of the houses becomes clear. (Photograph by Hunnarshālā, 22.02.2004, adapted by author)
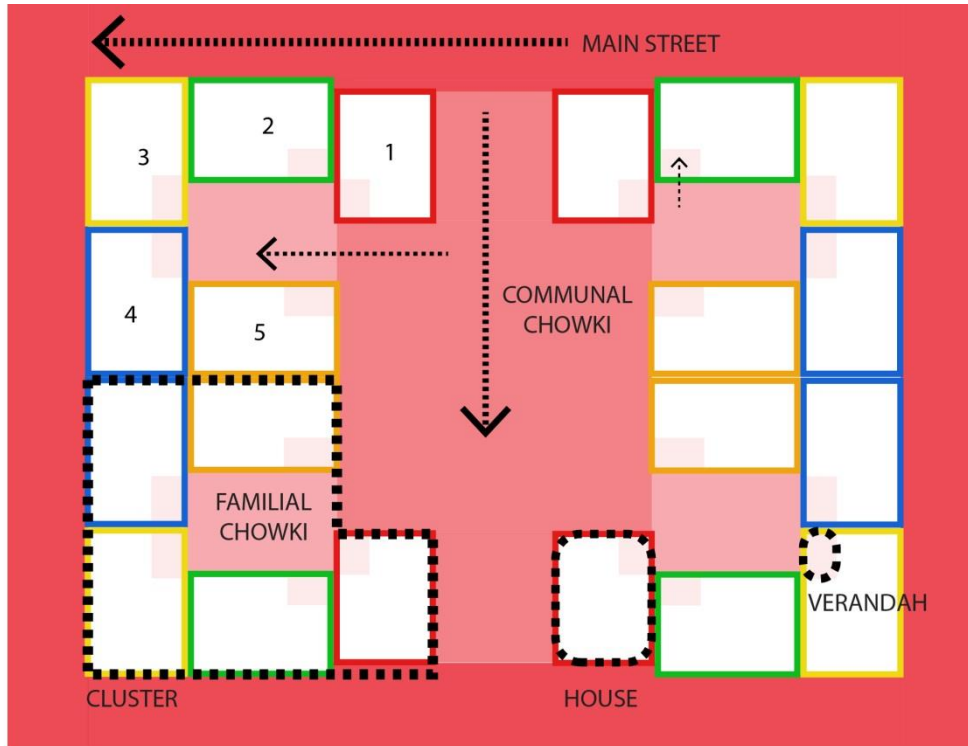
Fig. 4.17: Housing cluster showing gradations of privacy (following Udamale 2003: 50) and associated accessibility.

House

The individual units were designed according to the financial and regulatory constraints described above. They are urban in appearance, approximating the appearance of housing types found in the city and eschewing the 'more vernacular' aesthetic of, for example, the *bhunga*. Nonetheless the house can be read as an expression of the spatial characteristics common to Kutchi dwellings in general:

- the familial *chowk* set between the 5-8 houses, in which family activities can occur, can be read as akin to the plinth as found in bhunga constructions.
- familial housing clusters are set upon a raised plinth comprising the dwelling's extents
- the possibility of a progression of deepening privacy as one moves into and through the house
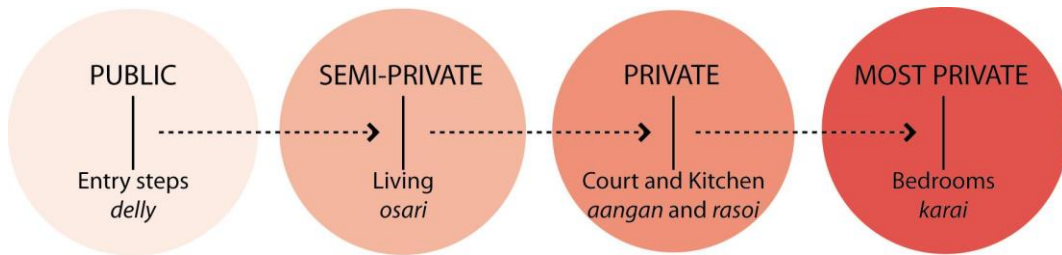
Fig. 4.18: Progression of space and privacy (adapted from Udamale 2003: 50 and 58)

- a verandah or *delly* on which one can receive people; this can also be read as a domestic, semi-public/ semi-private *chowk*

- an *aangan* for private uses, particularly those relating to the running of the household (for example laundry, cooking, eating, recreation and teaching). Traditionally this would have been the primary space for women who were not (and are not in more rural environments) frequently seen in public, although in Sardar Nagar this is not relevant.
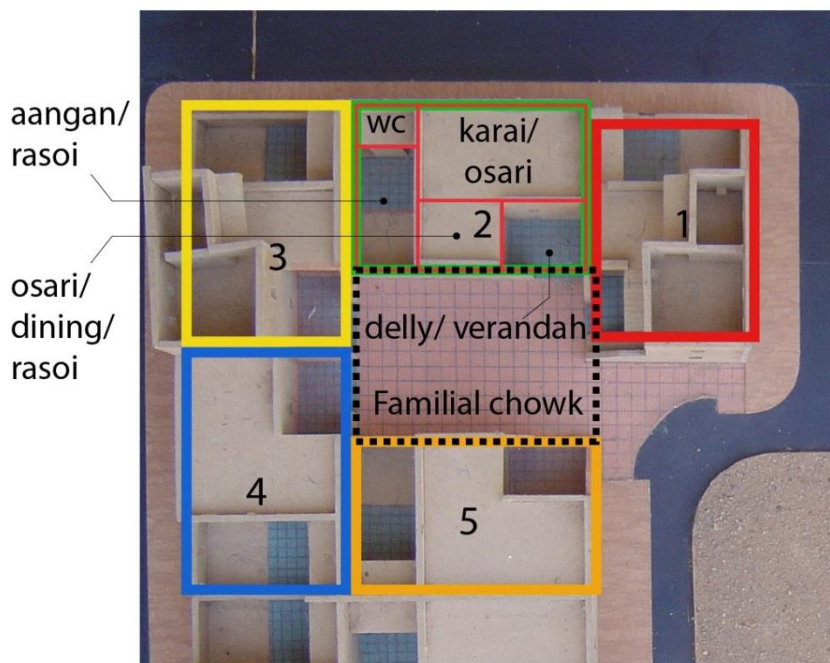
Fig. 4.19: Familial housing cluster showing spatial arrangement of five houses around a *chowk* and within individual house, annotated according to layout of traditional Kutchi town house (as per Udamale 2003: 50; Photograph by Hunnarshālā 22.02.2004, adapted by author).
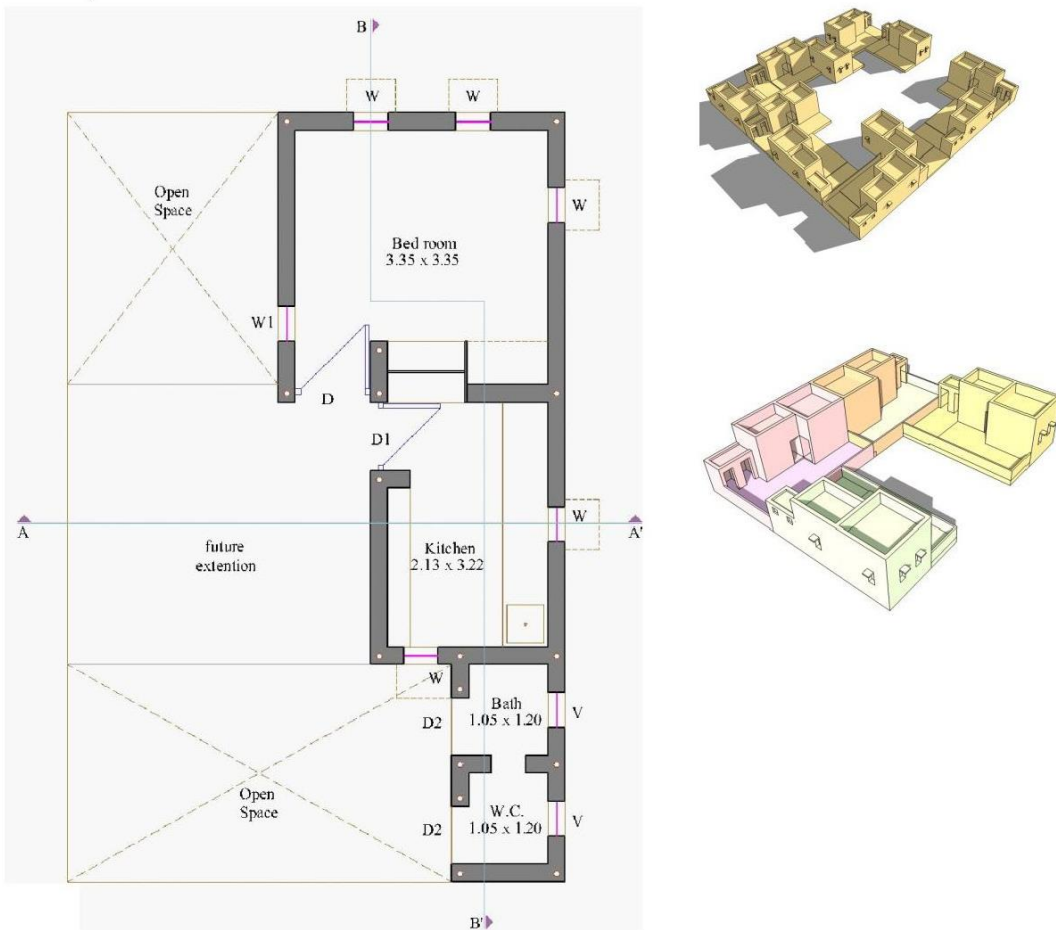
Fig. 4.20: Typical plan ('House A') as proposed as part of ODR cluster housing. Inset perspectives showing (top) housing cluster of such a plan and (bottom) familial cluster. (Source: plan image courtesy of Hunnarshālā, from internal document 10.06.2006; perspectives author's own)
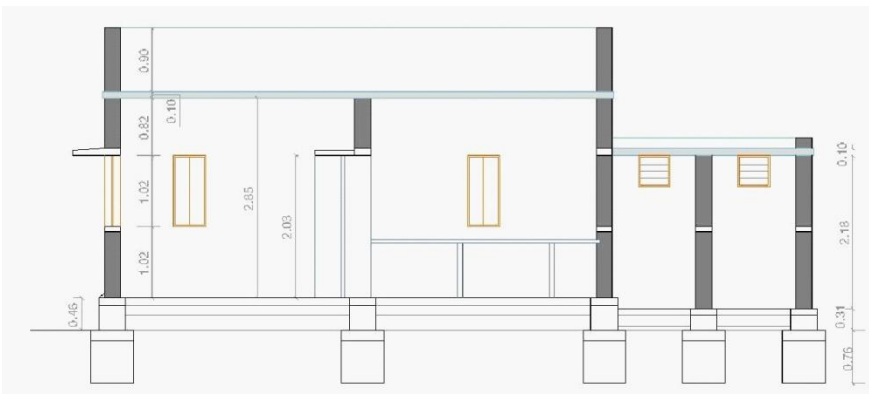
Fig. 4.21: Section B-B of 'House A' showing dimensions. Proportionally the new buildings are closely approximate to traditional Kutchi town houses, with high ceilings and small, narrow windows. The deep parapet wall allows the roof to be used as a secure ancillary space, often for sleeping. (Source: ibid.)

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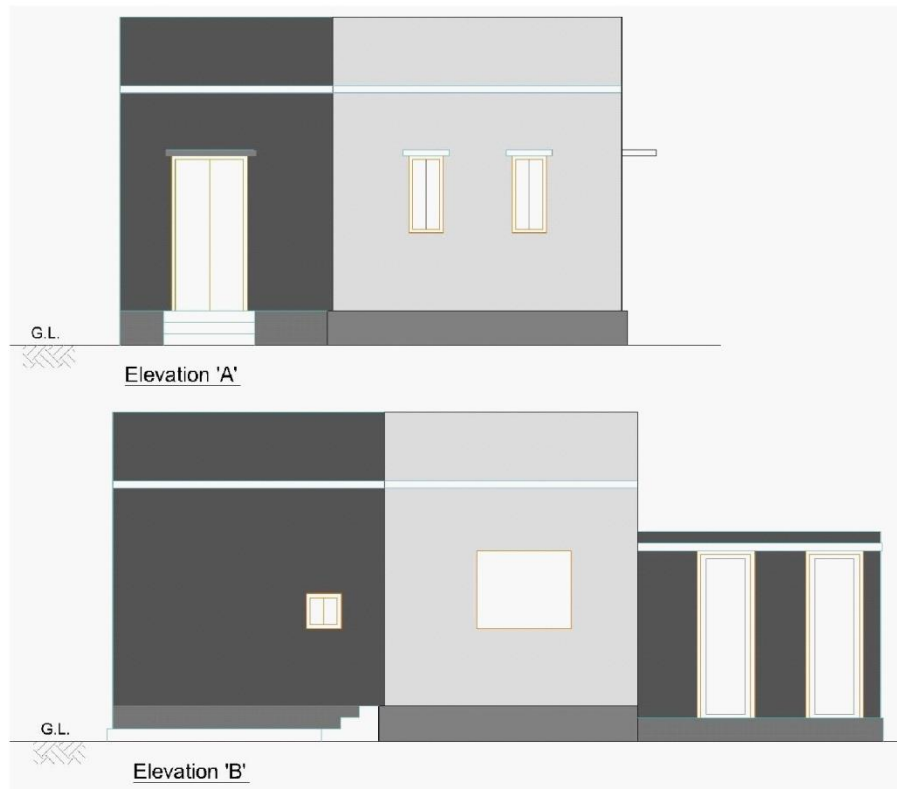
Fig. 4.22: Elevations of 'House A'. No attempt has been made to imply a 'suitable' or 'correct' finish to the units; they have been designed to be as basic as possible which is both cost-effective and non-directional. (ibid.)

4.3.3 Realisation

Development Process

The organisational aspects of the development at Sardar Nagar are characterised by complexity and a lack of clarity, the early promise and momentum generated after the earthquake having diminished considerably; most actors cited numerous, often conflicting factors for the schemes lack of progress and an atmosphere of conflict between state and community organisations had in part replaced the early co-operation. Changes in government personnel between 2001 and 2007, for example, meant that Hunnarshālā and the people had to rebuild their relationship with the authorities and prove their case a second time, which had proven to be a much harder sell. As of late 2011 the 'new' authorities were still apparently unwilling to provide land rights for earthquake affected tenants and many families continued to live in temporary shelters. Some sections of the community itself had been trying to take advantage of this situation, manifest most

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evidently in inter-religious and inter-caste tensions. On top of this, the authorities began to set unrealistic deadlines for construction in late 2006 which the community and associated civil society were unable to meet. This caused delays in the release of state funding which caused building delays.

The building works stopped making any meaningful progress before my first field visit in 2009 with many families remaining in temporary shelters. Even so, to understand Hunnarshālā's intention for a synthetic vernacular it is necessary to set the scene in which this vision emerged, described below:

A list of families eligible for loans, compensation and assistance was put together by BADA and KNNA out of the more than 3000 families that had, both through the categorisation of need process undertaken prior to the settlements inception (described above) and subsequently through incremental in-flow of houseless or disadvantaged people, settled at Sardar Nagar. Many of these had no 'proof of need' and so a new process was developed to arrive at a final list which involved testimony from community leaders, personal verifications and affidavits. 1100 families were identified as requiring assistance. This group was composed of three primary groups, represented by an elected committee of 65:

1. G5 tenants (165 families) ~ People whose Bhuj dwellings were damaged by the earthquake to G5 categorisation and had been demolished and cleared away, rendering the tenants homeless.

2. Earthquake displaced Tenants (465) ~ People whose landlords re-took control of their often illegally occupied property after the earthquake. Landlords and long-term tenants were offered a 50-50 split of compensation, with the intention of stimulating stability and private redevelopment. In general the landlords refused, presuming that they could reconstruct themselves and regain sole ownership of their properties, evicting the tenants. It was the first time BADA had tried this scheme to split the compensation between the landlord and the tenants. The Collector (head administrator for Kutch) agreed to help these people and

Hunnarshālā and their partners built 115 houses for those people the community had decided were most needy. Three hundred and fifty households required private financing and the allocation of land, which Hunnarshālā helped/ is helping to organise.

3. Development Plan affected 'unauthorised' families (327) ~ People whose houses were cleared during the renovation and road-widening that took place in Bhuj after the earthquake.

The 1100 families were given Rs.55000 compensation by the Gujarat State, from which the price of a 65 - 75m² plot of land was deducted at between Rs.100 to 150 per m², as well as a Rs.50 per m² development charge. However, not only did many families have other more immediate needs on which they spent much of the money, but the remaining Rs.40000 - 45250 was not enough to build a house. Hunnarshālā and other NGOs were invited to help fund and build the new homes with the beneficiaries making a financial contribution as well. The tenant categories (1 and 2 above) took bank loans of between Rs.25000 - to Rs.50000, supported by Hunnarshālā who helped demonstrate income levels and flow amongst the generally low- and irregular-income population to the satisfaction of the financial service providers. Hunnarshālā made grants of Rs.25000 - to Rs.50000 available for each household. About 270 extremely poor families were supported with a 100% housing grant from Hunnarshālā but had to pay for the plot of land.

From within these financial constraints, Hunnarshālā designed low-cost housing, ratified by the building control department, utilising recycled and waste materials such as china clay in the production of the rammed earth walls. Labour costs were reduced by enabling the residents to participate in the construction of their own houses and the houses of their community, overseen and organised by the community committee. All the houses were built to design by Hunnarshālā and with their oversight for a cost of between R.80000 to 100000. For example, in December 2006 construction for a single phase of 28 houses for the DP affected were completed, and achieved a total saving of approximately R.250000 by using self-build and innovative low-cost materials. The committee decided to use the savings to pay for the plinths for the plots (a cost of approximately R.150000) and to

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establish connections for individual houses to the water-mains, as well as pay for the first six months water charges (approx. R.23000 – R.11200), finish the roads and surrounding area with soil (R.10000) and buy water storage pots for each house. The remaining amount was then held in the main committee bank account, to pay for electricity connection once it was supplied by BADA.

The non-completion of the site has, according to Hunnarshālā, stopped for three main reasons. Firstly, the Gujarat State Disaster Management Authority (GSDMA) took over funding the reconstruction work from the Asian Development Bank in 2004, allocating money from its own reserves. It abandoned the work by 2006. Secondly, 350 Development Plan affected families had not been legally allocated land or given compensation by the time of the research, even though their houses had been started in 2004 and completed soon thereafter by BADA. Finally, the district administration has refused to help all but 115 earthquake-affected families; the community have organised hunger-strikes and demonstrations in response to this. In total 372 houses had been constructed by Hunnarshālā according to the plan at the time of fieldwork.

Architecture

Settlement - cluster - house

Across the railway tracks from the city, Sadar Nagar is bordered along its northern boundary by the only robust road, a tarmacked but pot-holed narrow lane along which a few 'auto-rickshaws' run, moving people to and from work in the city. By and large auto drivers are reluctant to go to Sadar Nagar, unless they can entirely overfill the cab, as they cannot be certain to get a return fare from amongst the poor inhabitants. There are perhaps five very small stores along this route, selling snack food, water pouches and cigarettes and a small number of private businesses, established within the curtilage of people's homes. In short, there is little sign of available work in the neighbourhood and consequently most people work elsewhere.

The intended settlement layout as designed by Hunnarshālā for Sadar Nagar was built in part, but has been abandoned latterly due to the breakdown of the reconstruction process.

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It is difficult to get a sense of the settlement as settlement; it lacks a cohesive 'image' but rather appears as a series of 'set pieces', architectural and urban moments without a common language. Cheek-by-jowl one will find temporary shelters deteriorating into shanties, large houses with high walls, extended subsequently, quiet cluster housing and, increasingly, the all too customary rows of small, detached concrete boxes. Little of Hunnarshālā's vision of a networked, self-defining and incrementally emerging community is evident.

Fig. 4.23: Sardar Nagar showing location of caste-groups c. 2007. Little mixing has occurred since 2001. Red stars indicate shops; red circles 'public' buildings; red triangles religious buildings. Whilst the extension of the 'Mix community' sector suggests progress, in real terms the Muslim community has been condensed into a smaller area as the mixed community originally placed to the far east edge of Sadar Nagar has relocated west. (Plan from internal Hunnarshālā presentation document, March 2005, with modifications by author) See Appendix 5 for larger version.

Fig. 4.24: Near-complete cluster housing as designed by Hunnarshālā, which was intended to be developed across the site (see Figs. 4.13 and 4.14 above) (Photograph from Hunnarshālā: 17.01.2004)

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The first houses one encounters along the road are the flimsy white terrace homes built after the earthquake. (See Fig. 4.25, below.) Nominally temporary shelter, although they are out of necessity occupied, these thin, weak sheds have not been provided with permanent infrastructure; the residents are obliged to make do and mend. The houses are composed of a single kitchen/ diner/ bedroom space and have a small verandah at the front where most cooking and cleaning is undertaken. Laundry is strung between the houses and hung on the bushes. These houses can be found throughout Sadar Nagar and their continued presence is arguably evidence of the problems that have beset the project. Money, resources, skills and know-how are all available but work has ground to a halt in the face of what the community and involved NGOs attribute to a lack of political will.

Fig. 4.25: Temporary shelter, Sadar Nagar, March 2010

Elsewhere more substantial houses have been built, in a variety of different forms, dominant amongst which are what appear to be 'clustered terraces', streets composed of house groups (See Fig. 4.26). More complex units are visible too, which orientate the houses away from the street onto yards and courtyards and have the appearance of designer-involvement and professional ingenuity about them. Some completed units are undergoing extension at the hands of the residents (See Fig.4.27 and 4.28). Most houses are of a single storey and are serviced by running water and toilets feeding into a comprehensive sewerage system, serviced by/ from a small artificial lake which operates as a decentralised waste water treatment system (DEWATS)[56] on the southern side of the settlement. There is a lot of litter and plastic strewn throughout the streets which cattle nose through and there are packs of semi-wild dogs.

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[56] DEWATS are a widely used, low energy 'green' system of managing discrete water systems. Roughly, at Sadar Nagar, sewerage enters a filtration chamber in which solid waste settles. The waste water is then pumped into a reed bed and into a settlement lake. The system provides potable water. The pumps are powered by two solar panels and operation is overseen by a paid community member who also maintains the sewerage system.

Fig. 4.26: 'Clustered terraces' backing on to a collective thoroughfare, Sadar Nagar, 2010
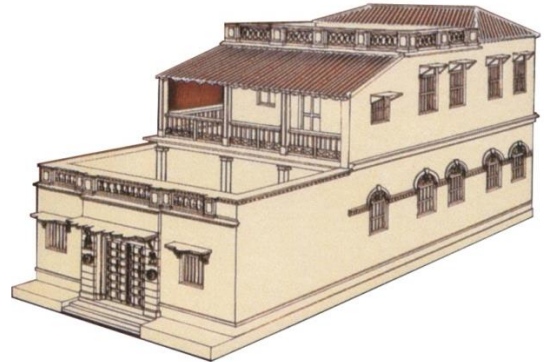
Fig. 4.27: Extended house, Sadar Nagar, March 2010. The owner-built extensions and renovations align the building more closely to the image of an urban Kutchi house as described by Tyabji (inset, right ~ adapted from Tyabji 2006: 78).

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Fig. 4.28: Self-built infill construction to the open corner of a Hunnarshālā-designed cluster scheme, built using new materials (SRE block and reinforced concrete). An attempt at design continuity with the new house is evident, along with elements particular to traditional Kutchi houses, such as the small *gokhalas* (niches) to either side of the main door.

Fig. 4.29: Detached single dwellings incorporating the same elements as found in the cluster housing, but accommodating the new building regulations. The plinth, lintel and roof are emphasised in the rendering, speaking of the traditional *salaat* building process.

Fig. 4.30: An unfinished detached single dwelling, displaying the materiality of the stabilised rammed-earth construction.

4.3.4 Analysis

To begin with Sadar Nagar is in many ways to begin at the end, with the example of Hunnarshālā's practice that least ratifies the thesis. However, it is perhaps as a consequence the most useful case in terms of the initial objective of the study, which was to discern the possibility of 'universal' principles for architectural development. Very few places I visited in Gujarat were characterised by cultural homogeneity of a kind similar to that found in Hodka and Junawada and as global populations continue to urbanise, heterogeneity is fast becoming the norm. As such Sadar Nagar, whilst demonstrating in some ways the weaknesses of the system as practiced, also allows the researcher (and the practitioners actively engaged with development in the field) to suggest changes to the model that will enable wider application.

Hunnarshālā's involvement with Sadar Nagar emerged as a response to the deterioration of the area towards a slum: the area was occupied, even if only by families in temporary shelters and caste and religious lines had been drawn by those state bodies who first established the settlement in the immediate wake of the earthquake, into the fabric of this informal community during initial planning in the immediate aftermath of the earthquake. Secondly, many areas of Bhuj destroyed in the earthquake and redevelopment program, it was suggested, were composed of discrete caste communities who had distinct cultural forms. Through these conditions a design imperative was to be found in Sardar Nagar but one that was divorced from any specific brief; a socio-spatial sense rather than a specific artefactual form.

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By and large the coproductive strategies employed to produce a vernacular architecture by Hunnarshālā during the early stages of development of Sadar Nagar housing are no longer used. The reasons for this are myriad and convoluted, the subject of claim and counter-claim by agencies and community members alike. Needless to say, the idea of producing a vernacular architecture applicable generally in an environment made up of such a wide array of cultural and social groups is audacious although this research witnessed moments when it did appear to work. I will restrict myself to analysing what was done in Sadar Nagar by Hunnarshālā in terms of the processes used and the products manufactured.

4.3.4a Vernacular architecture in Sadar Nagar

Hunnarshālā's work is predicated upon the reappropriation of indigenous spatial norms, technologies and building practices common to a region and at Sadar Nagar the principal did not alter. Below the research will analyse the architecture of the settlement in relation to the typological forms discussed in the literature review and through the three stages of precedent, intention and realisation proposed in the previous chapters.

Organisation

Requiring not only pleasant, high-quality buildings, the core-house model used at Sadar Nagar had to satisfy the socio-spatial requirements of a diverse (and rather cross) population. Buildings are organised to reflect both the customary ways of living of 'someone in Kutch' at a domestic and neighbourhood level and as they are expected to live after the slow processes of urban and social development have occurred. To complicate this further, because of the hybrid, fluid community demographics 'someone in Kutch' appears in some way to be an idealised citizen; the architecture proposed formally reflects this, attempting to embody an array of characteristics that are Kutchi on both the domestic, familial and urban scales. In so doing, the houses necessarily impose an identity that does not correspond to any singular indigenous form, a sort-of architectural Esperanto. Nonetheless, the principles of family dwelling arranged around a common external space, the progression of space from public to entirely private (See Fig. 4.18) and facilitation of incremental construction which is characteristic to the region, in Hunnarshālā's model building on a quickly assembled core and evolving from this as needs demand, is adhered

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to. These are perhaps the most important aspect of house-building in terms of satisfying a notion of dwelling common to the region. More particular issues of spatial organisation in relation to use, social forms and the evolution of family structures over time are not markedly addressed in the core unit model at Sadar Nagar and it is presumed by Hunnarshālā that these will become embedded over time as the houses developed.

Appearance

Fig. 4.31: Cluster housing (Photograph by Hunnarshālā)

The houses at Sadar Nagar are not unambiguously designed in keeping with customary aesthetics. However, because they reference spatial norms, parallels can be seen. Again, as mentioned elsewhere, the core-house model is principally defined by the availability of materials in relation to economic capacity which is presumed to enable subsequent development; as such the buildings will become more traditional in appearance over time as the residents improve them. Certain characteristics, such as customary (and climatically advantageous) ceiling heights and window size and, door and window styles and façadal colour (paint) are incorporated into the core-house design, so that the units are at once complete homes prior to resident-led improvements and expansion.

The cluster model typology initially built by Hunnarshālā at Sadar Nagar is certainly a visual break from tradition. Here we are presented with the fine balance Hunnarshālā had to strike between the dual demands of the residents, expressed through surveys, public

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discussion and individual informal representation, on the one hand maintaining tradition in form and appearance for its assumed (and stated) socio-cultural value, on the other satisfying the demands for modernity which has increasingly become a characteristic of owner-led, self-built houses. As the photographs below show (Figs. 4.32-34), this has produced buildings that appear quite alien in relation to a purist idea of traditional Kutchi dwellings, instead appearing more in-line with the High Modernism of the early to mid-Twentieth Century. Even so, the residents expressed satisfaction with the houses and had begun to adopt them as their own, modifying and adding to them. As such, balance can be interpreted to have been achieved initially at least in favour of institutional actors, although the core-house model appears to imply an inevitable re-balancing in favour of an incremental and, perhaps even, an informal vernacular typology.

Fig. 4.32: Cluster housing with later self-built additions.

Manufacture and technology

Stabilised rammed-earth construction, a moderate but structurally necessary development to traditional rammed-earth developed by Hunnarshālā in conjunction with government engineers, was used as the principal construction material throughout the settlement but has since fallen out of use, replaced instead by the more readily available local clay brick. As well as being cheap to make, easy to produce, low-tech and with low embodied energy, the SRE had similar thermal, textural and visual qualities to traditional construction materials,

such as the mud and dung used in bhunga. Most commonly old urban buildings use pitched roofing with *desi* tiling; at Sadar Nagar flat concrete roofs were used; these have a more recent heritage that sits easily in the cultural landscape of the area and which also lent itself to the construction of later additions in keeping with traditional practices, such as in-set balconies/ roof terraces which permit roof-top sleeping. Low costs and simplicity of construction has ensured that desi-style roofing has been used in the few cases where an extra storey has been added to a house.

Reinforced concrete ring-beam construction as a means of structuring buildings in such a way as to minimise damage in the event of an earthquake were imposed by governmental building regulation, the installation/ casting of which was overseen by qualified agencies (Hunnarshālā/ state engineers). Not a particularly complex operation in itself (and therefore already known to some degree), the community and their labourers were trained by Hunnarshālā so that secure standards were maintained, in keeping with regulations composed in the wake of the earthquake. Their use has persisted in much subsequent building, even without regulatory oversight. The complex DEWATs water filtration system, powered by two large photovoltaic cells and the comprehensive sewerage system were all constructed by the community and sponsored and overseen by Hunnarshālā and government engineers. It is now operated and maintained by the community with little oversight; whether such a system would be installed in less formal development remains is open to question.

Use

The fourth category of description for identifying vernacular architecture in this research is 'use' or 'function'. As stated above, the time in the field and therefore access to both social structures and artefacts (houses) was limited. Oral data, observation and photography were critical here as was an intuitive analysis of the architect's documentation.

Fig. 4.33: Cluster house chowk

The intended design of the settlement as a whole does not particularly relate to customary forms seen in Kutch and bears the signs of a 'modernise-above-all-else' agenda, with vehicular traffic considerations seeming to take precedence over the creation of vigorous streetscapes. (Ease of access for security and fire services might also have been a consideration.) Such things cannot be taken to reflect on the work of Hunnarshālā; the authority for the project infrastructure lay with state government and their attitude was of primary significance, as was later made evident through the withholding of promised financial assistance. Nevertheless, by proposing a cluster typology Hunnarshālā attempted to reorientate the mechanistic plan towards one in line with customary forms which are organic, human-scaled and relate to the processes of living as they occur in Kutch. This typology has, latterly, been stopped and the new approach demanded by the state is for terrace housing. Again, this highlights the issue of balance within such a development, particularly one which proposes an owner-driven synthetic vernacular approach – the state can always wields it authority aggressively, elevating its own pragmatic concerns and instituting an hierarchical human needs based model of reconstruction, above those of the residents whose concerns are likely to be more nuanced and diverse. One can translate such a condition emerging as a break-down of the coproductive approach insofar as the

criteria which heighten the possibility of coproduction occurring (See Section 2.5.1) are either badly limited or absent entirely from the development.

Other formal and aesthetic aspects of the buildings are also of significance. The cluster model, based around an hybrid Gujarati form, presupposes the primacy of familial use, particularly in relation to work (merchandise preparation or skilled-manual trades), the preparation and consumption of food and religious-social practices as well as both formal and domestic education. (Formal education largely takes places in institutions currently but after-school learning was observed in such places at various parts of the city.) The familial chowk is for this purpose but would appear to operate in this way when in close physical proximity to other associated work and recreation, i.e. the market place or the temple. Thus at Sadar Nagar which is a considerable distance from relevant amenities in Bhuj proper and which are in large part lacking in the neighbourhood itself, the clustered, chowk-based housing form is not really used in anything like the way we might presume was intended. As such, the housing model, whilst both innovative and formally vernacular, is rendered somewhat meaningless when de-contextualised, a memorial to a way of life that has been taken away. With an eye to the future, however, when urban growth is predicted to expand Bhuj and absorb Sadar Nagar, the vernacular cluster model will come into use in the traditional way: normative social practices such as those characteristic of the old settlements in which working and social aspects of day-to-day life were undertaken within close proximity of the home will be re-enabled. Prior to the establishing of such use, the clustering can appear inward-looking and defensive.

Fig. 4.34: Stabilised rammed-earth (light grey) with concrete ring beams (dark grey, yellow).

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The function of the units at Sadar Nagar is, of course amongst other things, shelter, privacy and security but the way these things are manifest in the buildings is indicative of the culture's identity. Their robust structure and in places the almost fortress-like appearance (see Fig. 4.34 above) tells us a great deal: although we know the houses are intended only to serve as core units, to be moulded and soften over time, security and perhaps distrust have played a significant role in their conception; the buildings are a refuge from the world at large. As the designs emerged in part through participatory exercises and community decision making we can surmise that this is not accidental or entirely an external imposition. (The same assumptions can be made about issues of appearance and formal arrangement.)

Internally, the individual houses are relatively flexible and follow similar spatial progressions from public to private as do pure vernacular models. The familial and larger cluster chowk and verandah have to be seen as part of the domestic space of the associated house/s, as per tradition, made possible in the cluster model by the lack of a traffic through-route. Familial chowk are used for domestic tasks, such as laundry, cooking and education. By setting the houses and clusters on raised plinths, the falia model is maintained, giving definition to more 'threshold' spaces and emphasising notions of social order, spatial progression and defensible space. WCs (not customary) are provided to all houses although it appeared that they were generally used for storage, indicating a level of resistance in practice to the agenda of institutional actors and, as later described in Chapter Six, suggesting an alternative and beneficial function to coproduction, which is that it not only means different things but also enables different ends for the various actors engaged in the process.

4.3.4b Coproduction at Sadar Nagar

Unlike at Junawada and Hodka, Sadar Nagar's social landscape is diverse, hybrid and dynamic, embodying many of the conditions of a globalised urban realm (Robinson 2006: 65). The social distinctions which are more explicit in rural and semi-rural communities are dissolved in the city and boundaries which have previously restricted or corralled behaviour no longer operate, for good or ill[57]. This is beneficial in many ways of course but has

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[57] This point was emphasised by Sushmar Iyengar of KNNA who spoke of the disorientation that was apparent amongst the newly arrived rural populations to the city. She argued that the social and economic

negative consequences as well, particularly if, as with Sadar Nagar, the city is populated with people recently moved to the city and who carry with them residual notions of social order from the country. In this context the apparent formlessness of urban society can be disorientating, which some have seen as being the source of social order problems. This was discernible in what one community member directly described as a community of 'many strangers' which resulted in their growing antipathy towards their neighbours, and through others' uneasiness with the unaccustomed heterogeneity found, for example, in their discomfort of having to live next to a makeshift mosque sound-system, which the traditional arrangement of family-groupings living together to a greater degree precluded, and in the widely expressed sadness at the loss of extended family groupings. These attitudes had resulted in, according to both KNNA and Hunnarshālā and according to those spoken to, an almost total break-down in constructive discourse in pursuit of legit mate rights and access to services.

Urban centres bring together people from an array of castes and beliefs with a wide range of riches, a mix not common in rural communities. These groups may not initially find it easy to co-exist. In this context, the population of Sadar Nagar may be properly understood to be richly diverse with no real desire for it despite the manifest benefits of the urban life. Certainly, everyone I spoke with, both community members and those working with the communities, saw the complexities emerging from such a condition as underlying the lack of success in developing a self-sustaining settlement. This negativity is exacerbated by the post-disaster nature of the region which has been enormously stressful for people, both psychologically and physically and has, furthermore, set people against each other and factionalised the community in their pursuit of scant resources and the attention of institutional actors. Any apparent favouritism towards one group or family amplified this. The administration of resources equally, regardless of prior situations or perceived effort on the part of the recipient seemed to cause this too. Tardiness or speed, ineptitude or competence, crookedness or honesty were all reasons for the people to resent or distrust institutional actors.

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order to which they were accustomed and which to a great extent insulated them from a consciousness of inequality, no longer operated, particularly the unity of experience common to the rural communities as compared to the vastly unequal distribution of material goods and social rights evident in the city, against which the individual had no barrier.

This sense of structural failure, in which the community view the entire endeavour not so much as having some faults but as flawed in essence was either spoken of directly or implied through word and action by many if not all of those I spoke to. Sukur, a cabinet-maker in the old city spoke of the 'many neighbours' in his new neighbourhood and how, as a community fund-collector, he had been accused of corruption by others in the area, had been investigated and exonerated. Sadar Nagar, he said, was a place he 'slept, and nothing else". Ghanshan Thacker, a street vendor who lived in a small and successful community-led development in the middle of Sadar Nagar, spoke of the possibility of trust in his old city neighbourhood, Vali of the sex-workers, violence and religious and caste divisions in the new one. Nita Tucker, a committee member during the development who was happy enough with her house and community divided the opinion of others, was separated from her community as a consequence of unproven accusations of criminality in her daily life and during her tenure on the committee. Alka Jani, the representative of Kutch Mahilia Vengas Sangathan (KMVS)[58] explained that female capacity-building was difficult in this community because a woman could earn ten times in one day of sex work what she could earn in a week if she learnt a saleable trade. On a more general level, different caste and religious groups still did not interact if at all possible, again a condition made possible by the initial urban plan which divided the area up into perceived ethnic, caste and religious clusters, a condition which persists and has produced an intensely dysfunctional city ward.

This atmosphere of animosity and distrust was described by many people I spoke to. Vali, a mother of three, had been moved to Sadar Nagar by the authorities after her house was demolished as part of the rationalisation works undertaken in Bhuj city centre. Her old community had been, in the main, composed of people of her caste (Satvata) and she had lived with her new husband and his extended family. 'Life before the earthquake was heavenly', she said, 'because as a new pregnant bride I was taken care of'. The earthquake destroyed this; her husband lost his work locally and was forced to work away and she was relocated out of her community and family into a temporary shelter in Sadar Nagar amongst, I was assured, women who were sex-workers. Vali received a new house built by Hunnarshālā and lived in it briefly but a child was murdered in her back yard and she found

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[58] A member NGO of KNNA whose stated concern is the "total empowerment of rural women through their conscientisation, organization, and mobilization into local collectives capable of independently addressing gender inequities in the development process and engendering a sustainable socio-economic transformation in the region". This takes place through the traditional craft skills practiced in the region.

the corpse. The murdered boy was Hindu, the convicted boy a Muslim, a narrative far stronger amongst the Sadar Nagar households I spoke with than the well-known mental health problems of the murderer. Vali immediately moved back into her temporary shelter and her good house stands empty.

When the social structure is as finely balanced as it is in Gujarat (Breman 2002: 1, Parekh 2002) it does not take much to inhibit constructive social networks or the fruits of participatory democracy; both laypersons and the democratic authorities seem only too willing to abandon those things that may excite conflict. Consequently Hunnarshālā's best efforts have been thwarted in this case. Despite employing an equally distributive and radical approach to housing development as was used in Junawada and Hodka, the aspiration of the community has diminished as their need has increased. The social diversity demands a development approach that can reflect the polyphony of the community whilst simultaneously enabling a cohesive and effective urban strategy.

Baring in mind the nature of Sadar Nagar as an emergent society, not yet formed and very much in a state of flux, composed of disparate groups who see themselves being in competition or conflict, the strategies employed by Hunnarshālā, the state and the community, which were to some degree intended as prototype activities to be reapplied as needed in future, cannot be re-used wholesale. The synthetic vernacular housing forms may well be used, depending on context but even these, because they had to be designed by Hunnarshālā rather than emerge as designs from a communal-specialist discourse as they did in Hodka and Junawada, do not have particularly wide potential for re-use. However, as the area beds-in and matures and as social bonds develop its needs will change. Whilst Hunnarshālā's coproductive agenda may be based around an idea of universal rights and therefore appear to have broad application, the needs of communities are complex and varied. Whereas in Junawada the job required was a straightforward reconstruction (which Hunnarshālā complicated and embellished by linking an emancipatory and educative agenda to it), in Sadar Nagar there was no single focus to the work. As important as the provision of shelter to both the community (in pursuit of old ways of life) and institutional actors (who were concerned with helping reconstruct operational communities) was the establishment of functional, rich social networks intra-communally, inter-institutionally and between the people and the State. In light of concerns about climate change, low-carbon and low-energy materials and infrastructure (in comparison to other common, easier urban

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approaches) were seen as essential. Access to good quality education was and is the backbone to it all. Junawada was already a place, a home, a neighbourhood, a society; it just needed new houses, Hodka likewise although as noted, both had their singular social problems caused in the eyes of the community by the encroachment of modernity into their customs. Sadar Nagar was not a home nor really a society, and housing on its own would not make it one.

This lack of 'home-ness' at Sadar Nagar, what we can see through Heidegger (Heidegger 1971: 348-9) as constituting 'dwelling' was, according to Hunnarshālā caused primarily by an incapacity 'to negotiate the trade-offs'[59] particularly in relation to the most important decision, which was to move to Sadar Nagar at all. Rather, the earthquake and then the government knocked their dwellings down and the population were moved. 'If the people are able to lead the process … they can negotiate the trade-offs but the most important decision ('I want to move to Sadar Nagar') wasn't.' So whilst under a government scheme such as Sadar Nagar the resident may be provided with a bigger, cheaper plot and more money to build, they have no right to decide whether this is what they want given the location. As most residents worked in the grey economy in Bhuj, the price of having a house in Sadar Nagar was a five kilometre walk into the city to do business, a rupture between their work, social and domestic lives and a sense of alienation and abandonment socially and politically. It is perhaps necessary therefore to question the agenda of Hunnarshālā at Sadar Nagar in its entirety on the basis that it emerges from the fieldwork not so much as a good idea badly applied but as the wrong approach. Sadar Nagar didn't need houses because fundamentally its problems didn't derive from a lack of houses; rather it needed an entirely different programme orientated towards social and economic engagement, one perhaps that an organisation with expertise largely within the field of architecture and construction were not best placed to offer.

The social infrastructure that typifies a place like Junawada carries the community; the lack of anything approximating this in Sadar Nagar ensures that stasis is the abiding characteristic of the area. Any action arises as a consequence of external actors instigating it. However, initial housing development work in Sadar Nagar overseen by Hunnarshālā was conducted as community-driven and has proven to be successful. As with Junawada this is in great part as a consequence of the social composition of these neighbourhoods

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[59] (Personal Skype exchange with Prashant Solanky of Hunnarshālā 30.12.11)

rather than anything specific about the architecture (although the housing can be larger and of a higher quality because the communities create economies of scale by collectivising). In some instances family or kin groups who lived in community prior to the earthquake in the city have relocated en masse. Hunnarshālā worked with these groups to design a housing typology based on traditional Kutchi urban housing forms (eight houses set around a communal courtyard) to enable these groups to continue to live together. In this way the social capital manifest in the old communities has been retained.[60]

Finally, whilst the housing undertaken by Hunnarshālā always emerged in the first instance from informed discourse on the ground with the intended residents, all artefacts (buildings; infrastructure; social programs) were negotiated with a broad spectrum of interested parties as well. Architecture does not emerge from a vacuum but from a cacophony of competing interests: planners, civil engineers, funding bodies (banks and, in Kutch, charities), politicians, NGOs and civil servants. As a consequence of this, whilst truly grass-roots development is an ideal for Hunnarshālā, it is necessary to find a consensus on what will serve the greatest number parties' needs, proportional to their involvement in it. These negotiations are harder of course when there are so many competing interests; coproduction is not the line of least resistance. In general negotiations are concerned with practicalities – the location of drains or the width of thoroughfares for example, or the direction of bus routes. In post-disaster conditions the aesthetics of design do not feature that much in the conversation, although the research would suggest that it should at least play some part, especially if one considers the longevity of some temporary shelter communities. Nor do the specifics of the social processes involved in the use and maintenance of housing (who does it) get much attention, although my fieldwork would suggest that both these aspects are subsequently of great importance. Housing that is designed 'over the heads' of the residents, following a model of social architecture used in the North, will not meet the needs of people used to defining their own houses and neighbourhoods, their homes. In Sadar Nagar, whilst Hunnarshālā and the communities designed the housing as an extension of the design principles of indigenous housing, concerns by other more powerful actors have trumped the will of the residents, complicating construction processes to such a degree that lay replication is largely

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[60] Later legislation produced by BADA relating to fire engine access has rendered these house forms obsolete; current housing is built (not by Hunnarshālā) as long, straight rows of detached houses, a completely alien form that nobody likes. The difference between top-down and coproductive strategies is thus starkly exemplified.

impossible. Future urban development in Sadar Nagar is therefore likely to occur in such a way as to be unsafe, as was the case before the earthquake. A simpler strategic approach which embraced and modified the logic of traditional, incremental urban development and which focused on capacity-building in relation to understanding and operating the infrastructural system would have been more likely to be adopted by laypersons. The same may be said of the bureaucratic processes relating to housing development as well.

4.3.4c Social perceptions of the development at Sadar Nagar

As with the other case studies, the oral accounts from within the community at Sadar Nagar came through short semi-structured interviews. My engagement with the community at Sadar Nagar was 'deeper' than elsewhere in Kutch; on my first period of fieldwork I stayed within the community at the home of Dev and Laxmi Vagar, day-labourers who slept in a circular, domed SRE building on the east of the settlement. This building had originally been used as the site office by Hunnarshālā during the early construction phase at Sadar Nagar and was leased rent-free to the family in partial payment for their overseeing the operation of the solar panels that drove the filtration system for the DEWATs sewerage sedimentation lake. They rented floor space to my friend Prashant Solanky who, due to his design and advocacy work within the community, was well known locally and who introduced me to numerous families[61]. Each day would begin with tea and rotis with the family in their principal day space, a make-shift shelter constructed out of discarded materials (largely rigid rush matting, cardboard and plastic sheeting) they had built in the rear yard of their home, followed by a cycle into Bhuj, generally chased by semi-wild dogs. My unlikely appearance in such a place made me very obvious, not least because of the sordid reputation Sadar Nagar had, and because of the neighbourhood's nascent reputation for harbouring terrorists. (Days prior to my second field visit men from Sadar Nagar were arrested for their part in the Mumbai terrorist attacks.) Being quite so apparent made engagement extremely easy; most people were all too keen to invite me in for tea and a chat. Further, the semi-urban nature of the place and the large numbers of relocated ex-urban people within it appeared to create a less structured social ordering which, in particular, allowed for social interactions and the possibility of informal conversation with women which was much less possible in more rural areas.

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[61] The issues such a relationship (Prashant/ Hunnarshālā with the community and me with Prashant/ Hunnarshālā) may have caused my data collection process will be discussed in the next chapter.

Sadar Nagar was planned for a highly heterogeneous and fluid community. Consequently my line of questioning had to differ from that taken at Junawada and Hodka which sought parallels with traditional forms and use as a way of identifying the proximity of a coproduced vernacular with self-built, 'pure' forms. Here I had to attempt to find answers to the research questions in an environment in which traditional form had had no time to emerge organically out of the socio-cultural discourses of generations of indigenous Kutchis. I had presumed that a question like 'In what ways is your new house similar to your old one?' would be irrelevant; nobody would see any similarities at all. Rather, I asked questions which pertained to the same type of information, such as: 'Do you use your new house for your business?' which, in conjunction with observation and evidence from within the body of literature on the traditional uses of houses, could be used to extrapolate the vernacular-ness of the new homes insofar as they could sustain the social production of traditional architectural space.

Because of the extensive negotiations undertaken at Sadar Nagar, due to the difficulties associated with the establishment of an entirely new, demographically heterogeneous and largely poor suburb, the processes of production are more explicit than elsewhere. Further, there was a sense that the community (in the sense of a geographically specific locale) required much more input than elsewhere, a situation which had not changed at all between my first and second field visits. (Subsequent conversations with Hunnarshālā suggest that this remained the case in 2011-2012.) Evidence for attempts at and instances of coproduction could be identified through the ethnographic data, as could the efficacy of this approach to redevelopment in such a place.

In general attitudes towards the architecture could not be disassociated from the politics associated with its production for most of those I spoke to, not least because the common assumption laid the blame for the incompleteness of the community at the feet of the state authorities who were seen as being at once incompetent and malignly omnipotent. Architecture was, for almost everybody I spoke to, an attitude or an atmosphere, rather than a distinct architectural 'Kutchi' style. Questions on this line drew a blank, possibly because the community was composed of very poor, often informally settled families for whom the idea of a formal architectural style, which for many people seems to mean

architectural aesthetic/ appearance, was perhaps a little alien.

For example Sukur, a carpenter, stated that new house and the traditional urban culture he had been taken out of were 'not similar' at all, a sentiment that was not supported by the architectural or spatial analysis, or by the views of many other community members, nor indeed by his incremental transformation of the house into a personal expression of the socio-spatial norms he was accustomed to (See Fig. 4.35 below). Sukur worked from his shop in the Old City and was moved with his wife to Sadar Nagar from his family home as earthquake-affected poor. He now commuted into Bhuj to his workshop. He was able to recall the 2001 earthquake with somewhat harrowing detail and emphasised that the most important thing for his new house was for it to have enough space around it for the residents to be able to escape the falling masonry. When pressed for thoughts on the ways in which his new home and neighbourhood allowed for the 'old' social processes (How did he work in the space? How did he commune and celebrate in the space? How did he rest, buy or worship in Sadar Nagar?) Sukur instead spoke of the 'many strangers' there, always diverting the conversation back to the problems of communal strife which were his dominant narrative. He '[missed] the friendly family frictions of the old place' (all his family were close to him in the old city) and the festivals and, whilst he saw tradition in Hunnarshālā's construction process (boundary, plinth, lintel – 'this is the old [salaat] way'), he viewed the whole development as a 'free guest house' that was 'only for sleeping', in an area, to boot, that was 'full of backward-class people' who 'move on [from the new neighbourhood] quickly'. He held out hope that future expansion of Bhuj, when industrial and residential infill joined Sadar Nagar with Madhapur and the city, would make his neighbourhood 'like heaven', largely because he would then be able to recreate the live/work/rest synergy he had in his old home.

At the beginning of the development of the area, Sukur had been a cashier for the organising committee, collecting funds due to lenders, including finance organisations and contractors but had stopped doing this when accused of misappropriating money. This interaction with the bureaucratic side of the development process seemed to have blighted his view of not only the means of production, but also the product too. When I suggested he sell up and move back in to the city he said unhappily that 'Nobody would buy the house: the area is dirty and backward' and, although he had evidently built much of his house himself, and insisted that 'the role of [in developing Sadar Nagar] BADA was only to

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provide the plot', he spoke as if his whole existence were dependent on the Municipal Government, stating: 'the people can't do anything – it all hangs on the actions of the Municipality.'

Fig. 4.35: Sukur's house displaying signs of extensive renovation and appropriation, including the addition of a new floor, verandah, roofs and fencing, as well as new painting and planting.

This disaffection, well voiced by Sukur, was evident almost everywhere in the quiescent acceptance of the dilapidated, unfinished and now deteriorating urban condition, the lack of political representation beyond the NGOs that still worked with the community and the extensive community mobilisation required to achieve any extension to the most basic service provision. The District Collector had told Sukur that 'Sadar Nagar would no longer be last but first' but that was years ago and Sukur had almost given up, a victim in his view of a political system that was remote, uninterested and small-minded. BADA had not even provided him with documentation of his ownership of the plot on which he continued to build; Hunnarshālā were unable to help having signed off the house as complete, their bargaining power was limited. He was considering moving back into the old city, into an informal settlement as had many in his situation; this would at least save him the time and expense of travelling to work.

Prior to the earthquake Shanti lived in an illegal house in the Old City. His new house, constructed through Hunnarshālā's Owner-Driven Reconstruction (ODR) programme is part of a quiet, clean and intimate area of housing which constituted the first phase of the development of Sadar Nagar (see Figs. 4.13-15). It was built to the original cluster-form designs as laid-out above. Other units in the cluster are occupied by his extended family who had been moved wholesale from Old Bhuj where they also lived together. He shared his house with his two sons (both married) and one daughter.

Despite maintaining his job as a vegetable seller in Old Bhuj, which necessitated walking about 8 miles to and from the city every day, vegetable stall in tow, Shanti thought his new house 'very good' and appreciated that 'the new house and neighbourhood can contain all celebrations' because there was 'lots of space'. He described how he had 'built it [the house] myself' out of traditional materials and will extend it in the future. Nonetheless, he still looked back to his old dwelling and neighbourhood with fondness and, much as others had, spoke of the spirit found there. Many of his old community had moved out of their reconstructed homes and back into informal housing in the old city, a fact reiterated by Sukur; the effort and expense associated with living so far from their source of income overshadowing the robustness of their new houses.

Fig. 4.36: View into the familial chowk of ODR cluster housing.

Govind had only recently moved to Bhuj to become a vegetable seller like his brother when the earthquake struck. He had previously lived in the countryside, having married and

moved away from the rest of his family who lived in informal housing in Old Bhuj. His house was principally for sleeping in, his work/ social life continuing in the city. This is as Sukur had suggested. Nonetheless he intended to expand his house as his sons' families grew although he 'had no idea how to do this legally' due to a shared/ party wall. Govind expressed concern over the new megaphone that the mosque had had fixed to its roof for the purposes of calling believers to pray, and about the informal building work to the mosque which had in-filled the alleyway between the properties, linking it to the rear wall of Govind's house. The megaphone was automated (like a doorbell) and was indeed rather loud and Govind did not know what to do to address the situation and expressed a sense of powerlessness.

Fig. 4.37: ODR housing in Sadar Nagar showing one house in a cluster. Set amongst tidy streets and with resident-tended planting, the housing was widely viewed amongst the community members as the best in the community, allowing for both the maintenance of traditional dwelling patterns, festivals and education. However, even though spatial organisation of the new houses would have supported the maintenance of customary work patterns as did their old dwellings, they weren't used in this way by the residents because the distance between the houses and the market place was too great.

Vali, a married woman who lived alone with her two young children in a temporary asbestos-built shelter on the western edge of Sadar Nagar, had lived in 'a village house' in the middle of Old Bhuj with her husband's family. For her, 'atmosphere' was more important than form; a bright and apparently educated person, she held no opinions on the architecture of the new community. 'Life before the earthquake was heaven. As a new pregnant wife I was taken care of'. But with the earthquake 'everything fell apart'. Her husband had to find a new job, and was forced to work away from home as a labourer and Vali was relocated away from her home, her family and her caste by the Development Plan

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works. In old Bhuj she had lived with her Satvara sub-caste who were, according to her, a discrete and self-sufficient group; now she lived away from them, amongst sex-workers. She had been built a new house by Hunnarshālā (near Govind) in the ODR, cluster housing area but when a murdered child was found in the alley beside her house so she moved back into temporary accommodation (see Fig. 4.25 and 4.38). The apprehended culprit was a mentally impaired Muslim boy. This greatly added to pre-existing communal tensions generally, as emphasised to me by many experiences of being confronted by 'peripheral' Hindu nationalism, but for Vali it simply reiterated her firm prejudices, prejudices which extended to virtually anybody who wasn't of her caste or higher, and her all-encompassing sense of victimhood at the hands of intentionally malicious forces. In the end, when she stated 'I don't like Sadar Nagar' more than once it was on the one hand understandable in many ways but on the other indicative it seemed of a central problem common to all architecture, which is that it is a less powerful tool of social change than it is presumed to be by architects and designers (De Carlo in Blundell-Jones et al. 2005: 14)

Fig. 4.38: Vali's house (right), a temporary shelter.

Ghanshan, a member of the Lohana community who previously lived in Old Bhuj with his extended family, similarly had a low view of Sadar Nagar as a place to be. Whilst he thought that 'Hunnarshālā have succeeded in making traditional houses at Sadar Nagar' and that the inclusion of new technologies into the fabric of old-style buildings was a positive 'development on traditional houses', he took no responsibility for any of it, stating definitively that: 'I did not build the house, Hunnarshālā did'. This reiterated sentiment was

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at odds with his later assertion that 'Hunnarshālā and the community collectively prepared the housing plans and presented them to BADA', although it may be that he was saying that he was passive, not the community as a whole as implied by his later assertion that he 'did not interact with BADA … [himself, but did so] … only through Hunnarshālā'. Nonetheless he had modified his building, adding traditional doors and a defined boundary.

As with other community members relocated to Sadar Nagar, Ghanshan bemoaned the 'lack of trust' and 'a bad atmosphere' and asserted that 'the lack of community [was because] it was too far from Bhuj' and because he no longer lived with his extended family as he had done all his life, but only his direct kin.

Nita, a late middle-aged woman who was described by others in the community as a neighbourhood sex-worker, lived in the Old City prior to the earthquake, in what she described as a 'traditional fibre house' of 'river bricks and desi tiles'. Her house was very large and her extended family resided within its boundary too. Her own house within the family compound had five rooms, two of which she rented out. She recalled the strength of the community in the Old City, which was mixed-caste, and the way that community leaders organised neighbourhood festivals. People there were 'educated' which she saw as preventing the quarrels which now blighted Sadar Nagar. Now, she said, her neighbours were only Lohana caste.

Prior to Hunnarshālā's involvement at Sadar Nagar 'houses were built like trains' she said, in long terraces. In contrast to this Nita did feel that Hunnarshālā had managed to produce houses that were 'homes, not houses' and which 'were traditional'. However, in her smaller abode she now lived with only direct family, her extended family either having stayed in the city or been settled elsewhere. This and the homogenous caste grouping designed into the urban fabric, as well as the lack of a collective body concerned with organising community functions, she saw as being at the heart of the failure of the settlement. As a politically-minded person she had been involved in community organisation, specifically the collection of funds. This had led to an acrimonious falling-out with other community members amidst accusations of misappropriating money. BADA's stalling and not building the final 350 houses was in her view entirely the fault of BADA and by extension Hunnarshālā, rather than an expression of a widespread frustration, voiced generally within

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the community, at a lack of communal will or wherewithal in pursuit of establishing legitimate collectively-beneficial ends, such as the use of pre-allocated funds for infrastructural works, such as road surfacing and pavements or the acquisition of legal tenure documentation.

The interviews told a series of stories, all individual and all engaging but unlike at Junawada and Hodka, not particularly positive. It was difficult, often impossible to generate engagement amongst those I spoke to with the architecture as architecture; as a process of design and construction orientated towards a formal and aesthetic built objective. For almost everybody, from the politically engaged to the inebriated and carefree, the problem of Sadar Nagar was the only story told. This is to say, Sadar Nagar was almost universally seen as a problem in conception and not a problem of design intention or realisation. This of course relates to its nature as a relocation site and the simple but central fact that, whilst the housing was owner-driven (at first), the people who comprised its population had been given no say in its location and were thus not in any position to negotiate the trade-offs between infrastructure, plot size, cost, materials, aesthetics, facilities and so on. In short, the community was a reluctant one to begin with; once political will and momentum was lost and construction stalled this reluctance calcified into an evident animosity between the residents and the institutional actors.

There was however an evident disparity in the perceptions of the community members depending upon the type of house they had acquired. Those spoken to who had received ODR cluster housing generally found their new homes more-or-less amenable and satisfactory, despite their distance from their old community and places of work, meeting their communal, familial and economic requirements and providing them with a framework within which to manufacture their customs. In stark contrast, those people still resident in temporary shelter, or those in un-tenured, essentially illegal housing, due entirely to political mismanagement (at best) could not see past the gaping social and economic divisions that were beginning to open up in the settlement and the bitter struggle the whole endeavour had become. The interpretive analysis of the site as intended and built demonstrates the continuity between old vernacular traditions and the new settlement and houses, particularly in the clustered housing, but this demonstrably cogent reinterpretation of vernacular traditions in light of modernity and desires for contemporaneity could not be appreciated by residents or institutional actors alike in the face of what were seen as far

greater underlying socio-political and economic problems. Rather, as the above accounts suggest, the residents did not seem to try and read the new architectural context in a continuum with the past. Rather there was a forceful denunciation of the place as 'an atmosphere', as the absence of a sense of place.

4.3.4d Summary analytical comments on Sadar Nagar

Sadar Nagar appears to be a fundamentally flawed urban development scheme. Established initially as a series of twenty one sectors, each housing a different sub-section of re-located or migrant households, the district has not since its creation been able to overcome the intra-communal animosities and conflicts that have to some degree been fed by the development approach adopted by the regional government. Although it has its moments of success and harmony such as the owner-driven housing, by and large politics has intervened and blighted the scheme. Substantial quantities of money allocated to it for infrastructural works remain locked in a bureaucratic black-hole. Populated by low-income families it is not in anybody's immediate interest to engage with the area. Although now recognised as part of the city and therefore with associated rights, the areas increasingly criminal reputation ensures a level of dislocation and appears to mean that state actors are none too concerned with enabling and applying those rights. Educational programs run by Hunnarshālā and KNNA come up against an emerging culture of substance abuse and sex-work in the populace. This atmosphere has also reduced those who would otherwise agitate for change to resign themselves to the situation and ultimately to look for ways out. The housing which Hunnarshālā were given a free hand on is good, strong, beautiful, culturally resonant, safe housing that the residents are proud of. But Sadar Nagar is new to everybody; everybody is foreign and the urban language in general reflects this. In Junawada Hunnarshālā built on a very old culture, a culture that was primarily socially embodied, adding a new branch to the community's history. Sadar Nagar has no cohesive history to speak of but is rather a collection of voices, each with a story to tell and each with a demand to make. In such a situation it is hardly surprising that the development has lacked clarity or the cohesivity that characterises more heterogeneous cultural groups. Coproduction evidently works as a strategy for developing housing but in poor, urban, socially amorphous contexts it cannot overcome the competition for attention that participatory practices unleash. As such it may be that it is an inappropriate intervention in some circumstances and for some purposes. At Sadar Nagar the evident heterogeneity (and

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in this case the consequent polarisation) of the community might have been more effectively approached through urban-level rather than home-level coproduction. For example, coproduction was effective at delivering functioning services, such as the decentralised waste water treatment system, indicating that perhaps coproduction is most effective when applied to those things which have a clear communal benefit but founders when applied to such personal artefacts as the production of peoples' homes. The social condition of the recipients is also apparently critical: a settled, poor community such as that found in Junawada has resilience (in the literal sense of regaining its original form), perhaps growing from its stability, which appeared to subdue the drive for personal acquisition, and which instead promoted the pursuit of reconstructing the original form. The complexity of the socially amorphous urban condition as at Sadar Nagar appeared to create the opposite.

It must be borne in mind however, that Sadar Nagar is a transitional space, and it is not possible to state definitively whether the current social dislocation evident within the place is the result of substantive deficiencies in the agenda and approach of institutional actors to the urban fabric. In the medium term this may change as a community emerges from amongst the 'many strangers', and as the undeniably good houses and intuitive neighbourhood design becomes the basis for future urban growth.

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4.3.5 Summary

The case study of Sadar Nagar was encountered as a huge number of disparate and conflicting voices; it permitted of no singular theme or narrative thread. However, it was also most evidently a 'site of Development', which is to say it seemed to manifest a greater demand for intervention from institutional actors than did the case studies at Junawada and Hodka. As described in the proposed matrix (Appendix 7 – Synthetic vernacular architecture at Sadar Nagar), the artefactual and processual concerns of the project to Hunnarshālā were the same – owner-driven reconstruction used as a tool for empowerment through the manufacture of a culturally resonant, indigenous domestic and urban architecture. As described in this section (4.3), this agenda has largely failed by many (but not all) measures, and reasons for this are suggested in the following analysis and conclusions.

The matrix presented in Appendix 7, describes a development process beginning well, with an agenda of coproduction forging a synthetic vernacular architecture in a complex, unstable environment, but one which had quite rapidly degenerated into yet more complexity and more instability. Neither processes nor artefacts have affected a change towards empowerment through the production of buildings to any particular degree, as might have been hoped or as was witnessed elsewhere. This is made evident by the fourth phase's ('Maintenance') description of a lack of self-sustaining architectural, urban growth and processual co-operation, as would have been intended to occur through an owner-driven or community-driven programme. However, the actions taken by Hunnarshālā prior to this date, not only producing a core-house architectural model that synthesised indigenous dwelling customs with ideas of 'modern living' at both the formal and technical-material level in such a way as to allow for (if not promote) such an hybridity at the earliest possible moment in the building's life (i.e. as soon as it was inhabitable), but also through instigating what might be called (after Schlosberg's principles of environmental justice) 'systems of recognition', such as by establishing financial loan facilities for low-income workers in the grey/ black economy. The project then, whilst displaying signs that it was the wrong programme for the needs of the community to hand, cannot be written-off wholesale. As the matrix shows, but for some unforeseeable developments at the structural level (within government particularly) leading to adjustments to building regulations which affected the architectural solution, and but for the inherently problematic characteristic of

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relocation sites (particularly ones so ineptly thought out as found at Sadar Nagar), the intense, focused programme instituted by Hunnarshālā and KNNA might have produced a self-sustaining settlement, or at least the basis for one. That it didn't indicates that there are limitations to a synthetic vernacular architecture approach to reconstruction.

4.4 Hodka

In this section I will describe the Kutch village of Hodka, the second case study undertaken during my fieldwork in Gujarat. I will preface the essay with a justification for the form the case study account needs to take, requiring as it does an historical scene-setting before a description of the current context can be attempted. I will begin then with a description of the geographical and social context, focusing on the architectural and urban forms and typologies that existed pre-earthquake. I will then describe the current urban context and housing forms and the processes undertaken by civil society (Hunnarshālā and others), the community and the state to achieve this. The central theme of the research, that vernacular architecture is socially realised, manifest through the on-going processes of its use and production in the world, rather than as static artefacts separated in time and space from the world, necessitates oral evidence. I will therefore follow the interpretive element of the research with ethnographic evidence of the ways the development at Hodka is perceived by the actors involved in its production and use. I will finish by describing Hunnarshālā's role in the production of vernacular architecture, analysing its efficacy as a means towards sustainable housing.

The Banni village of Hodka in northern Kutch, a village populated by semi-nomadic Maldharis[62], was severely damaged during the Kutchi earthquake of 2001. Subsequent to this, a network of state, civil-society and private organisations cooperated with the local population to redevelop the village. This work entailed not only urban, infrastructural renewal, but also capacity-building and sustainable livelihoods development within the population, in line with government agendas. As part of this, an endogenous tourist resort run by and for the villagers was developed close to Hodka, in conjunction with Hunnarshālā and other civil society agencies, designed and constructed along traditional,

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[62] Maldhari is the name given to nomadic herdsmen in Banni.

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vernacular lines, augmented so as to satisfy contemporary building regulations and tourists[63].

The Kutch earthquake necessitated an enormous and concentrated reconstruction effort by local communities, civil society and government. It also 'made space' within previously discrete and isolated communities for the development of capacity-building programmes as means towards income generation and democratisation, specifically in the case of Hodka village in the form of an endogenous tourist resort. The discrete, rural semi-nomadic cultures of the people of Banni region demanded sensitive, nuanced responses which took into account the extremely delicate nature of the social composition of the communities and the processes of artefact creation practiced in the region. The symbiotic relationship between the social and material cultures is evident. For a modernising government as found in India, particularly one with a stated agenda of the emancipation of the lower castes and of women, the relationship between the social and material culture is necessarily conflictual in a reconstruction context. Will replicating the urban form confirm or maintain the unequal social form? Can a democratic government run this risk? This democratic concern is also generally speaking that of civil society actors. This is an important contextual condition that needs to be appreciated in relation to any discussion of Hunnarshālā's coproduced vernacular architecture: the maintenance of material tradition occurs in the face of a disestablishment of the social traditions of the region. Whether artefact can be maintained when society is transformed remains to be seen.

The ethnographic form of this research involved interviews and discussions with involved parties and elicited responses which have to be read in relation to the way things were in Hodka. Whilst this will be necessary for all three case studies, because both Junawada and Sadar Nagar were already manifestations of modern Indian urban life, displaying all the characteristics of this sphere (dynamic, heterogeneous, innovative, globalised, etc. [Robinson 2006: x and 65]), the reconstruction and contingent modernisation of the urban sphere does not represent such a radical break from what came before. Indeed, most of those I interviewed from the urban communities emphasised their own primacy in the production of the new houses, somewhat disregarding Hunnarshālā's (or others') influence.

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[63] Analysis of the tourist resort will not form a large part of this research.

A static interpretation of vernacular architecture sits uncomfortably with this dynamism. The commonly understood Indian notion of the vernacular as 'going forward' (in Hindi parampara) can however embrace this as at the same time retaining its sense of continuity and traditionalism. This research's approach to understanding 'the vernacular' in these urban contexts has been to examine them as being able to facilitate 'ways of being' and 'dwelling' in the holistic sense, that is in such a way as to satisfy their human needs as sited, creative social beings (Max-Neef 1991: 22 and 38, Heidegger 1975: 349).

In the case of Hodka however, characterised as an homogenous, stable, incrementally evolving place, tradition / the vernacular is a specific, accepted set of practices and forms, embedded in the everyday. Hunnarshālā's reconstruction (as process and artefact) had to address a much more static notion of tradition and of vernacular architecture, one that transparently addressed what had come before socially and formally whilst at the same time engaging with democratisation and globalisation agendas. As such the earthquake and reconstruction does represent a break with the past for the people of Hodka, particularly due to the development of the tourist resort Shaam-e-Sarhad, which has brought with it an hugely increased engagement with the wider world, an engagement which is not by its nature necessarily on the communities' terms. Shaam-e-Sarhad (and its contingent amenities) can perhaps therefore be viewed as a rupture point through which the wider world can bypass those barriers and filters which have traditionally allowed the community to mediate their engagement with modernity. To understand where the interviewees responses come from therefore and to be able to analyse them constructively, it is necessary to know the pre-earthquake urban, architectural forms. This can only be achieved by drawing on written and graphic sources.

Context

In this section I describe the geographical, social and cultural context; in reality the three overlap but for the sake of clarity and therefore brevity I have attempted to extract each from the others.

Geography

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Hodka is an hamlet situated within the Banni region in the north of Kutch, approximately 50km due north of Bhuj (See Fig. 4..39 and 4.40), approached from the east by a weather-beaten single track road, branching off a broad and high-quality main road that runs south to Bhuj and north to the India-Pakistan border and which is maintained either by or because of the large military presence in the region. Hodka is one of about forty hamlets within Banni, a 3850 km² semi-arid natural grassland region located between the salt plains of the Great Rahn to the North and the more fecund, urbanised central and coastal region to the south (see Fig. 4.39). The area is largely flat. There are large diurnal and seasonal variations in temperature (10 - 48ºC). The rainfall in Kutch tends to be seasonal, about 300mm falling during the monsoon season, causing flooding to low-lying peripheral areas during this period and rendering central Kutch a virtual island. At other times the area suffers from drought. The Banni region has considerably reduced in size in recent decades and has experienced a decline in the number, composition and fertility of its plant populations due to salination, drought and over-grazing (man-made irrigation systems serving as a lure to previously village-based pastoralists from a huge area) lowering the land's livestock carrying capacity and leading to a contingent loss of human population. Further, incursion by the non-native plant species prosopis juliflora, as well as the impact of flood control measures in Kutch which have reduced soil fertility in the region and exacerbated the problem.

Society

Banni is sparsely populated with 3.6 persons per km/sq. Until 2001 the area did not have stable villages as commonly understood but rather about forty hamlets occupied by the semi-nomadic Maldharis. These hamlets' population is roughly 90% Jat Muslim[64], 10% Harijan[65] Hindu. The hamlets are composed of clusters of housing and are populated by extended family groups. Each house cluster within a village is composed of a direct family group (i.e. mother and father and brothers). Women move out of their familial hamlet and into that of their husband upon marriage. Different caste groups within the Jat community do not occupy the same housing cluster within a hamlet. This is not so within the Harijan groups, who are mostly lower caste Hindus. The caste divisions amongst the Jat population are reflected in the urban structure: clusters of differing caste groups may stand a few

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[64] Jat people are an historical Indo-Aryan tribal group originating in the Punjab.
[65] Harijan, it is said, was a name given to Dalits (traditionally 'untouchables') by Mahatma Ghandi and is understood to mean 'Person of God'.

hundred metres apart and interaction is limited. The Harijan minority live in a separate cluster which is apart from the main portion of the village. In both communities, family growth through marriage (i.e. a woman marrying 'out' of her family) is reflected in the housing too, new clusters developing a few metres away from the rest of the family (see Fig. 4.41).
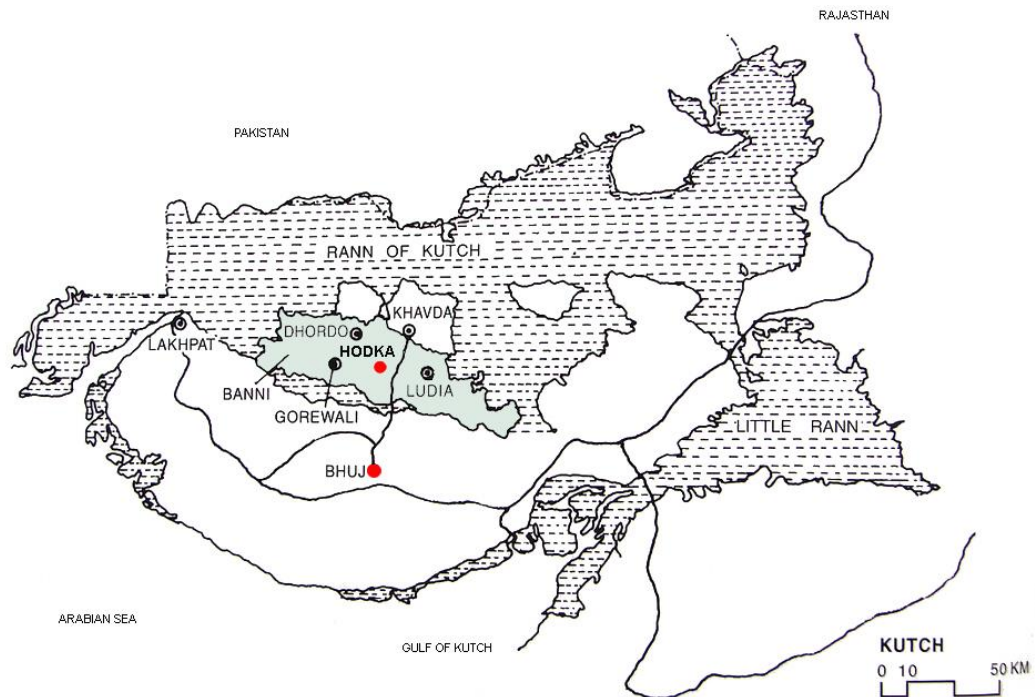

Fig. 4.39: Kutch showing Bhuj and the Banni grasslands in green (adapted from Jain, K. and M. Jain 1992: 20)
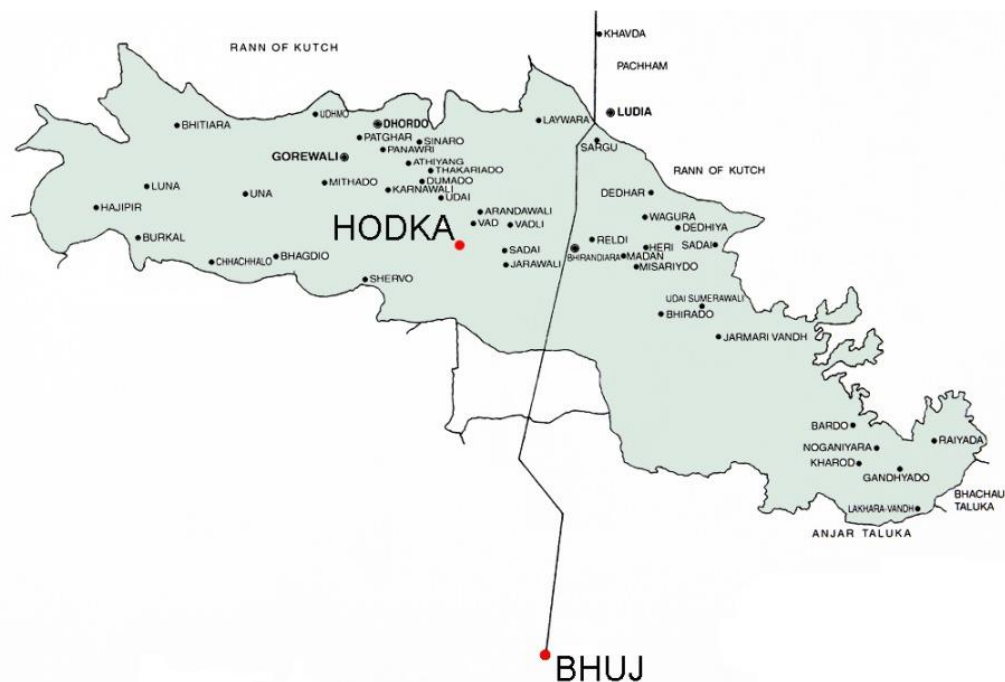
Fig. 4.40: Banni showing Hodka and Bhuj (adapted from ibid).

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The primary industries of the Banni region have traditionally been associated with animal husbandry, particularly the rearing of buffalo. Thus the communities have moved with the seasons, leading their herds to pasture. Unlike in many communities in Hindu India where meat is not eaten, the Muslim communities do keep animals for consumption. The Harijan Hindu sect, traditionally 'contracted' to dispose of dead animals within the caste system, also eat meat and alongside the Jats, manufacture goods from the by-products of this (such as leatherwork) which are sold within the towns and cities. This association with animals, particularly buffalo, has helped define the architectural typologies found in the region; dung mixed with Banni clay produces a fine building wattle and daub or adobe material especially if this composition is mixed by the buffalo themselves as they wallow in the water holes found in the region. It also results in particular foodstuffs produced from the very rich milk of the buffalo, particularly sweets.
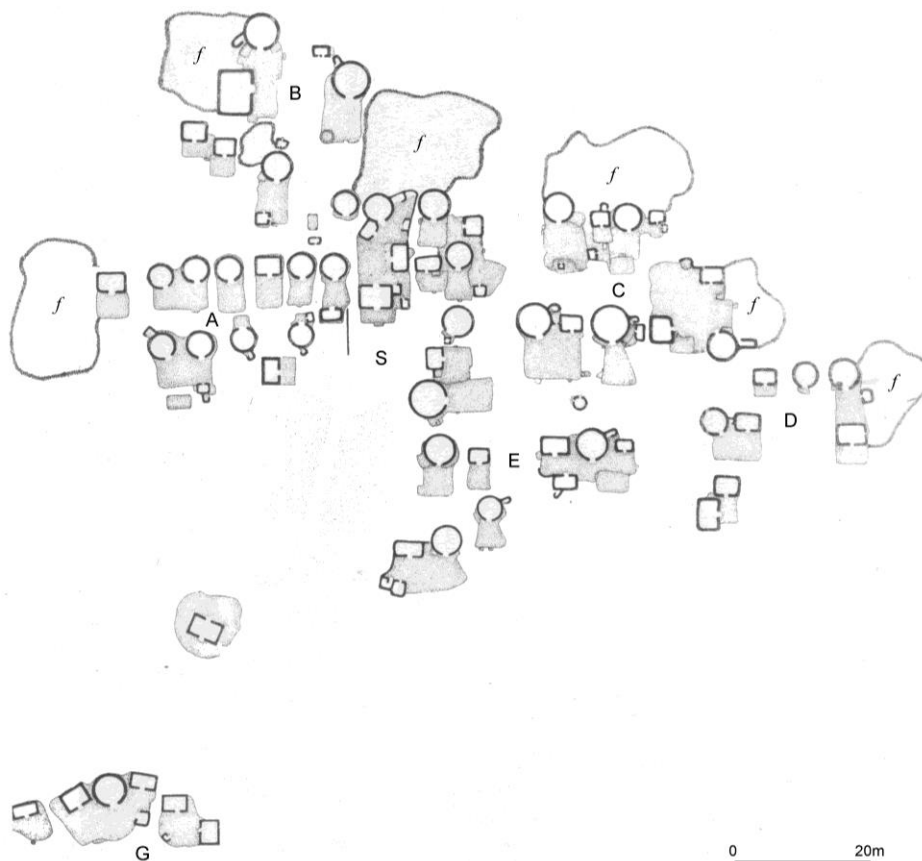
Fig. 4.41: Plan of Dhordo, pre-2001 (From Jain & Jain 1992: 123) - The hamlet can be divided into five clusters (A, B, C, D, E and G), indicating splits within family groups. Note the separate Harijan cluster (G) to the south west of the main village. Each house cluster is composed of a number of smaller units; *bhunga* and *chowk* set on raised mud plinth which defines the extents of the individual homesteads (see Fig. 4.42). The land within family clusters is common.

4.4.1 Precedent

Culture/ architecture

Little documentation exists as to the precise form of Hodka prior to the earthquake. Unlike other Banni villages such as Dhordo, Gorewali and Ludyia, Hodka was not subjected to in-depth analysis such as measured surveys. However, it is possible to describe in general terms the form the village took using these parallel descriptions; it can reasonably presumed that there are more similarities than differences between the essential characteristics of the villages in the region, based on analytical surveys of other villages in the region and that it is therefore possible to create a sense of the place using this information. Further, the villagers have helped establish what was there before by dictating that the urban form of the reconstructed village follow the original plan. This has been established through conversations and workshops; a sort of communally constructed urban planning. In this way the new village can be taken as evidence of the socio-spatial organisation of the old village. I will talk in general terms however.

Fig. 4.42: Plan and section A-A through Headman's house, Ludiya (ibid.) showing A) *bhunga*, B) *chowk*, C) *chamod* and D) plinth and *otla* (adapted from Jain and Jain 1992: 134)

Banni hamlets and individual houses within them were typified by an apparently

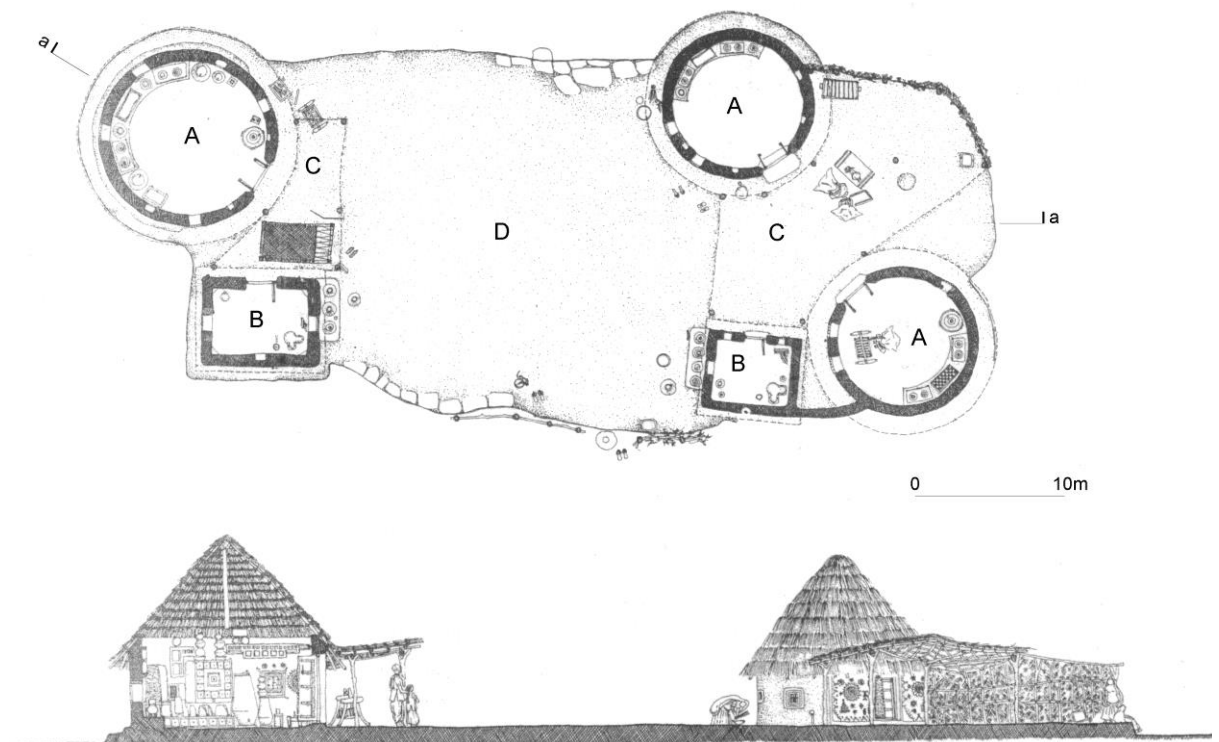spontaneous plan form which did not immediately appear to have been formally planned

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(Fig. 4.41). However, there is an underlying logic and complexity to the community which emerges out of social and environmental conditions. The dwelling patterns are formalised within Banni hamlets, each composed of a single connected family group. Within each hamlet, houses are occupied by extended family groups. Banni hamlets do not conform to the more usual form of closely grouped courtyard houses common to communities in hot, arid climates. Instead the houses are composed of a number of well-spaced single-cell units (*bhunga* and *chowk*) arranged on a connecting raised mud plinth (Fig. 4.41 and 4.42); clustering offers few environmental benefits (such as shading, thermal mass, wind tunnelling/ blocking – there is little wind) but specifically indicates familial connections. The edge of the *falia* defines the 'streets' in between. The extents of the *falia* are indicative of wider social structures such as status. Individual houses are orientated onto the platform, away from the street, improving privacy and emphasising the nature of the *falia* as a room of the house, rather than a garden or yard. In this sense, the *bhunga* serve as bedrooms, as spaces for private activity.
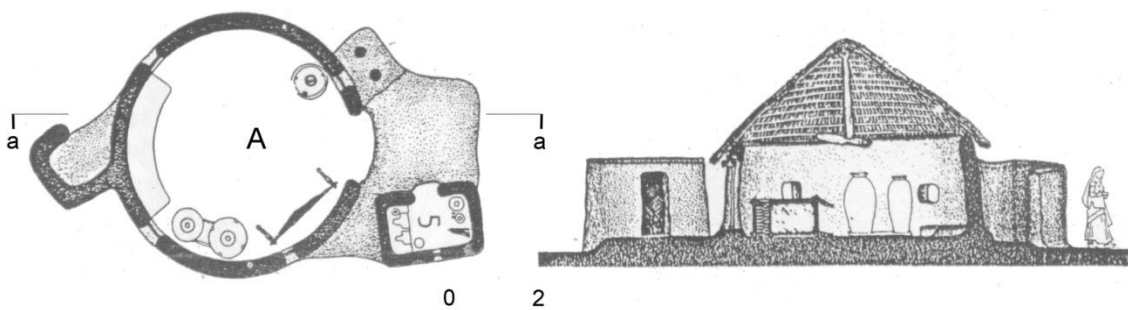
Fig. 4.43*: Plan and Section A-A through a single house, Dhordo (adapted from ibid. 126)

Traditionally housing was produced by the resident and their family. The processes remain the same where traditional structures are constructed. Clayey-mud, dung and rice husks are blended by foot. This material is then cast into blocks of approximately 200 x 300 x 100mm (4" x 8" x 12") and left to set. Once cured, the blocks are set into a shallow foundation trench dug to the desired plan (inevitably circular and more or less 6 metres across) and built upwards to the eaves with mud and dung mortar. The roof is supported on a single main beam and kingpost on to the top of which rafters are fixed. The roof structure is then thatched. Structurally completed, the building is then plastered and decorated with raised mud and dung tracery (Fig. 4.45), coloured with natural minerals (Fig. 4.46) and painted with delicate motifs and pictures by both the female and male community members. Structural timber, doors and windows are ornately carved (Fig. 4.44) and

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embroidered fabrics serve as wall hangings; crafts carried out in general from within the community. A shelf is built into the walls just below eaves level, on which important items such as dowry gifts are displayed. A storage area (*pedlo* – a raised section of the plinth) and fire pit (*chula*) are further customary features built into the *bhunga's* fabric.

(L-R) **Fig. 4.44***:* Decorative plaster work; **Fig. 4.45**: Decorative wall and door painting; **Fig. 4.46***:* Carving to structural timber.

4.4.2 Intention

Strategic Plan - Shaam-e-Sarhad

The reconstruction of the Banni regions in lieu of the 2001 earthquake was undertaken by numerous state and institutional actors. The KNNA network, working primarily through KMVS and Hunnarshālā in conjunction with state bodies and in line with national and regional government agendas, devised a model of sustainable development based on indigenous cultural practices and norms, which simultaneously provided a way-in to otherwise discrete communities for those state and civil-society bodies pursuing development agendas. At Hodka this took the form of both a synthetic vernacular reconstruction of the original hamlet and the establishment of sustainable livelihoods infrastructure in the form of 'endogenous tourist resort' Shaam-e-Sarhad.

Situated next to the village of Hodka, Shaam-e-Sarhad is the outcome of a post-earthquake initiative by a large network of organisations[66], overseen by Kutch Nav Nirman Abhiyan (KNNA) and Hunnarshālā who, in conjunction with the people of Hodka, are attempting to bring sustainable livelihoods to the area whilst simultaneously reinvigorating and re-

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[66] These were the District Collectorate, Kutch Mahila Vikas Sangathan (KMVS), UNDP, the Government of Gujarat and Hunnarshālā.

establishing local knowledges, customs and culture which are (it is thought) being eroded by the lure of the city, of contemporary, western-style lifestyles and affluence. Hunnarshālā, working alongside their sister organisation Kutch Mahila Vikas Sangathan (KMVS – an independent sub-group within KNNA) and the community, developed a business model, providing the 'real Kutchi tribesperson lifestyle' with all the comfort and amenity of the contemporary, western hotel. To this end a 'village' of traditional houses has been built in a traditional arrangement, visits are made to local sights and craftspeople and the guests are served by the local Hodka population who act as hotel staff, cooking and cleaning. In the closed season both Hunnarshālā and KMVS oversee the renewal of both the hostelry skills and the fabric of the buildings which suffer damage during the monsoon. This was undertaken alongside the synthetic vernacular reconstruction of the original hamlet of Hodka which is the primary subject of this description. Any explanation of intention at Hodka has to be read in light of the tourist resort however because of its cultural significance, both in terms of what it represents and its influence. This will be discussed in the subsequent analytical chapter.

Shaam-e-Sarhad was developed with the specific idea of tapping in to the emergent market in sustainable tourism and the lure of ever more extreme places[67] whilst providing a forum for learning and promoting indigenous knowledge and new skills and technologies amongst both the 'locals' and the tourists. The earthquake in 2001 highlighted the depletion of sources of local knowledge within the community at Hodka (a pattern seen elsewhere), the devastation exposing a poverty of building knowledge which was presumed to exist. In fact it is postulated that the lure of the city and of better earnings had tempted away the more skilful members of communities, that is those who could get a job in areas other than those traditionally associated with their community (such as agriculture), leaving a population without the skills to construct strong, secure habitation (Salazar 2001: 6). This had resulted in the construction of buildings that appeared to be 'vernacular' and 'of the community' but which did not incorporate those indigenous technologies that had evolved over time to address the particularities of the environment, and were therefore technically unsuited to

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[67] It should be added that Kutch does not constitute an unusually dangerous place, but it is fairly remote and 'untouched' which has its own attraction.

the environment (an earthquake zone) and unable to resist the 2001 earthquake in any way[68].

Hunnarshālā were invited by the community at Hodka to assist in developing a sustainable, local enterprise which served a number of purposes: to reinvigorate the local economy and thereby induce the younger generations to stay, to advertise local crafts and skills, to engender cultural pride by displaying the richness of local traditions, to promote the local people within the tourism hierarchy and to reinstate a traditional skill base eroded over the years. These requirements would necessarily involve contemporary technological and spatial understandings if they were to satisfy not only the tourists but also the young people of the community who saw their traditional habitations as backward looking. In essence Hunnarshālā appear to seek to provide a hybrid modern-traditionalism in line with the programme of redevelopment in evidence within the reconstructed actual village. Its difference however lay in its professional aspect; owner-driven reconstruction as manifest at Sadar Nagar and Junawada, and in Hodka village proper, can be seen as attempts to vernacularise institutional processes so as to open them up to non-professional users. Here, the complex managerial and promotional processes of commercial tourism were adopted wholesale which appears to have impacted upon the architecture which is considerably more complex, spacious, decorated and luxurious than that in the village proper.

The architectural intention for the houses at Hodka is indicated in the plan and section below, which show an attempt at the recreation of the traditional cluster form common to Banni, with houses spaced according to new building regulations. Construction was to be of stabilised rammed earth (SRE) reinforced by concrete ring-beam construction, with Mangalore tile roofs. Setting-out was to follow the original form of the hamlet as far as possible and taking into account the expansion caused by the new spacing requirements devised by the regional administration's building control department.

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[68] It must be stressed however that the 2001 earthquake, measuring 7.9 on the Richter scale, was so massive that only structures designed with earthquake resistant technologies integrated into them would not have succumbed, regardless of their technical excellence (Ansary, M., C. Menun, et al. (2001)
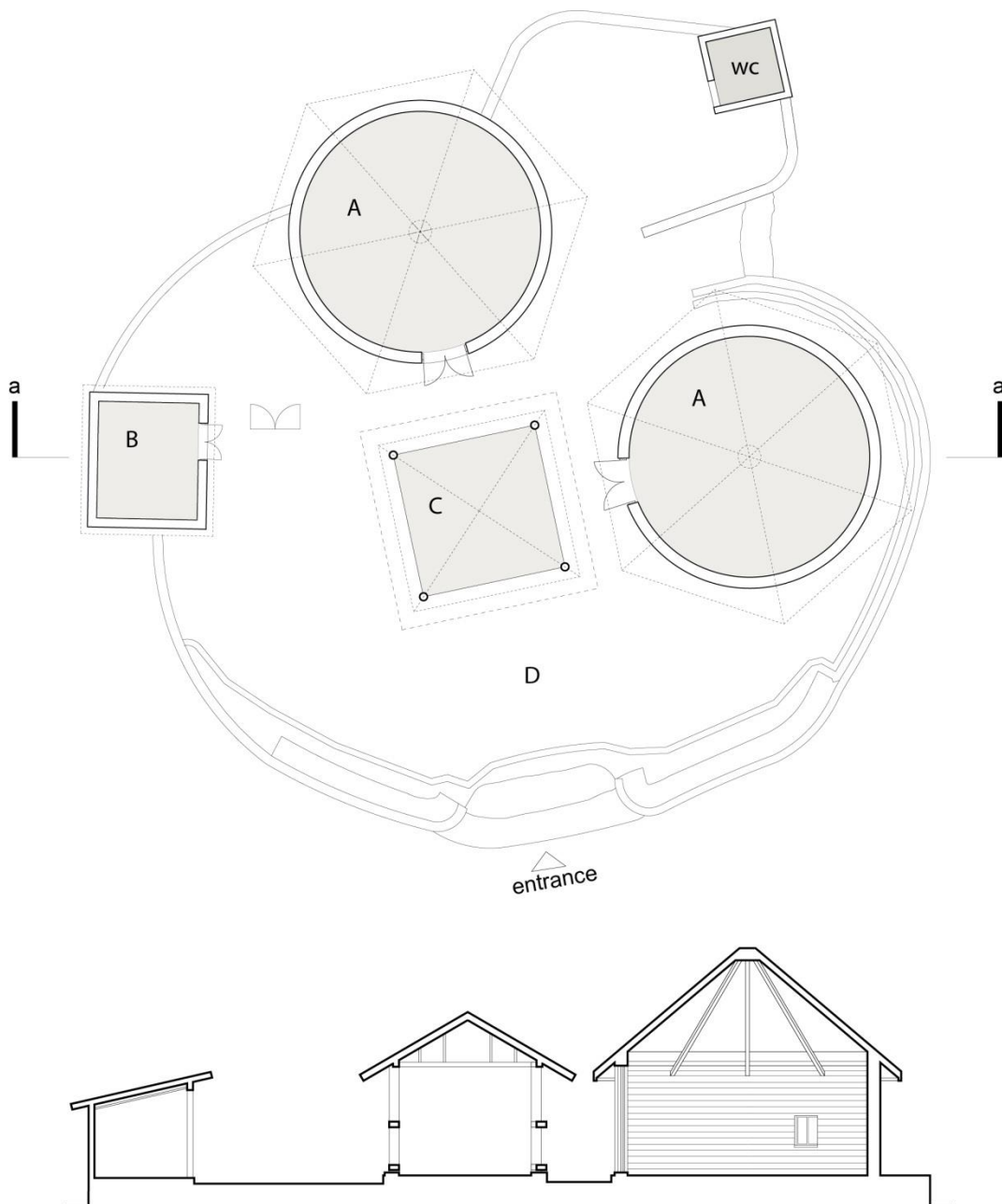
Fig. 4.47: Plan and section a-a through 'typological' Kutchi *bhunga* cluster by Hunnarshālā for the National Institute for Rural Development, Government of India, showing A) *bhunga*, B) *chowk*, C) *chamod* and D) platform (adapted from Hunnarshālā internal document).

4.4.3 Realisation

Development Processes

The re-development of Kutch is an ongoing, organic state which is now directed and given impetus by organisational actors and money, in the pursuit of specific internationally recognised principles (such as peace, emancipation, education, and so on).

One cannot state that 'The development process occurred in this way, with these actors' with any certainty at Hodka. The processes of development were in existence already, insofar as the peoples of Banni were interacting with and being influenced by the world at large through trade, health, education, media and through state interventions in myriad intricate, subtle and unidentifiable ways. In addition to this, the earthquake of 2001 caused chaos and confusion, necessitating a rapid response which came through a huge number of organisations, businesses and individuals from all over the world.

As such, development in this context cannot be seen as an event but as a process, a network of interconnected events. This network, the purpose of which is the facilitation of sustainable social, environmental and economic development, is as much the function of the re-development programme as is any finished item. As at Sadar Nagar this was undertaken through an owner-driven reconstruction (ODR) approach, again operating out of the interaction of a multi-actor group. Based on the principles that ODR operates not only as a mechanism to counter 'the myth that cost, speed and safety necessitates increased state and civil society control, and that, left to people themselves, all three parameters would be compromised' (Duyne Barenstein and Iyengar in Lyons, Schilderman et al. 2010: 184), but also out of a belief in 'the centrality of ownership and empowerment of those who were the prime 'targets' of development – the disadvantaged' (ibid. 165), at Hodka ownership was, as elsewhere, viewed as a broader characteristic than solely possessing, as might occur in a top-down development model. To this end, spatial mapping was undertaken by Hunnarshālā in the village prior to rebuilding work beginning which loosely established the original form. This was discussed and modified through discussion and community negotiation so that the reconstructed village complied with both the technical spatial concerns of state agencies, and also their (and civil society) democratisation agenda. Design was driven by local spatial and technical/ constructional precedent (*bhunga* forms) as well as customary building processes, both in the immediacy of building but also with a view to customary incremental development, as described in Section 4.4.1 above, modified in relation to building regulations imposed (if not established) in the wake of the earthquake. Construction was undertaken by communities, families building their own

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homes and assisting others where required, overseen and guided by Hunnarshālā so that new processes and technologies were undertaken to a verifiable standard, and also so that building became a tool for education towards generating sustainable practices. Subsequent development has been largely unsupported in the village proper, with varied results (as shown in Section 4.4.4) although technical oversight is on-going within the resort, particularly during the post-monsoon renovations.

Below I will briefly outline the role of the three main groupings involved in the reconstruction of Hodka.

State

The term 'the state' is used here to describe the institutional actors and organisations which comprise the democratic, bureaucratic and legislative branches of society, that is, the apparatus of governance. As this definition implies, the state is amorphous and varied in structure, function, purpose and action. It lacks distinct boundaries and does not have (and perhaps resists) clearly delineated roles. Much of its function is coproduced with 'the public', business and civil society It operates in relation to and with the wider world. This vagueness of identity seems to be normal particularly in developing contexts, but becomes more obvious in conditions such as that found in Kutch, where disaster has largely deconstructed the already tenuous apparatus of the state, allowing various non-state actors to acquire a much stronger influence. In such a situation the state is forced into co-creating basic public services with outside bodies.

Nonetheless in Kutch, despite this vagueness and the contingent weakness implied, the state was involved closely with many parts of the re-development, particularly with Hodka whose identity as an endogenous tourist resort was part of a wider state/ national initiative to commodify traditional culture. This involved a number of different departments at different levels of government.

The close participation of the state and Hunnarshālā in the development of Hodka and its resort facilities was seen by people within the planning department and from other development organisations, as well as by the communities I visited as being unusual. Indeed, within the communities this uncommon engagement with the authorities was seen

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as being the reason they had chosen to work with Hunnarshālā, it being viewed as something more akin to a collaboration, or as one villager put it 'a relationship'. A more usual process for redevelopment was understood to involve a civil society actor proposing a solution to the authorities which satisfied both regulations and interested parties (Barakat 2003: 31) in a non-collaborative client-service provider arrangement. This would then be built for the community in need. Participatory exercises may be undertaken by the civil society actor with the community. With Hunnarshālā, the process began with a survey of specific needs within the community, which were ordered along a scale of need (i.e. the person who lost everything takes precedence over the person who lost little) and means. The community decided how funds from donors and the state could best be used in light of this. Hunnarshālā were able to promise more because, by appropriating traditional building practices which are inherently cheap, the available funding could be stretched further. These traditional technologies were then taken by Hunnarshālā and tested and developed so that they met building regulation standards. With these results in hand, the augmented vernacular technologies, in combination with certain essential earthquake resistant features, were approved by the authorities. In this way, the state becomes an aid to the people who, by being able to define the form of the urban renewal, also become able to define the processes of engagement with the State.

Civil society

The involvement of Hunnarshālā in the development of parts of Hodka village, and in the provision of Shaam-e-Sarhad tourist resort came about through the work of sister organisations in and associated to the wider KNNA network. Specifically, although not solely, this was through Kutch Mahila Vikas Sangathan (KMVS) who had been working with women's groups in the district since 1989, in the fields of education, health, savings and credit, legal rights, craft production and trade and media advocacy. Particularly, KMVS operate through indigenous craft practices, using these as a means of achieving a measure of female emancipation. KNNA and KMVS became associated more closely as a consequence of the earthquake.

Directly after the earthquake KNNA were selected to oversee the organisation and just distribution of the deluge of assistance, money, manpower and materials that had poured into the region. Through this KNNA were able to establish a network of complementary

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state and civil society bodies to most effectively meet the specific needs of diverse communities. It was in this context that the Setu programme was established as part of KNNA, providing data of actual specific needs and policy feedback directly to the State. KNNA had however already been heavily involved in development programmes in the region, particularly in relation to capacity-building and income-generation schemes through the promotion and sale of local crafts and culture, via KMVS. This work grew from an agenda of economic empowerment of the region's women through the establishment of self-help, craft and saving groups within villages. Such a group existed in Hodka but was strengthened after the earthquake by the influx of money and technical assistance. It was a logical step for KMVS therefore to promote the attractions of the culture of the region as a suitable location for one of the State government's proposed 'endogenous tourist resorts'. Out of this programme Shaam-e-Sarhad emerged. Hunnarshālā, having already proven both their sensitivity to the local culture and their ability to produce a synthetic vernacular for the region in the post-disaster housing work in the village proper (having been selected for this work because of their good reputation and their in-depth knowledge of the region), were asked by the village leaders to design and oversee the development of this facility.

Prior to Hunnarshālā's engagement with Hodka (and Banni vernacular architecture more generally), vernacular building practices and technologies were not viewed as legitimate practices for use in new housing by regional planning authorities. As a consequence, no quality-control could be exercised in their production. When so many buildings collapsed (Shaw and Sinha 2003: 37) during the earthquake it became evident that this state of affairs was problematic. It also revealed emerging deficiencies in traditional building practices, previously robust built forms no longer resisting the more extreme environmental conditions they once could (ibid. 39). By investigating 'raw' vernacular technologies, and by proposing very simple, scientifically verifiable improvements to them such as stabilising mud-block construction by incorporating minimal amounts of mortar in the mud, which could be easily adopted by the communities in conditions of self-build, Hunnarshālā were able to demonstrate that a dweller-focused or better still an owner-led middle ground was not only achievable but desirable insofar as it satisfied both the community's and government's desire for modernisation whilst maintaining socio-cultural continuity and promoted a more humanitarian interpretation of the human needs of individuals and communities in conditions of reconstruction. Thus the demonstrably effective synthetic or new vernacular was officially assessed and legitimated and brought into the canon of

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accepted building practices, thereby enabling quality control through the existing methods of oversight used by the authorities elsewhere, on subsequent developments. This power to oversee has contingent responsibilities for state, ensuring democratic representation. This legitimation of the villagers' ways of life promoted the benefits of engagement with state bodies to the communities as well, as made evident by the regular contact between the village representatives and authority personnel, giving them a sense of inclusion and security.

The processes of democratisation, promoted in part through a more transparent and representative planning process which better reflects the socio-economic and cultural conditions of the communities it is designed to serve, is also affected by more direct intervention in the decision-making processes already in existence within the village, in this case Hodka. Specifically, Hunnarshālā/ KNNA promoted the indigenous panchayats (elected village or town councils) and established Setu.

Setu are 'state-mandated village-level stakeholder facilitators' (Sushma Iyengar, interview 03/10/08), physically located in the places they seek to assist, set up by KNNA in conjunction with Hunnarshālā. There were at time of fieldwork twenty three Setu established. Setu are designed to oversee and organise relevant actors into a comprehensive and focused development process around the actual needs of the people. By being distributed throughout the communities Setu was designed as a body which would organise and therefore consolidate community-specific concerns and which would then address these in a relevant way, in a controlled manner, to the necessary institutional actors, at the same time as creating policy feedback to the state. In turn Setu enabled the people to become far more 'self-driven', providing them with a necessary access point to government which was to a relevant scale, whereas before it had/ may have appeared monolithic, unaccountable and unapproachable, thereby emboldening them to demand from the state their rightful services.

Similarly, by creating a break between the communities and the donor organisations, Setu further promoted the notion of self-driven development rather than the more common donor- or relief-driven process. Acting as both a barrier to overbearing and unsympathetic institutional actors and as a filter to the myriad community voices, Setu became the key point in the social components of the coproductive process. Working in conjunction with

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Hunnarshālā, Setu could participate in identifying housing and urban needs, acting as a junction between both sides of the otherwise dislocated development process and could lobby for specific concerns in relation to the implementation of a synthetic vernacular housing agenda. Setu could also enforce greater equity in resource distribution and mobilisation which was particularly relevant where resources were limited and priority needed to be given to the most vulnerable.

The Setu interact with villages through pre-existing panchayats. Panchayats are the democratically elected local councils, constitutionally recognised as a means of ensuring recognition of the right of the individual communities to (a level of) self-governance. By channelling information and decisions through panchayats, Setu recognise the right of villages to self-governance; by engaging with them Setu can promote democratisation through them. The legitimacy of this is open to question bearing in mind that there are questions as to whether panchayats are in fact representative, particularly of the interests of the most disadvantaged gender, caste and income groups (Alsop et al 2000: 27-28, Bryld 2001: 170, Vijayalakshmi 2008: 1283). There were few if any women on the panchayat at Hodka (as I recall, only one at the meeting held whilst I was in the village) but this may not be representative and may not mean that women's voices were not adequately represented.

Community

As stated above, the community of Hodka were engaged in a creative process of development with KNNA and its associated organisations (particularly KMVS but also others) prior to the earthquake which focused on capacity building in relation to specific cultural practices, such as weaving, leather work and animal husbandry, as well as work towards gaining recognition, representation and associated rights. Having this link to civil society already in place enabled a forthright engagement. The community knew how to act with institutional actors and therefore did. Furthermore, the hard work done before the earthquake could have been undone by KNNA/ Hunnarshālā if they had pursued an insensitive approach, dumping down unconsidered shelter in place of homes. Consequently, as expanded upon later in this essay, the people that participated in the research suggested that the community themselves were allowed to be the primary focus of the process of housing production, rather than the houses. This meant that the ordinary activities that constitute the life-world of the community became the governing principles

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of design and construction; in essence and within the bounds of regulatory frameworks Hodka was (in theory at least) rebuilt as the community would have rebuilt it, the people that participated in the research suggested. With the help of their civil society agents, the people that participated in the research suggested that the community were able to transmit this notion and its inherent value to all actors involved in the process.

Architecture

Village
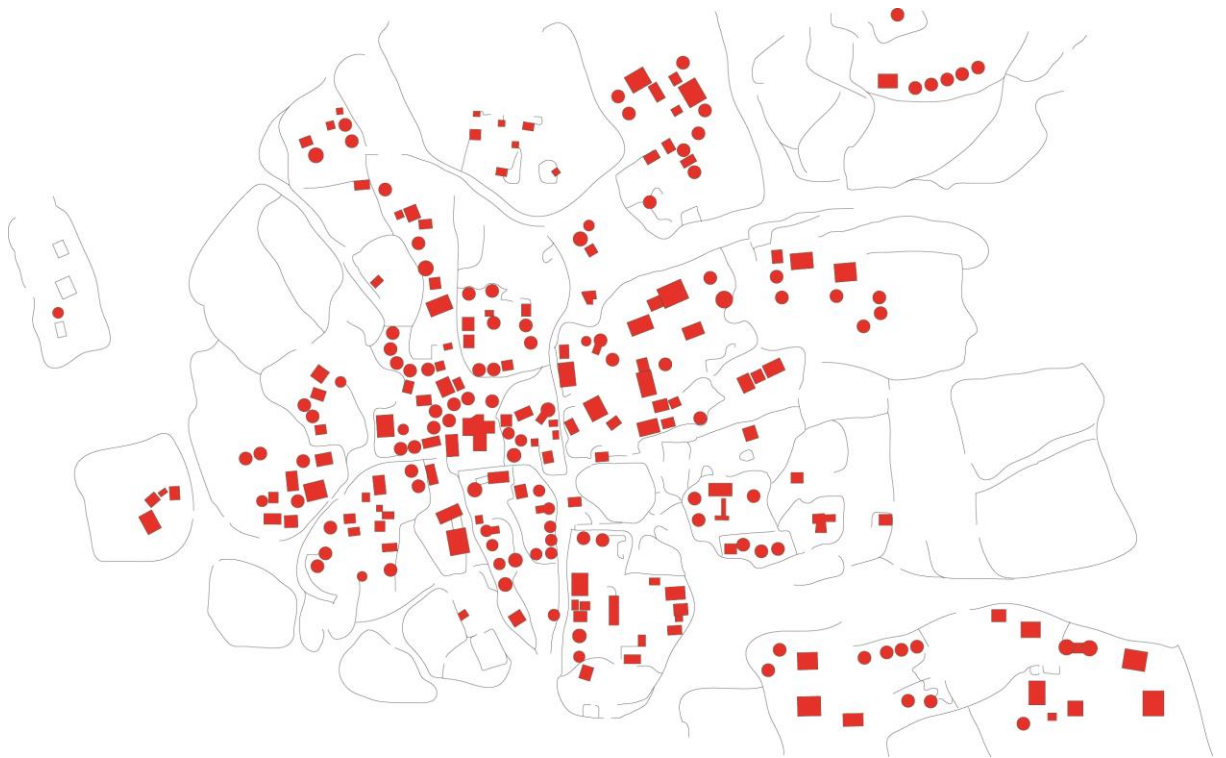
Fig. 4.48: Hodka village plan *circa* 2011. (Image produced by author based on satellite imaging of Hodka - Imagery ©2011 DigitalGlobe, GeoEye, ©Wikimapia.org)

Seen as a whole, Hodka maintains the compositional appearance of a Banni village: it sits low to the ground, blending with the flat landscape, and the pale colours of the walls blend with the earth. The house groups are separated by fences of woven thorny bushes and there is a sense of organic and incremental growth to the whole composition. Of course, differences are apparent too: the roofs are now terracotta red tile rather than buff thatch and the houses are more widely spaced. The sense of delicacy and fragility particular to vernacular architecture, (lines formed by hand, judged by eye), has been replaced to a degree by something approaching a mechanical accuracy and solidity. In conditions of a

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reconstruction this was inevitable. However, whilst Hunnarshālā understand that 'the slow, piecemeal, informal, organic relationships which develop [the physical structure of] communities… cannot be replaced by an external process' (Vivek Raval, UNNATI – personal communication 09.02.2012), they work on the assumption that certain external processes can make it more likely to occur. Whereas before the earthquake the processual and spatial origins of Banni vernacular architecture were disappearing in the villages due to declining knowledge and perhaps a lack of care, with moderate and sensitive external input the community itself has been able to re-approach its own culture and renew it in light of the imperative of contemporary democratisation agendas. In this way the rationale of gridded streets, car-friendly roads and peripheral social space that is common to modern urbanism has been resisted in favour of maintaining the social meaning expressed by the interwoven and explicitly relational person-centred urban layout traditional to Banni communities.

Cluster

Fig. 4.49: New cluster around an as yet relatively undefined *falia*, with rectilinear and circular planned buildings. Note the retained original earth-constructed building (left foreground) which, despite its dilapidated condition, is still used and also the self-built chamod (right foreground), built of found materials, including Mangalore tiles.

The housing clusters within the rebuilt village continue to reflect the familial associations of the traditional village. The embodiment of these associations within the built fabric of the village is absolutely critical to the community and Hunnarshālā re-established them directly, aware from examples elsewhere that any restructuring would produce irrelevant housing. However, changes were made. The plinth which traditionally linked the *bhungas* (living space) and *chowks* (small rectangular buildings used for cooking, washing and storage) together into what was functionally a single home is no longer apparent although wattle and daub fences still delineate the extents of the homestead, thereby enabling this space to

continue to be used as a semi-private[69] external communal room, a sort-of open courtyard. Individual houses are set on a low plinth, providing a measure of resistance to flooding and are still orientated towards the centre of the cluster so that the door and windows cannot be looked at/ through from beyond the fence. Traditionally a flat roof, thatched from grass and wood called a *chamod*, would have been constructed between *bhungas* and *chowk*, under which activities and work took place during the day. In most new clusters these have been built subsequent to the reconstruction, although the greater space between the *bhungas* stipulated in the post-earthquake building regulations resists to a degree such appropriation (Fig. 4.49).

House

The individual houses are designed to reflect as far as possible the form (footprint and section) of the original houses in isolation and as part of grouped family units (Fig. 4.40-3). Hunnarshālā, through investigating both the structural typologies and social use of the houses understood the logic that underpins the architectural forms and their organisation and persisted with the *falia-bhunga-chowk-otla* arrangement that typifies the Banni hamlet. Single-cell circular houses are better able to resist lateral stresses, making them suitable structures in an earthquake zone (as became evident in the aftermath of the earthquake). Conical roofs are suitable in areas subject to periodic heavy rain, and the consequent internal height provides space for heat to gather above the occupants. Thick earthen walls insulate the building's interior from the extremities of heat and cold. The single door, small windows set reasonably low within the walls and the overhanging eaves limit direct sunlight penetration into the house. The very subtle architectural elements of the traditional house are omitted however, due to constraints on Hunnarshālā of money and time. New building regulations stipulate more spacious arrangements of individual housing units[70], the consequence of which is a loss of intimacy; if the *falia* is understood as the house and the *bhunga* and *chowk* rooms within the house, spacing them out is tantamount to making the

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[69] The issue of privacy and its social construction is beyond the scope of this research. Needless to say, it was infinitely nuanced and culturally specific (see Zako, R. [2006] for a discussion on this, particularly in relation to gender). The *otla* and fence did not and do not provide privacy in the sense that those on it are unobservable. The implication is more that those things which occur within the confines of the fence/ on the *otla* are private by dint of the location of their occurrence.

[70] This prescription for greater spacing arose due to the number of fatalities caused by buildings falling on people who had escaped into the street during the tremors. This was a problem of the urban setting, rather than a rural one and so the regulation seems a little unnecessary. Future urbanization may render it a wise provision, however.

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house bigger than is necessary or desirable to the residents. Sumur Khoyla spoke of the greater unity that 'tighter conditions' gave to the community and that the new space had led to a 'loss of intimacy'. Also, the solidity of the new houses seems to some degree to resist alteration and enculturation. Little elements such as the *chamod* could and have been built post-redevelopment but, for example, the extraordinarily ornate decoration that has traditionally adorned the interior of *bhunga* has not in general been applied. Indeed it may be that in many instances the *bhunga* is chiefly used as a place to receive guests and perhaps and is not otherwise lived in; those I spoke to who had constructed a new old-style bhunga cited numerous concerns with regards the new constructions, not least that they hadn't been tested in an earthquake and were therefore not to be trusted.

Fig. 4.50: New headman's bhunga (right) with traditional bhunga built subsequent to the redevelopment.

Fig. 4.51: New bhunga with addition of a self-built *chamod*.
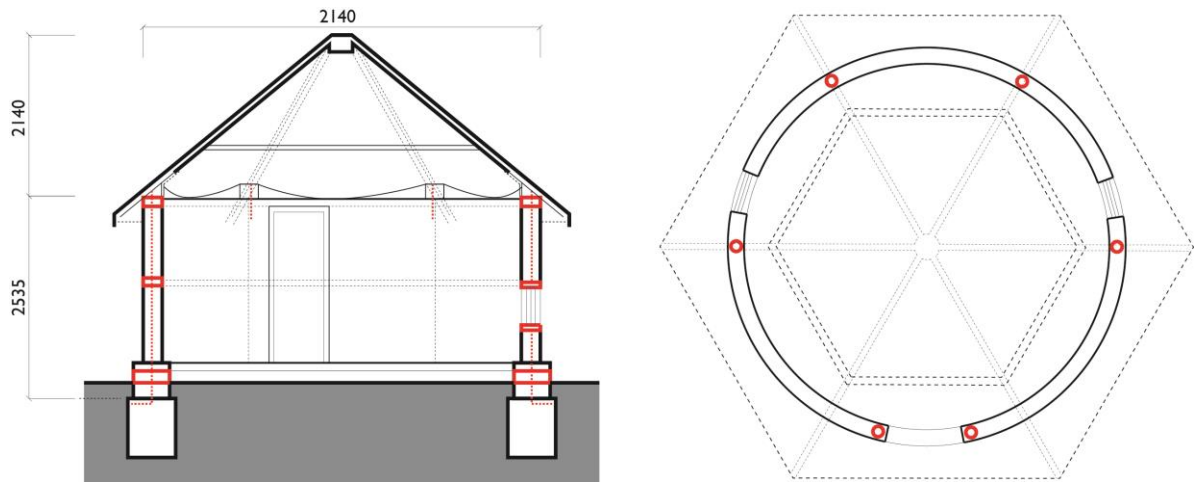
Fig. 4.52: Indicative technical section (left) and plan (right) of new bhunga. The thick red lines indicate the position of reinforced concrete ring-beams (section) and reinforced concrete 'plugs' (plan) as shown in detail in the Junawada case study. The thin dotted red lines the location of steel reinforcement within the SRE walls.

Production

Production methods reflect those already undertaken in the village. Whilst the materials used in the *bhungas* traditionally have come from the immediate environment, social and material changes in the communities and in the region have promoted the acquisition and use of a wider range of materials, such as concrete and steel. Nonetheless, *bhunga* were still by and large of earthen construction, made in one of four ways: from sun-dried blocks, from mud cob, from wattle and daub or from rubble masonry with mud mortar. All block are composed of clayey soil and rice husks. All forms were finished in dung and mud plaster, roofed in local timber and thatched with grass (although *desi* tile was sometimes used). Hunnarshālā utilised these principles when establishing new technologies that satisfied building regulations, incorporating the excellent structural properties of the local mud and the know-how of the community in building in it, arriving at stabilised rammed-earth (SRE) in combination with structural concrete, plastered as before and fitted with Mangalore tiles which were cheaper and more readily available than thatch. There has not been much occasion or demand for new buildings within the last decade although where new construction has been undertaken, structural concrete has sometimes been used. A visual survey indicated that no SRE *bhungas* had been built; many traditional ones had been however, in the spaces between the new constructions. These were the preferred domestic environments.

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The design undertaken in Hodka by Hunnarshālā grew out of a study of traditional house forms in similar hamlets undertaken before the earthquake, which were augmented by the technical expertise of the Hunnarshālā designers. These visual surveys can be backed up by cross-referencing the data with what one is told about the new houses by the residents who stated that the town and the individual houses are exactly the same but better, bigger, stronger, etc.

The housing at Hodka incorporates traditional functions and embodies traditional cultural practices, through the maintenance of such features as the plinth and the provision of space for the natural fluctuations in family shape and size. Previous urban forms were re-established as closely as new regulations would allow in an attempt to maintain family and community bonds. In reality the design component of Hodka does not appear to have been the most important feature of Hunnarshālā's involvement, but rather the establishment or reinvigoration of design and production processes; a great deal of time was spent on community organising, educating the community to understand their rights as citizens and undertaking skills training and workshops; the architecture was to a great extent pre-determined. The community wanted their town rebuilt, but improved structurally and spatially so that in an event of another disaster there would be fewer casualties. Hunnarshālā's processes, through which the residents were allowed to both use low-cost (stabilised rammed-earth) and recycled materials (from their collapsed houses) in traditional construction.

However, it must be noted that in Hodka (as in Sardar Nagar and Junawada) subsequent construction has often resorted to traditional forms, such as *bhunga* construction, without the use of any of the new, low/high-tech constructions methods designed by Hunnarshālā to protect against earthquakes. Although this does not represent a structural problem (by and large, the *bhungas* withstood the earthquake in 2001 and, being made of mud and straw, didn't cause many serious casualties if they collapsed [Ansary et al 2001: 119]) it suggests that the new housing represents something of an economic and cultural issue. It was both apparent and stated by residents interviewed that unless financial donations were forthcoming decent construction would not be employed. Many other residents had built *bhunga* to sleep in, both because they were more pleasant (cooler, cosier, quieter) and because until the new housing had proved itself in an earthquake it could not be trusted.

4.4.4 Analysis

Hodka initially appeared to be the most 'delicate' of the environments in which I undertook research, certainly in terms of the architecture and material culture. The community, whilst not being entirely isolated, maintained a very traditional appearance and by-and-large the community persisted with historical practices and livelihoods as semi-nomadic herdsmen. All this changed with the earthquake and a level stability and fixedness has developed, in no small part due to the reconstructed architecture.

Despite the apparent conservatism of the community at Hodka, however, civil society engagement was the most comprehensive and long-term of any of the three case studies suggesting greater resilience (in the literal sense of elasticity and toughness) than was apparent at Sadar Nagar. KMVS had already been operating in the community for twelve years prior to the earthquake, working through women's groups towards an agenda of female (and rural) emancipation and since 2001 have maintained an assisting role. Operating alongside KNNA since 2001, KMVS provided an access point for Hunnarshālā who likewise have maintained an on-going role in the expansion of the community's commercial programme, under the aegis of the regional government's development plan. This commercial work has fundamentally realigned the community's practices, if not priorities and the architecture of the village proper reflects this, being an hybrid between traditional formal and aesthetic characteristics and those of long-term, earthquake-proofed structures. The involvement of external agencies, particularly metropolitan and governmental ones in the processes of production of housing also reflects the depth of the shift – previously, very independent self-build practices were the norm.

4.4.4a Vernacular architecture in Hodka

Organisation

Spatial organisation in the re-manufactured Hodka continues to follow customary patterns, adapted in line with post-earthquake building regulations with regards the distances between buildings. That *bhunga* were much more resistant to collapse than were orthogonal buildings during the earthquake, and were less likely to cause serious injury when they did due to their shape, materiality, size (Jigyasu 2013: 4) and according to those I spoke to, due to the generous 'natural' spacing of the bhunga within a settlement, seems to have been

ignored by building control and engineers given oversight of the reconstruction work, who duly imposed regulations relevant to the densely-packed Kutchi city onto the semi-nomadic Maldharis of Banni. Hunnarshālā however recognised both the inherent structural properties of the buildings themselves and the evident advantage of the *bhunga* model as a satisfier of socio-cultural needs. The intention was therefore to allow the community to stipulate urban organisation according to tradition and historical norms within the village (i.e. *x* family lived here, had this much space and were neighbours to *y* and *z*) and within individual families and to provide technical oversight and physical assistance in realising this in line with regulatory demands. The research suggests that this re-appropriation has happened, the village re-occupying its space through infill constructions and new-build traditional bhunga within family clusters. Whether it was the organisation of space suggested by Hunnarshālā after the earthquake that has made this possible or the unnecessarily broad spacing of units imposed by the development authority, is an open question. Certainly, there was so much space in the new village it was almost inevitable. Also, the absence of the raised plinth in the new settlements, commonly used in traditional constructions to delineate domestic boundaries and to define types of use, in conjunction with the legal obligation to space out, in many ways appears to have dissipated some of the focus of households. Under such conditions, building infill is actually crucial if anything like a sense of dwelling as understood in the locale is to be renewed.

Appearance

At Hodka Hunnarshālā attempted to produce a design not only sympathetic to tradition but, again due to economic realities, one which could be appropriated easily over time. To some degree this has happened but not much, as seen in Fig. 4.50 and 4.51. It is suspected that the idea that <u>all</u> Banni buildings were richly painted is probably wide of the mark; throughout Kutch I saw many traditional *bhunga* that had survived the earthquake and which were not painted externally. Rather I suspect, decoration relates to the status of both the owner/ dweller and/ or the building's function. Nonetheless, the new SRE used in construction produces a tonal palette sympathetic to the artistic and physical landscape, as per tradition.

Fig. 4.53: Old *bhunga*, Kutch – note the plain external decoration.

The materiality of the new SRE *bhunga* is harder than traditional buildings and the process of construction produces a level of precision visually (plumb walls, neat corners, etc.) that is alien. Similarly, the uniformity of unit size and window and door size gives a machined quality which is unlike that seen in traditional units which are entirely handmade. Attempts at variation within the model are evident but again do not appear sympathetic to the nuances of the relationship between social form and material culture. As elsewhere this is likely to be more because of economics than intention.

Manufacture and technology

The production of Hodka was as per tradition, with individual households self-building, using labour from within the village where necessary. External assistance was provided by Hunnarshālā in the use of new technologies, particularly the use of concrete ring-beams which as elsewhere in Kutch became requisite by law, enforced by building inspectors[71] and in SRE. New constructions built in keeping with traditional forms have not incorporated

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[71] This is interesting: how the state makes law abiding citizens firstly by insinuating that failure to comply will be dangerous, even if, other than judicial sanction, there is no danger or moral wrong associated with not abiding by the law. The people of Banni therefore become lawful or unlawful, good or bad if they do/ don't comply with unnecessary law. Most people like to be (and like to appear to be) good, and so they abide by the law which eventually becomes normalised even though it remains unnecessary. Swiftian indeed.

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the new technologies, as seen in Fig. 4.50 above which shows a new synthetic vernacular *bhunga* to the right and new traditional *bhunga* built without recourse to concrete on the left.

SRE, whilst low-tech and appropriable, does not correspond to a local notion of relevance (climatically, economically, transportationally, culturally, etc.) and is generally disregarded for new constructions. The close fit between culture, particularly labour, and building construction is not seen as being manifest in the new units. This is most evident in the use of the mud and dung as a building material within Banni prior to the earthquake. Traditionally a herding people, the people of Hodka use their buffalo's need to wallow (and defecate) in water holes to produce a fine building material; this is the essence of the notion of vernacular architecture as socio-cultural phenomenon: the demands of the social and the cultural in unison resulting in artefact. Hunnarshālā's systems mimic this; they do not appear to have replicated it satisfactorily, as can be seen in the return to traditional systems and forms and, as described in Section 4.4.4c below, in the way the people that participated in the research suggested the community now engaged with the settlement.
Use

In many ways the objective of external actors in Banni has been to democratise; the earthquake was an opportunity to get in amongst an otherwise self-sufficient and self-governing population ostensibly with an agenda of education, empowerment and emancipation intra- and inter communally. KMVS promoted the 'total empowerment of rural women through their conscientisation, organization, and mobilization into local collectives capable of independently addressing gender inequities in the development process and engendering a sustainable socio-economic transformation in the region' (Alka Jani, interview 24/03/10). Vernacular forms are seen as being a concretisation of (particularly gender) inequalities; as such a continuation of traditional lifestyles is impermissible. If such an interpretation is acceptable, use-change through the readjustment of architectural forms must have been a priority for at least the NGOs involved. As such, the abolition of the *falia* cluster typology in favour of a 'level-access' form, the production of uniform, non-hierarchical units and the spreading out of the village may reflect broader concerns relating to contemporary democratic agendas which are intended to change customs of spatial use.

Even so, due to the remoteness of the village and its continued relative poverty despite the development of the profitable Shaam-e-Sarhad tourist village, the community remains quite separate and has thus continued to pursue its own vision of the good life without much interference, taking what is good and useful from the work of external agencies and setting aside what is irrelevant. The evidence suggests that the re-appropriation of the village by the processes of tradition is somewhat inevitable although, as stated earlier, social moves towards greater emancipation of the sexes and also of the generations, as old and young develop perspectives which do not intersect or cohere around common concepts or value structures, will ensure the modification of traditions in line with these social changes. However, these changes may not be a radical as one might suspect – the culture of the community and the desire for this culture is perhaps stronger than external agencies suppose and may be better at imposing its own vision than is the state or civil society.

4.4.4b Coproduction at Hodka

Coproduction in Hodka follows Ostrom's definition, that is, it is a service produced by people not 'in the same organisation'. In the case of Hodka, the 'service' is and was an array or urban, architectural and infrastructural elements as well as more ephemeral social services such as education and capacity building programs. There are numerous overlaps between these elements, as can be seen from Hunnarshālā's work which, whilst being primarily concerned with the production of housing, uses construction processes to educate the population in saleable skills and the development of peoples' homes to agitate for wider urban development.

As described above, the project at Hodka utilised a broad network of actors to realise multiple agendas and achieve multiple outcomes. Insofar as there was interagency cooperation on a level uncommon to this post-disaster context, and that this cooperation focused, if not orbited around the specific capacities (social, economic, environmental, personal), needs, requirements *and wishes* of the recipient community, coproduction occurred. This relationship effectively satisfies Ostrom's four main requirements for coproduction, as set out in Chapter Two, Section 2.5.1.

Technological complementarity could be seen at Hodka through both the resort and the rebuilt village (Ostrom 1996: 1082). Key to Hunnarshālā's processes and arguably essential

to any development that pertains to emancipation and sustainable practice, both the housing and resort facility emerged as a dialogue between the traditional, vernacular house production methods commonly used in the village, and the contemporary 'global' knowledge inherent to Hunnarshālā's practice. This dialogue functions as an educative process: through synthesising traditional and contemporary building knowledges, both actor groups gain knowledge that can be later reused in isolation from each other. For Hunnarshālā to be able to do this requires that they are exposed to the essential nature of vernacular architecture practices, that is, the narratives and logics which underlie the processes of vernacular architecture's production, rather than simply learn to mimic the forms and technologies commonly used. For the community to do this required that Hunnarshālā essentialise, simplify and 'vernacularise' potentially complex, professionalized design and development procedures and technologies, so as to enable their adoption under less moneyed and supported conditions.

Ostrom's final three requirements for coproduction outlined in Chapter Two (legal options; credible commitments; incentives [ibid.]) all focus on processual concerns and are grouped together in this analysis. As with the application or use of contemporary technologies in the first of Ostrom's conditions, coproduction requires that the social processes (legal, bureaucratic, democratic, and economic) involved in a development can be equally distributed. Again, this deconstruction of boundaries and blending of roles requires that the processes meet at some middle ground: traditional village governance has to be opened up to external observation and intervention, modern democratic bureaucracies have to be essentialised and malleable, responsive to the populations they purport to serve. The 'incentives' stipulated by Ostrom can be understood in this way: as the state becomes a necessary agency in all previously discrete community-level social process, unapproachability through complexity becomes a barrier to their use. Vernacularisation of such processes, of requisite bureaucratic actions, and not material gains (i.e. money; land) *is* the incentive, enabling on the one hand more vigorous representation and therefore making more likely the acquisition of democratic rights. On the other hand, intervention and control is a characteristic of the contemporary modern state and it can be assumed therefore that the desire for modernity discernible in traditional communities is in part a desire for this oversight and regularisation, for what might be called 'strong governance'. If however the mechanisms of oversight and control are inaccessible and therefor

uncontrollable (and are by extension overpowering) due to their organisational, linguistic or technical complexity, 'vernacularisation' serves as an incentive in a coproductive process.

This 'vernacularisation' involved (and still involves – institutional complexity appears to self-perpetuate) the untangling and essentialising of hitherto complex bureaucratic processes, enabling (and therefore more likely ensuring) interaction by the communities with the structures of modern democracy. Initially these interactions occurred through Hunnarshālā/ KNNA, who acted as a mediator, clarifying routes through complex processes where necessary, and had two specific broad areas of realisation: planning and decision making.

4.4.4c Social perceptions of the development at Hodka and summary analysis

The ethnographic research undertaken in Hodka was organised through Kutch Mahila Vikas Sangathan (KMVS)[72], who advised me on the 'best people' to talk to. My intention was to attempt to triangulate data, using the oral accounts of the community to ascertain the effectiveness of Hunnarshālā's agenda, process and product, thereby validating (or not) my thesis. Armed with some names suggested to me by people within KNNA/ Hunnarshālā, my interpreter and I called ahead and made appointments with a number of villagers who had built a house with Hunnarshālā. The timing of my visit was not ideal; as a semi-nomadic pastoral community who specialise in cattle and goat husbandry, the season had called much of the population was away to work in the Rahn. A pilgrimage to an outlying region had thinned the community more than normal too and so there were not so many people to whom I could talk. Further, as a man and a Westerner to boot, interaction with women in the villages had to be extremely sensitively approached. Thus I avoided situations which could be misinterpreted or could cause any such agitation. By going through more regularised channels to gain access to relevant actors within the village I was, of course, directed towards 'representative women' such as community leaders and those who travelled into the cities to interact with the state and civil society. This was obviously problematic in terms of the validity of the data but ethnography requires observation as

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[72] *Kutch Mahila Vikas Sangathan* (KMVS) is one part of the KNNA (Abhiyan) network whose mission is the 'total empowerment of women through their conscientization, mobilization and organization into local collectives capable of independently addressing gender inequalities in the development process and engendering a sustainable socio-economic transformation of the region.' V.Ramachandran & A.Saihjee, *Flying with the Crane: Recapturing KMVS' Ten Year Journey*. Gujarat: KMVS, 2000: p.2.

well as listening, and I was able to glean various impressions of the new village from its (somewhat reduced) use in relation to the oral accounts I collected.

My first point of contact with the residents of Hodka came through the resort facility of Shaam-e-Sarhad. I visited on a number of occasions as it is both something of a jewel in the crown of the region in terms of illustrating Kutchi culture, and an example of what is generally seen to be successful development. For KNNA/ KNVS it exemplifies a key point in their agenda of emancipation, demonstrating the efficacy of their efforts to promote a collective voice for the region as a whole, and for specific elements of this such as women, and for their stated agenda of 'exposing the region to the outside world' according to Alka Jani, a consultant with KMVS) so as to create an imperative for social change.

Through these visits I was introduced to Sumar Khoyla, a leather worker and weaver who also participated in the seasonal renovation of Shaam-e-Sarhad. He spoke of the environmental changes that had occurred in the region over his lifetime, particularly the lower rainfall and consequent lack of grazing land, which had directly changed the culture, for example making the construction of traditional houses difficult. Prior to the earthquake there had been a number of ponds around the village in which the buffalo wallowed, their manure mixing with the clay to produce a fine building material. Good quality pasture in the immediate vicinity of the village would have ensured that the cattle could graze nearby and so the building material was to hand. The loss of the ponds and decline in the grassland has intervened in this symbiosis. In this context the innovations to the traditional Banni homestead were accepted as necessary and embraced to some degree, although the loss and changes were not viewed as being an 'opportunity' as they were for, for example, KNNA.

Even so, whilst lamenting changes to his urban world Sumar complemented the new synthetic vernacular houses, stating that they were 'too good' and approved of the notion that they were traditional as they could be used in the same way and because he had used the associated technologies elsewhere, in support of cultural ideas of tradition as fluid and progressive. In practice however, Sumar stated that neither he nor any of his family slept in their new house but had instead built a traditional *bhunga* next to it where they felt safer as it was a construction type that had been tested in earthquake conditions. Hunnarshālā's *bhungas* had not and were instead used as workshops and as a place to receive guests such as

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myself, i.e. foreigners and institutional actors. People from within their community were received elsewhere also, from what I witnessed often under the *chamod* indicating that the new *bhunga* represented a 'step away' or separation from a private sphere into which only those who were familiar were allowed; perhaps not so much a place for 'dwelling' but a controlled and controllable forum for engaging with certain aspects of contemporary modern life.

Similarly, I was invited into the new *bhunga* of Bharma Khoyla, the only woman I was permitted to speak with that (or any) day, who worked closely with Hunnarshālā and KNNA. She shared the vision of Hunnarshālā and KMVS in terms of using the culture of Banni to promote, expose and change society, particularly in relation to the education and role of women, seeing culture and society as two interdependent things which could nonetheless be changed without affecting the other. She viewed this change as an inevitability in light of the changes that are occurring in India generally and embraced it, participating in 'modernisation' programs including education and saving groups for women. She had accepted all assistance available during the reconstruction, including all the money to build a new house from Hunnarshālā. She remained active in representing the community's interests to the authorities and to civil society actors and had even flown to Thailand to participate in a major conference to do so. In spite of this positivity however, Bharma evidently held on to her cultural assets, such as her dress and craft practices and, as I had seen before with Sumar, had had her sons build her a traditional *bhunga* to 'dwell' in. Indeed this practice was evident throughout the hamlet and as with Sumar this was because new *bhungas* were seen to be untested as well as the more practical problem of being less well suited to the environment, getting too hot or cold inside. Further, she stated that the new spaciousness, whilst it had made the hamlet safer ('women can now go anywhere'), had also had some negative impact, weakening community cohesion. By this, Bharma intimated at a critical point: to the community the form of architecture at Hodka, both in part and as a whole, was a generator of the community of people, being as it was an embodiment of their history, both materially and emotionally.

Indeed, this sense of a declining community sense was reiterated in all conversations I had with people from Hodka and similar places. Three brothers, Khima, Jumma and Hemo who played me music and then sold me craft goods, were extremely pleased with the whole nature and realisation of the Hunnarshālā/ KNNA intervention. They saw the new houses

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as traditional 'except the [lack of] grass roofs' and had not built a traditional bhunga to complement it. Prior to the earthquake the whole family had lived in one bhunga together, including wives, parents and children. Hunnarshālā had provided them with the means to produce a new bhunga *each* which they had done, building them in part themselves using Hunnarshālā's money, materials and innovations of stabilised earth, tile roof and concrete framing. Even so, as before and despite the evident material or physical benefits, all three brothers spoke of the loss of community, stating that it was 'not a neighbourhood', lamenting the loss of population as family members moved away from the 'more spacious, less communal' village. This placelessness was emphasised elsewhere, although my luck in getting such keen actors to discuss Hodka in depth was short-lived and foundered when I ventured into the Jat area. This may well have had something to do with a local perception amongst the Jat community that KNNA and Hunnarshālā provided assistance in the main to the Hindu Harijan minority, who were also the main beneficiaries of Shaam-e-Sarhad. As such the Harijans were seen as having benefited most from the redevelopment and were therefore implicitly more comfortable having their culture, including their life-practices, commodified. For the Jats the intrusion of somewhat nosy people into their otherwise discrete lives, and the contingent objectification this insinuates, was clearly not welcome; they had nothing to gain from it being otherwise.

Nevertheless, despite the theme of community decline, and the sense that the new architecture had played a part in this, there was also a strong sense that the process of development, whilst not specifically vernacular, was appropriable and therefore within the continuum of vernacular architecture as it is understood in the context. Through the careful interplay of such a broad range of actors, overseen by a small number of specifically engaged and knowledgeable agents (Hunnarshālā/ KMVS/ KNNA, Setu) the vernacular practices of building were understood to have been augmented and regularised and the bureaucratic processes of building permits and approvals had been simplified and thereby 'given over' to the communities. This vernacularisation of the processes of modern architectural development was implied by Dhangi Bhasar, a manager of Shaam-e-Sarhad and leather worker. Provided with accountancy training through KNNA, he not only helped in the basic bureaucratic planning issues necessary but also, through the instigation of what he called 'entrepreneurial traditions' had become proficient in acquiring interest and funding from various donor sources so as to be able to perpetuate such an agenda. This (and other similar accounts) makes evident a deep change towards a process, arguably

inevitable where coproduction is employed, whereby both the community and by extension the institutional actors charged with the redevelopment of the region, see their futures as being bound-up to each other and that both groups can only exist (and not just operate) through a co-evolved and hybrid approach to development.

4.4.4d Summary analytical comments on Hodka

The coproduction of housing in Hodka in Hunnarshālā's method requires Hunnarshālā. This is to say, the processes undertaken and the products generated require someone to serve as the fulcrum around which the other actors revolve. Because of KNNA and Setu particularly this 'someone' became Hunnarshālā. For coproduced architecture to emerge it was necessary that both process and product *could* be engaged with by all parties, a situation that required intermediaries. Hunnarshālā and their associated sister-organisations within KNNA acted as this, funnelling knowledges and resources across the divides between state and people and civil society: capacity-building in communities, developing regulatable synthetic vernacular technologies and proving their validity to otherwise rigid bureaucratic bodies and to communities, distilling many voices into cohesive arguments and ensuring representation and recognition through the reinvigoration of the existing representative bodies and the establishment of complementary organisations.

In this context Hunnarshālā appears to function as a benign authority or perhaps a moderator of the numerous voices. Primarily they desire to amplify the knowledge and values (the human needs, perhaps) of the quiet communities and thereby help them achieve a level of recognition and representation that would otherwise be denied them. Of course, this is entirely different from processes of building undertaken before the earthquake and the subsequent imposition of the State, but it is undoubtedly an improvement on the opposite, of the community being given houses deemed suitable from 'on high' which do not take into account the subtleties of their lived worlds. By respecting cultural forms and incorporating them into a synthetic vernacular Hunnarshālā hope to help the traditional house persist, making it relevant to an increasingly modern population and thereby ensuring its future. By considering the vernacular as primarily a social process, a methodology of production rather than solely as an artefact, their designs are vernacular in production too. In principle then the processes of Hunnarshālā could be replicated cheaply and without supervision by the community. In a way however, Hunnarshālā's coproductive

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approach in the context of Hodka might represent an attempt to make the best of what they see as a bad deal: indigenous Kutchi culture has been irrevocably changed by this type and level of engagement, perhaps even accelerated down the road towards its eventual extinction; coproduction as a strategic approach can be seen as an attempt by Hunnarshālā to generate a little resistance, slowing the inevitable. The earthquake has functioned as a route *in* to the communities for regulating and development bodies who have used the opportunity to rearrange societies according to their own image. Nothing has been unchanged by the process, including the architecture.

In practice however spatial organisation and material use normally reverted to type, for many reasons, not least socio-cultural ones: the traditional *bhunga* was seen by the community as being part of them, of their self-image and therefore to some degree forming them, implying that traditional urban and housing forms and methods were active participants in the construction of their community, as was suggested by the Khima Jumma, when he stated that their loss through material, technological and spatial changes had caused 'less community' due to migration into the towns and cities. This was borne out through conversations as well, most people accepting that whilst the *neo- bhunga* would better resist earthquakes in theory, the true *bhunga* better represented them as a community; the continued leaking of population to the towns was seen as evidence that new *bhungas* could not bind the people together as would a traditional one. This notion is easier to understand when one considers the radically altered social processes of building that occurred as a consequence of the shift from self-provided to donor-funded housing. Of course, 'external forces cannot replicate these social processes' and the consequent symbiosis (or perception of symbiosis) between people and their homes but 'they can make it more likely to occur' (Vivek Raval, UNNATI interview 30/03/10); in this specific situation, where nobody died as a consequence of *bhungas* collapsing on people escaping falling buildings, the application of planning regulation designed for cities but applied as a blanket rule region-wide appears a disregard of this insight.

This suggests a particular issue, relevant to this context: coproduction represents different things for different actors. The implication of the subtle rejection of the synthetic vernacular *bhunga* as a sufficient environment for true self-actualisation, is that the synthetic vernacular house represents one 'vision of modernity' to the householder, allowing them to interact with modernity and gain the associated social benefits (such as elevated status in

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the eyes of outsiders), and another to the donor/ NGO, allowing them to demonstrate the efficacy of their culturally sensitive empowerment agenda. In either case, there is a sense that all parties are knowingly participating in a process that resists appropriation by only one agenda or has a single meaning. This was explicitly demonstrated by toilets in other developments: in urban conditions Hunnarshālā built usable toilets which the community understood the benefits of and accepted; nevertheless they continue to relieve themselves in the bush as before. At Hodka the nuanced acceptance of the benefits of the bigger, broader and more expensive settlement and housing forms, where each compliment given was married to an observation of the lost community, the expense and a general reluctance to engage with government due to its inefficiency similarly suggested the acceptance of coproduction not for its potential as understood by institutional actors or within the literature.

This notion of symbiosis between people and the urban and domestic form found in oral accounts of the traditional community highlights a specific and critical problem with applications of a synthetic vernacular agenda. The synthetic vernacular approach pursued by Hunnarshālā is fundamentally modernising; within it are broad principles of emancipation, representation and so forth but also architectural ideas from current architectural thought and practice, such as compartmentalisation and discrete space, greater size and specific notions of privacy which arguably emerge not from anthropological concerns but rather from a consumerist or Capitalist ideas of development. Through this agenda Hunnarshālā have given the community more and better without realising that they had exactly the right balance for their human needs, for them to self-actualise as fully as they desired to.

4.4.5 Summary

In contrast to the project at Sadar Nagar, the redevelopment of Hodka produced a cohesive story. Of course, this is not to say a cohesive story actually existed but rather, perhaps, that the people from within the community who participated in the research approached the telling of it in this way. Certainly, the community appeared to present itself as more traditionally-minded with a stronger sense of 'right order' and its architecture illustrated this to some degree, the intricate, self-built forms common to Banni settlements

slowly reemerging and re-appropriating the semi-rationalised post-earthquake development in pursuit of a customary sense of place. This is analysed further in the following chapters.

As at Sadar Nagar, the development process also emerged from Hunnarshālā's ODR agenda which sought to permit a level of 'user' involvement in the production of the architecture, in keeping with customs but also in pursuit of a greater sense of ownership, responsibility and capacity. As suggested, this has continued but perhaps not in the hoped-for way.

As the matrix in Appendix 8 ('Synthetic vernacular architecture at Hodka') demonstrates, the work at Hodka has largely gone according to plan and the continued cooperation of the community *as a body* with civil society and state actors, ostensibly in pursuit of common goals, is evidence of the schemes potential as a model. (Not all communities have Hodka's geographical setting, of course, which is not only now the source of their revenue through tourism, but retains its centrality to their livelihoods and to their architecture and therefore many of their social and cultural practices.) The mutually beneficial character of the development, through which all agencies *receive* something is perhaps key to its success, and explains particularly the state's continued concern which has perhaps the most to gain, not only through the positive image such a project promotes, but in terms of its presumed agenda of democratisation in a region of political significance and sensitivity.

Nonetheless, the notion that coproduction in the work of Hunnarshālā is firstly concerned with empowerment through the production of a building is at strongly evident at Hodka. Issues of 'environmental justice' may well have not appeared to be of primary concern to the communities in Banni in earlier generations, but perhaps only because they remained physically and psychologically remote from them. Social and environmental changes in the local and international region, including changes to transportation, the growing ubiquity of communication technology and the growth of the internet, demanded engagement because they affect community's access to customary process and structures of justice (Horowitz 2004: 80). The work of Hunnarshālā and other KNNA agencies has enabled such engagement by producing synergistic networks.

4.5 Junawada

In this section I will begin by describing the context of the third case study before the earthquake of 2001. As with the other case studies at Sardar Nagar and Hodka, this scene-setting is necessary if one is to understand the nature of the task confronting Hunnarshālā had, if one takes into account their proclaimed synthetic vernacular (or better *parampara*) agenda, and the idea that the vernacular house is best understood as a socially conceived and realised way of dwelling, rather than solely a style or type of artefact. After setting the scene, I will describe the development process, outlining the roles of state, civil society and community actors in achieving this urbanistic and architectural vision. I will then, as with the other case studies, describe the precedent which informed the design of the reconstructed town, followed by a description of the design intention and social agenda of Hunnarshālā. An interpretative description of the built reality will follow this, in which I will describe the town as I found it on both an urban and domestic architectural level in relation to precedent and intention, using drawn and photographic evidence as well as the oral accounts acquired in the field from amongst the community. These will serve to establish the data against which I can analyse the perceived effectiveness of Hunnarshālā's coproduced synthetic vernacular agenda in the subsequent chapter.

The third case study looks at the village of Junawada in eastern Kutch where what may be termed a 'community-owner-led' reconstruction programme was undertaken by Hunnarshālā. The research cannot of course fully explain the myriad motivations which typify the re-development of such a place, a narrative shot-through with cultural significance, especially taking into account the brief engagement in the field with the subject and the general lack of literature on the subject. This sense of the 'poverty' of my research programme and methodology was more present in Junawada than at Hodka or Sadar Nagar, the maintenance of the integrity of the culture to the community as they described it being held-up as being of the greatest significance, above and beyond those more customary concerns expressed elsewhere, such as education, modernisation and engagement. This significance grew from numerous sources, central amongst which was a narrative of historical obligation described to me by almost everyone I spoke to within the community, between the various tribes and castes that lived in the village, which had emerged from the collective experience of a natural disaster in the nineteenth century. The story of their mutual support was cited as governing their actions in the wake of the 2001

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earthquake, and was identified by the villagers I spoke to as being the reason why their reconstruction had proven so successful. This, it seemed to me, fed into an idea of themselves as 'other', different or significant in comparison to other communities, which had become self-fulfilling, producing in them a response to extreme adversity that was by all accounts unusual. In short, the village demonstrated a significant spirit of communal care, was collectively motivated and vigorous in action. This appeared on the surface to have resulted in a very successful scheme for all the actors involved.

As before, this case study begins with an outline description of the site, including as far as is possible its history and social composition which, as stated above, are seen as being of the utmost importance to the community itself and therefore effectively to the institutional actors as well. This is followed by a description of those institutional decisions which shaped the development on a social level and therefore (in this instance) architecturally. Following an account of the application of the research methodology, I describe the re-development processes, specifically the 'shape' of coproduction in this context, both in theory and practice as undertaken by lay and professional, individual and institutional actors. I then describe the architectural precedent that informed the reconstructed designs, the social agenda and design intentions of Hunnarshālā at Junawada and finally, how this intention has been realised as adjudged by the various actors involved.

During the periods I visited it, the reconstruction of Junawada appeared to have been completed, inasmuch as the work of external actors was serving as the basis of, and had been subsumed into a general informal townscape, as new constructions were established. This 'finishedness' was of a different nature to that which I had seen at Sadar Nagar and Hodka, where complete provision seems to have been necessary (Sadar Nagar) or at least provided (Hodka). Here, the urban sphere appears to have been established as a framework into which future developments could, where necessary, be inserted. As such, the incremental approach advocated by the civil society actors was obvious: the fabric was not complete in material terms but appeared to have been constructed to have within its incomplete nature the potential to be complete.

Context

Geography

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The physical geography of the Junawada/ Bhachau region is similar to that found in Bhuj, as described in the Sadar Nagar case study: largely flat and arid with large seasonal variations in temperature, a monsoon season between October and November which deposits approximately 300mm of rain, causing flooding, and a changing ecosystem due to salination, drought and heavy grazing as well as the incursion of non-indigenous plant species, all of which has reduced the land's carrying capacity.

Society

Junawada is understood to be the 'original' village to the north of which the much larger town of Bhachau subsequently developed; it is now sited on the southern periphery of the town, essentially as a suburb. However, it maintains a distinct identity and although not insular, would appear to embrace this sense of difference which, according to the research, grows from what the community see as being the uncommon interdependence of the three self-identifying tribal groups found there; the Kolis, the Rabaris and the Bhils. All three communities were traditionally involved in animal husbandry, predominantly raising cattle and consuming and trading the produce from these. The tribal groups are integrated, living amongst one another although distinctions may have been maintained when it came to marriage. The community is Hindu and is presumably largely vegetarian. The proximity of Bhachau provides an immediate market for customary by-products of livestock, including milk products, and for other labour opportunities.

The most obvious defining social structure at Junawada appeared to me as an external observer to be that of male and female, although this may have had more to do with the nature of my engagement than any 'objective' reality. Unlike at Hodka where on a general level the Muslim-Harijan divide was most influential on the research undertaken, or at Sadar Nagar where caste/ creed where most immediately prominent, at Junawada the relationship between male and female community members helped define my engagement with the place as an urban and architectural space, a markedly greater level of either reserve or indifference amongst the community's women at my presence defining access to buildings, urban spaces and accounts of its use, value and production.

Traditionally most men in Junawada worked with livestock in the surrounding land, herding them to pasture; the women remained at home, producing the food and marketable goods, raising the children and maintaining the homesteads as well as undertaking other primary tasks such as education (including domestic matters and building maintenance), food preparation and collecting water. Children attended school, although for girls it was not deemed particularly necessary as it was expected that they would be married and raising their own children quite early. Similarly most boys would follow their fathers into animal husbandry or labouring from quite an early age.

The processes of urbanisation and industrialisation common to contemporary Gujarat in general have altered the normative social practices in the village. These processes have accelerated even further in Kutch in the wake of the earthquake and redevelopment. Where once ownership was presumed and implied by use and tradition, the processes of land-regularisation which had to be instituted by government as a way of identifying and providing financial and strategic help to those affected adversely by the earthquake, have also identified instances where documented ownership is lacking. Those with financial clout have therefore taken advantage of land regularisation, at the expense of poorer communities. Also, as the government takes hold of the region in its push towards democratic ideals and commercial profitability, land regularisation has provided it with a legitimate tool for acquiring ownership rights to legally un-claimed land. As a consequence of this, the land around Junawada has acquired value to industry and developers as it has been regularised, reducing the space available for roaming pastoralist practices. On top of the reduction in carrying capacity caused by environmental degradation occurring in the region, the amount of land physically available for traditional pastoral practices has thus been reduced, putting men out of work and forcing them to find employment elsewhere. In the case of Junawada, a principal viable option was seen as being salt production in the Rahn. Many men were lost from the village through this (although as pastoralists it was customary for men to be away for periods with their herds) but more critically, so were many families with children who moved *en masse* to be near the principal wage-earner, breaking cultural and familial customs of multi-generational dwelling and child-raising.

Of specific importance at Junawada is the essential cultural homogeneity of the community, again despite the proximity to the rapidly expanding and urban Bhachau (which implies migrants and a similar diversity to that found at Sadar Nagar – see

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UNNATI 2006) and the fact that the village was tribally heterogeneous. This homogeneity is nuanced, but does appear to override tribal affiliations which elsewhere are seen as being more dominant and determining. It featured frequently in conversations I had with both male and elder female community members for whom it seemed to be a source of pride. Sura, a village elder who was part of one reconstruction committee, assured me that there were "no neighbours in Junawada, only relatives" which was the primary factor in making it such a "good neighbourhood … [with] … a good spirit", an attitude assented to by almost everyone I spoke to and underscored the particular dynamic found in Junawada, of a diverse yet cohesive community.

4.5.1 Precedent

Junawada was heavily damaged by the earthquake of 2001 before its original state had been systematically documented. Consequently, based on documentary evidence it cannot be stated with total confidence that "the urban and architectural typology of the village was x and y". However, the nature of the development at Junawada, whereby the community rebuilt their own houses using reclaimed or traded resources and their own or local labour means that, to a great degree, the architecture now is as it was, with moderate revisions and embellishments to achieve compliance with the regulatory and legislative requirements of the state and civil society. Nonetheless, one can extrapolate from the literature typological norms which characterise homes and urbanism in the region. Furthermore, the destruction of Junawada was not total; much remained and was used by Hunnarshālā as references for their designs. The community, in conjunction with institutional actors, mapped the original urban plan, with an eye towards compensation for the victims, establishing boundaries and residential arrangements. Hunnarshālā's specific programme at Junawada, through which reclamation of materials was undertaken as a means towards lowering construction costs, also aided this.

The following description of urban and architectural precedent is a synthesis of this information. The urban and architectural characteristics described as design precedent for both the Sadar Nagar and Hodka case studies are also relevant here. In fact, because of the location of Junawada as peripheral to the more explicitly urban conditions found in Bhachau, the community qualifies as a sort-of 'halfway house' between the rural and the

urban[73] and therefore helps paint a fuller picture of how coproduced vernacular architecture can occur in other contexts.

Culture/ architecture

The traditional architecture of Junawada lost in the earthquake could be read within the continuum of Kutchi vernacular design, and more broadly as consistent with traditional building design within the Gujarat/ western India region, and even further afield. The life patterns of the families living in Junawada were seen as being formed by the traditional nature of their work: animal husbandry with some farming and labouring, and habitational patterns which had emerged from this had likewise persisted. The *wada* pattern, broadly defined, in which an extended family occupies a relatively large piece of land, expanding around a courtyard organically and incrementally as needs demanded, constituted the normal domestic arrangement at the time of the earthquake (see Fig. 4.55, below), thematically or typologically un-modified by exposure to the urban norms on display in expanding Bhachau.[74]

Village

As can be seen from the below plan, the urban form of the village is not thematically dissimilar to that at Hodka, a network of interwoven pathways dividing the housing clusters into 'islands', apparently at random. Each of these islands is further sub-divided by walls or timber or bush fences, demarking the boundaries of family houses. Within each boundary are a number of buildings, ranging from complete houses, to lean-tos and small stores are located, again apparently quite randomly, but relationally to each other and the open space within the bounding fence and, inversely, the street. As at Hodka, the house has to be seen as both the enclosed and exposed spaces within the boundary, many domestic activities, including cooking, sleeping (men) and recreation taking place outside (See Figure 4.47).

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[73] There is certainly a related discussion to be had about the existence, emergence and identity of an apparently new suburban sphere within both the Sadar Nagar and Junawada contexts, particularly in relation to reconstruction programmes undertaken by foreign, commonly Western, development agencies.

[74] *Wada* are a type of courtyard house common to Maharastra State (and elsewhere), not dissimilar in plan form to the *havelis* of Rajasthan, but incrementally realised over time in relation to family growth and wealth creation rather than conceived of and constructed as a single entity.
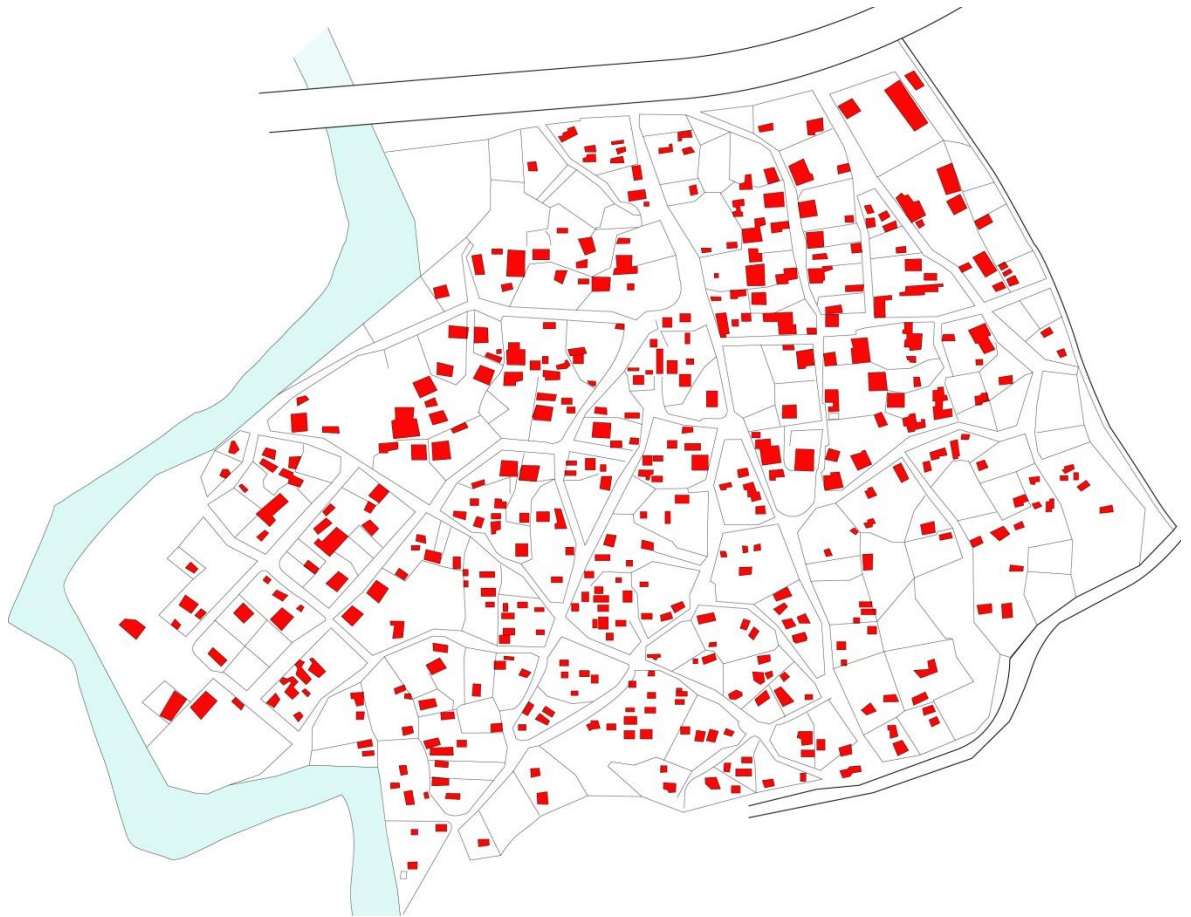
Fig. 4.54: Junawada before the earthquake - The red blocks indicate the location, size and approximate shape of the buildings and the lines indicate the property and road boundaries. The plan is based on one produced by Hunnarshālā (and others) in the wake of the earthquake, extrapolated from surveys of the damaged fabric and of the people.

Cluster

As Figs. 4.56 (above), 4.57 and 4.59 (below) indicate, the *wada*-style of building arrangement is suggested at Junawada, although only vaguely. Experience within the village would suggest that this has as much to do with privacy as shade, which corresponds to ideas found at the other case studies, where the arrangement of spaces is ordered such that an hierarchy of spaces is created to control access to space (from gate, to courtyard, to verandah, to house) and activities and people within the space. (Again, this appears to relate, at least in part, to the control of the proximity of the public realm to women, or vice versa, as has been suggested by others, for example Cooper and Dawson 1998:130)
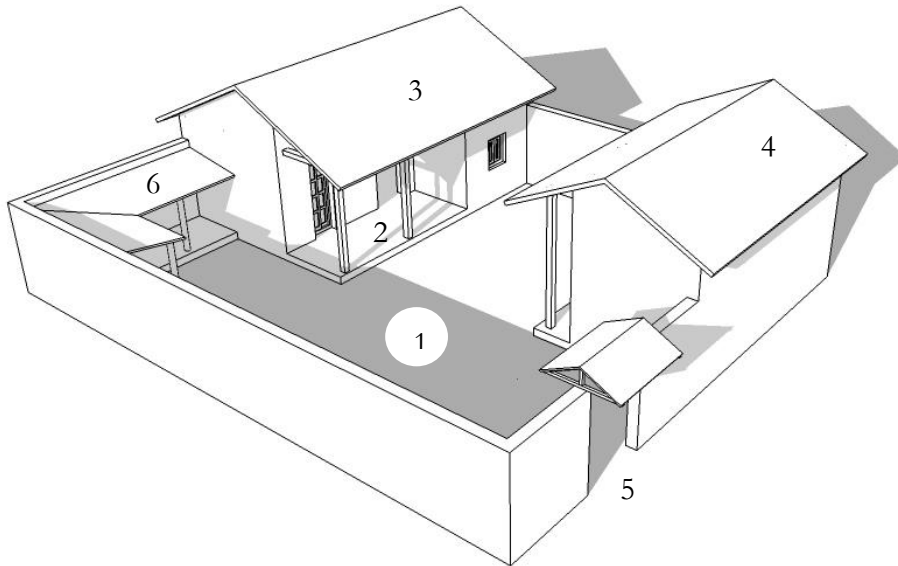
Fig. 4.55: Perspective of typical courtyard house typology (Adapted from: Oliver 1997: 951) - 1. courtyard; 2. verandah; 3. House A; 4. House B; 5. entrance; 6. store/ cattle shed House

According to the literature a house of the kind found at Junawada would have been a one or at a maximum two storey building incorporating a sleeping/ living room, a verandah customarily used for food preparation and sleeping at night and for domestic and commercial work by women during the day, augmented by a *chamod*-like structure in the courtyard. (See Figs. 4.55-57)

Fig. 4.56: Perspective showing traditional Kutchi 'semi-detached' house with shallow pitched roof and shared verandah. It can be presumed that such a building would house elements of an extended family and would be part of a wider complex of more buildings within a homestead boundary. (Adapted from: ibid.)
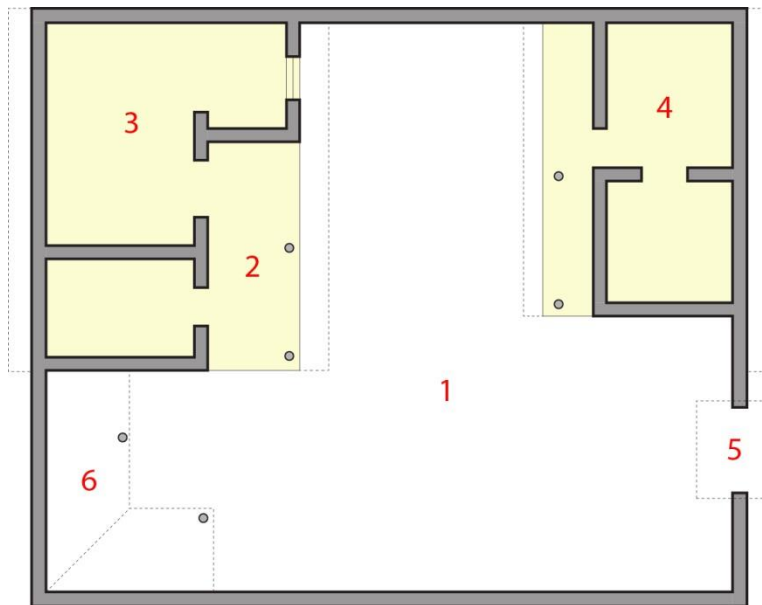
Fig. 4.57: Plan of typical courtyard house typology. (ibid.) – 1. courtyard; 2. verandah; 3. House A; 4. House B; 5. entrance; 6. store/ cattle shed. (Adapted from: ibid.)

4.5.2 Intention

Architectural products and the processes by which they are achieved in an urban development project are viewed by Hunnarshālā as being inseparable insofar as the processes involved in building a house and a community, and not solely the house itself, are seen as principal fruits of the project. These 'fruits' of development can be understood as democratic recognition, representation and rights, as well as access to improved services, including housing and urban infrastructure. The organisation's social agenda is also understood as being a route to this end, a first step towards this more comprehensive democratic engagement. Each part of the development process is instrumental to the whole and not subsidiary to the other parts and the way in which the infrastructural, urban ends are achieved are designed and implemented as if they were the 'final product'. The production of architecture in this formulation therefore is oriented towards enablement rather than the direct building of houses and urbanism (KNNA 2008b: 8) which is broadly understood to promote more satisfactory housing and sustainable communities.

Strategic plan

The strategic plan at Junawada was defined by the Gujarat State government directly after the earthquake in 2001. The Gujarat Earthquake Rehabilitation and Reconstruction Policy

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(GERRP), promoted multi-sector engagement, prioritising home-owner driven processes including community participation, redevelopment through public-private partnerships, an enforcement on building regulations, education and information dissemination relating to the programme, as well as the establishment of a state-level disaster management authority. Civil society actors were seen as being best placed to ensure that community participation influenced reconstruction objectives. Through an association with UNNATI, a voluntary organisation engaged with participation amongst marginalised groups and with technical education and support amongst communities[75], KNNA and Hunnarshālā were engaged by the Bhachau Area Development Authority (BhADA) to produce an infrastructural plan for Junawada. In conjunction with the Centre for Environment Planning and Technology (CEPT), a university at Ahmedabad, Hunnarshālā established a participatory design, construction and budget management approach which satisfied community and legislative requirements.

Owner-led reconstruction in Junawada

In Owner Driven Reconstruction (ODR) individual families/ people are given financial assistance whilst within a "framework of an enabling environment" (KNNA 2008b) that provides training, supervision and organises improved access to materials. This does not necessarily mean that people self-build; they can hire professional labour and technical assistance. Seventy-one per cent of reconstructed housing in Gujarat after the 2001 earthquake was rebuilt by the owners (UNNATI 2006: 4). The community at Junawada chose Hunnarshālā precisely because they wanted to adopt the supported, self-determining ODR approach which would maximise opportunities for self-build and community-determined planning. As stated in the Sadar Nagar case study, the ODR approach is believed to generate sustainable development, in contrast to top-down approaches of housing provision.

Once Hunnarshālā had been chosen by the community to undertake the reconstruction work, BhADA asked Hunnarshālā to design an infrastructure scheme for Junawada. Hunnarshālā in turn invited CEPT to help prepare a plan with Hunnarshālā facilitating the process with the people. A draft plan was prepared and presented to BhADA. Other

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[75] www.unnati.org – "[p]romote social inclusion and democratic governance so that the vulnerable sections of our society … are empowered to effectively and decisively participate in mainstream development and decision-making process. [sic.]"

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housing programmes undertaken in the wake of the 2001 earthquake proposed a specific built-up area and certain technical and design specifications. Instead Hunnarshālā's approach was to offer the demographically representative Junawada committee a fixed sum of money and assistance in capacity building and facilitating the building activity with the management of the building process undertaken by the people and overseen by Hunnarshālā. On the occasion of savings being made, the community were free to use the money as they saw fit to improve facilities in their homes and the wider settlement. Because most of the cost saving in construction comes through efficient management as against materials and technologies, a self-managed programme by the people was cheaper than one in which an external actor was the principal manager. In addition, greater self-management was understood to promote more sustainable products.

Rationalised urban plan

A rationalised urban plan was devised which would widen roads to provide easier service provision and limit fatalities in instance of a subsequent earthquake, and space houses out in accordance with building regulations and regularise land ownership. The initial plan for this (Fig. 4.58 below) was produced in conjunction with surveys of both the population and of the form of the original settlement. Through this it was intended that the original form would be largely maintained with only moderate modification due to the improvements outlined above. This was helped by the relatively expansive urban pattern of the original settlement and the *wada* housing typology.
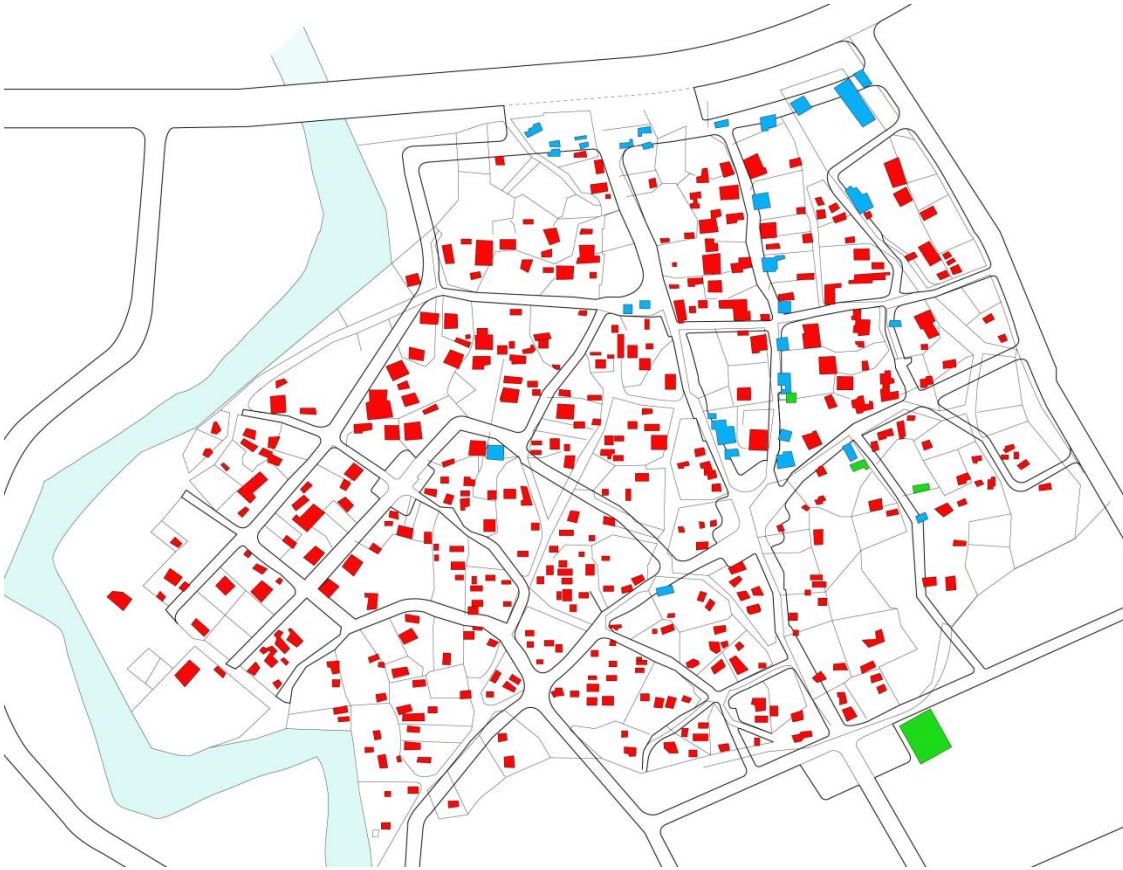
Fig. 4.58: Proposed plan for a rationalised Junawada before the earthquake. The red blocks indicate the location, size and approximate shape of the original buildings that would be reconstructed or renovated; the blue blocks indicate buildings that would have to be removed to make way for the proposed new road layout (heavy black lines); the lighter black lines indicate the original positioning of property and road boundaries.

As Fig. 4.58 above indicates, the plan for Junawada was to 'clarify' of rationalise the settlement , providing wide through roads and urban blocks, with *chowks* at intersections, in essence modernising the archaic Kutchi village typology.

Synthetic vernacular architecture

The plan, section and detail (Figs. 4.59-61 below) show the basic proposed design for a Junawada house. A single storey of stabilised rammed-earth (SRE) construction with integral concrete framing, the house is composed of three rooms and a kitchen accessed via a small verandah. A pitched Mangalore tile roof overhangs at eaves level, shading the walls. The constructional details (Figs. 4.60 and 4.61) demonstrate how building regulation-satisfactory construction could be achieved with only minimal technology. Hunnarshālā oversaw the production of the SRE, ensuring compliance with externally ratified construction standards. Other civil society actors assisted Hunnarshālā by promoting the

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new technologies through education programmes with local craftsmen and homeowners, to ensure compliance with the requisite building standards in future developments.
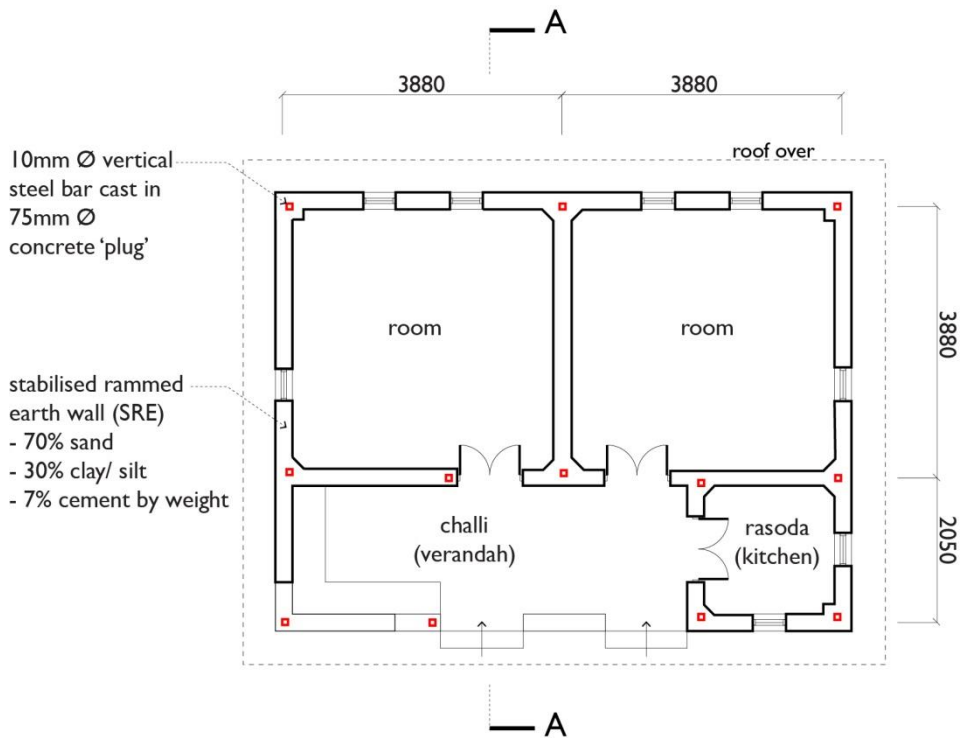
Fig. 4.59: Indicative plan of a basic Junawada-type house, showing structure.
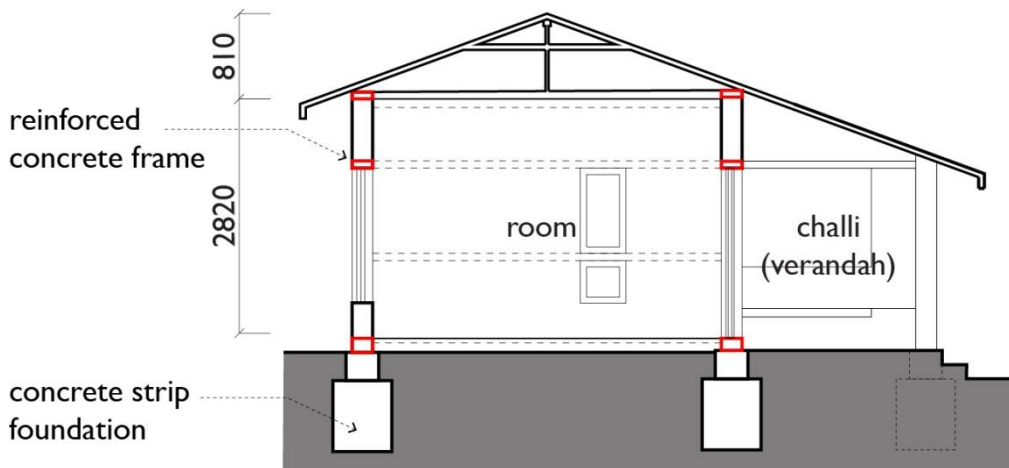
Fig. 4.60: Indicative section (A-A) of a basic Junawada-type house, showing structure.
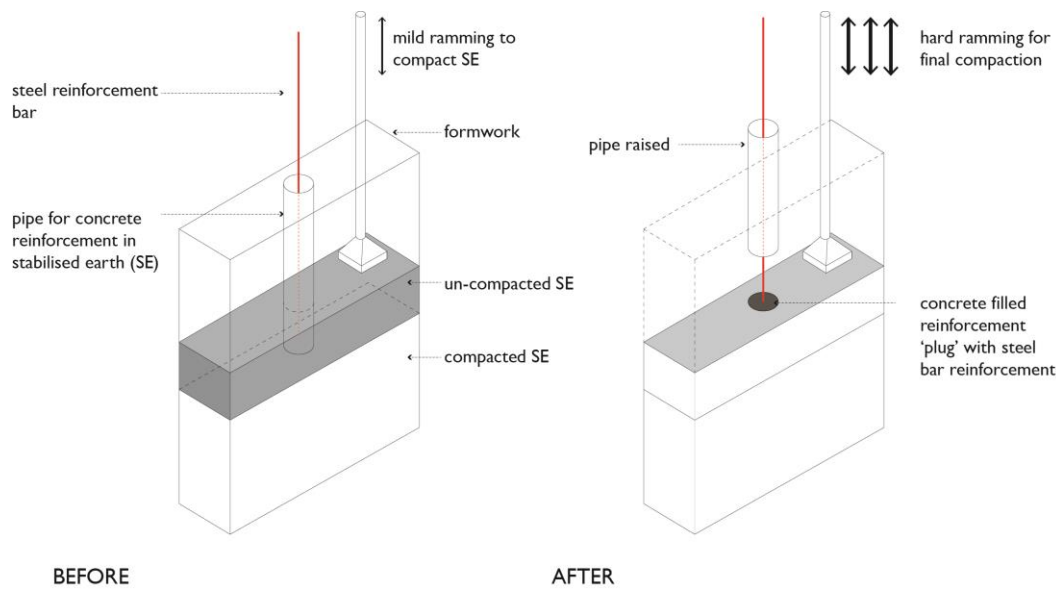
Fig. 4.61: Diagram showing construction of Stabilised Rammed Earth (SRE) walling using steel bar reinforcement cast in a concrete plug.

4.5.3 Realisation

Development Process

The realisation of Junawada has to be read in light of the 'facilitation agenda' of Hunnarshālā, which attempts to make the normal organic processes of urban development characteristic to the community more likely to occur. The site as I saw it during fieldwork was as such a 'complete-in progress' project. Likewise, the settlement is today another form of complete. In continuity with an organic interpretation of vernacular architecture, Hunnarshālā did not design a finished housing product but rather sought to tool-up the community to remake its environment as needs demanded. Describing the realised project then provides no more than a snapshot of a moment in the evolution of Junawada.

Below I will describe the organisation and design and construction of the development process. I will then describe Junawada at urban, cluster and house level.

State

As in the previous case studies, the state in the form of the local government (Bhachau Area Development Authority) and also in the form of the regional Gujarat State

government quickly became involved in the wake of the earthquake. Their presence was felt at every stage of the reconstruction (see Appendix 9 – Synthetic vernacular architecture at Junawada). During preliminary negotiations the Bhachau Area Development Authority, through the District Collector's office stipulated norms for land regularization under Revenue Department procedures. As described elsewhere, Junawada was not recognised as part of the metropolitan area of Bhachau and therefore fell outside the responsibility of the government there – it was instead defined as an area of trees. This redefinition and eventual incorporation into the city limits permitted Junawada's inclusion into the city's land use and infrastructural development plan which affected the urban solution proposed by Hunnarshālā, and established community land rights which had been hitherto implicit. Once the Development Authority undertook this, individual land rights could be established (with the assistance of NGOs), and funding in the form of compensation from the state could be made available, with the contingent right to enforcing building approval norms and planning permissions.

As elsewhere, once legal rights of the community had been established, the state subsequently legislated for the provision of vernacular house forms and the use of low-tech, high specification construction methods in conjunction with requisite new urban spatial forms and the incorporation of new earthquake resistant technology. They then undertook usual on-site construction oversight so as to maintain standards. Again, as elsewhere, subsequent development (inevitable in light of the low levels of funding available to the community and the incremental building model applied in the settlement) has received apparently received minimal oversight from the state both on a domestic and urban scale.

Civil Society

The reconstruction of Junawada was overseen by an extensive network of civil society and institutional actors, in conjunction with what Hunnarshālā described as a "carefully represented [sic.] Junawada committee" (Hunnarshālā internal briefing document). The earthquake of 2001 destroyed Bhachau and the outlying towns but when rehabilitation started Junawada was categorized as an unauthorized settlement as most of the residents did not have papers certifying any right to land use and proof of tenure. Because of this, the residents were not entitled to any compensation or assistance with reconstruction and

the settlement was neglected in the general reconstruction and modernisation push in the aftermath of the earthquake.

Between 2001 and 2004, the NGO UNNATI, who also operated in Kutch in the wake of the earthquake, advocated for legal land rights for the families in Junawada and elsewhere in Bhachau, representing in total approximately 1700 families. Working with the Development Authority of Bhachau, through Nagrik Sahyog Kendra (NSK)[76], the network was able to secure access to 50m² of land per family and compensation of Rs.7000/- to Rs.33000/-, depending upon the scale of loss. The authority also agreed to allocate resources for the provision of infrastructure (roads, sewerage, electricity, water). However, this legal recognition brought with it contingent obligations, not least that of having to build according to state-authorised construction standards. Because of this, civil society actors were required; the normal processes of self-build common to the community could not afford the same 'verifiability' necessary to a construction system predicated upon the primacy of building regulations, made more pertinent because of the threat of disaster in conjunction with real resource-poverty in the populace.

NSK and Care India, a large NGO primarily concerned with community rehabilitation in post-disaster contexts in India, then invited Hunnarshālā to institute a reconstruction process which involved the community and which would result in a minimum of 350 sq. ft. built space for a sum of R75000. The money largely came from Care India; government compensation due to the families therefore went to Care India directly, as a reimbursement from the government. Hunnarshālā were commissioned to facilitate a community-led reconstruction and agreed to facilitate the forming of the final list of beneficiaries, prepare and get their land approved, organize the people to have them rebuild their own houses and prepare an infrastructure plan for the settlement.

Community

Junawada, although without a defined leadership existing to supervise demands for recognition and assistance, had a strong sense of communal purpose and had begun to

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[76] NSK is a civil society body, established by UNNATI in 2003 whose aim was to create "a regular formal interface [between] the citizens of Bhachau and the Government authorities through 'falia meetings', the publication of newsletters, the organisation of meetings with concerned government bodies and the development of a database of Bhachau communities' concerns which formed the basis of many decisions during the development process. (UNNATI 2006)

campaign for land-rights. In partnership with Hunnarshālā, CARE India, BhADA and other regional NGOs, as well as a school of architecture based in Ahmadabad (CEPT), a development strategy was designed and implemented which provided money for the poorest and most needy families to purchase land. The programme, implemented by Hunnarshālā at the invitation of UNNATI, viewed these families as being an integral part of the wider community of about 700 families, requiring the whole community to become stakeholders in the development strategy. As a consequence, the project was designed and implemented as a community project, requiring the mobilization of community resources and skills and in so doing, at least in theory, investing the community with a sense of ownership (and therefore responsibility) for the project. A list of potential candidates for new housing (100 families) was compiled by Hunnarshālā through surveys undertaken throughout the whole community, which sought to ascertain those families the community thought most needed assistance. Each of the nominated families were visited and interviewed by Hunnarshālā, their social, financial and material condition assessed according to basic criteria (need/ level of poverty and capacity to self-support, social inclusion/ exclusion, disability/ health, level of post-disaster destitution and children). The community examined the list, reducing it to 98 families and decided that those families in greatest need should be housed first. This reduction by only two households represents a very fractional amendment, at once indicating the accuracy of Hunnarshālā's approach and thus validating its analysis. However, it might also be indicative of intra-communal politics – if Hunnarshālā's analysis is this accurate, are they likely to have been mistaken in these two instances? – and therefore of the hazards of accepting the validity or finality of the community's 'voice'.

Architecture

Village

At an urban level, the form of Junawada no longer appears to correspond to the intention of those who planned the village (Fig. 4.62 below), although the 'memory' of the masterplan is still visible to a certain degree. The rationally planned roads have apparently been subsumed into an organic layout more akin to what one can presume to be the traditional way of things. This appears to advance a trend towards some-sort of vernacularisation that was apparent during my fieldwork. On entering the village one was

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not confronted by an obvious rational plan, what Tyabji describes as being "based upon the issue of equal opportunity and land rights … [which asserts] … equitable access to roads and social amenities" (Tyabji 2006: 237), as one found at Sadar Nagar, but instead a broad access point off the main road gave way to a complex of smaller routes that ran between the house clusters. There was evidence, immediately apparent, of the emergence of infill; buildings erected which obstructed with perhaps subversive intent, the rational plan that had evidently been imposed.

Figure 4.62 also indicates that the intention to perforate the village, incising it with two broad points of access from the main highway to the north, either did not come to fruition or has been reversed, intentionally or otherwise. Rather, the village now appears to be, once again, peripheral to the broader 'urban' condition, the broad roads surrounding it but not affording anything more than an incidental engagement.
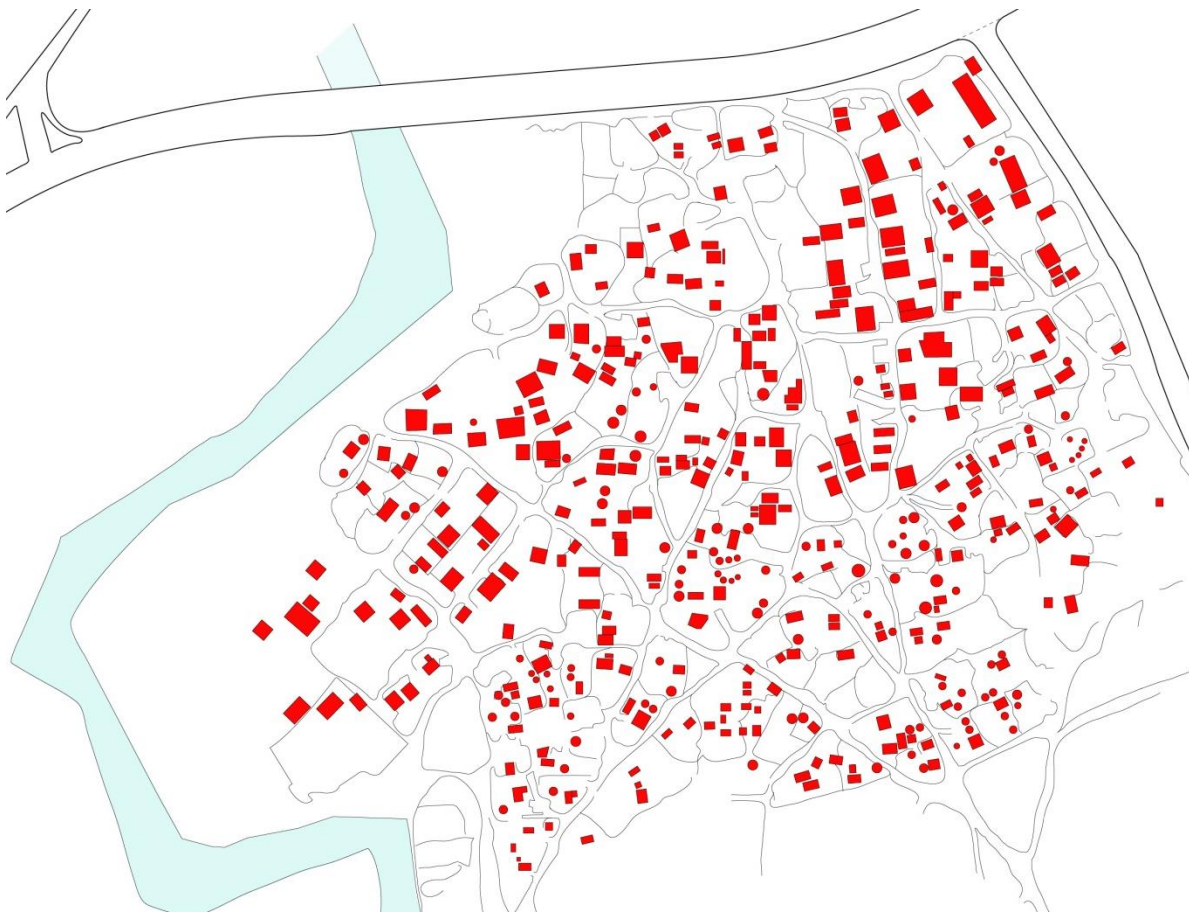
Fig. 4.62: Plan: Junawada as existing. The red blocks indicate the location, size and approximate shape of the buildings; the lighter black lines indicate the current positioning of property and road boundaries. (Modified from Google Imagery ©2011 GeoEye [13.11.2011])

Entering Junawada, one had a strong sense that one was entering a community not dissimilar in feel to one of the Banni villages; a sense of a distinct, independent and relatively insular place. This was surprising, given its proximity to Bhachau but helps explain the nature (and success) of the redevelopment programme; a culturally homogenous and discrete community, proud of its differences, which simultaneously embraced engagement and the fruits of this, confident that it could resist any negative consequences of modernisation. The current urban plan suggests that this sense has only deepened and the village now appears to be more cut-off than it was at the time of fieldwork.

Cluster

The traditional form of homes in Junawada was that of the cluster, reinforcing the regional customs found in the Banni settlements, in the *pols* of Ahmedabad and in the *haveli* of Gujarat, themselves reinterpreted on a number of scales as less elaborate courtyard houses. Here, 'the house' is the land enclosed by the boundary (which is accurately defined but not necessarily demarked) with a hierarchy of individual buildings within the boundary. Space is enclosed in a building as it is required and as resources permit, including a progressively more permanent delineation of the boundary.

Fig. 4.63: House at Junawada showing donor house (white, tile roof) with subsequent informal additions, including a roofless brick-built building that will serve as a home for the family, and a tent-like structure linking the two, built from very basic, apparently 'found' materials. These structures often serve as kitchens and an eating spaces.

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The spacing rationale between individual housing units, established by governmental regulation in light of the earthquake and calculations of access to open space away from falling buildings, was apparent at Junawada as elsewhere (see Fig. 4.58 above). Dense clustering such as that at Hodka did not seem to be the norm here; the *wada* system cited by Hunnarshālā as a key design informer does not appear to pertain to the same type of density; one could expect a rural reinterpretation therefore to promote the spatial arrangement and incremental development common to *wada* precedent, but because of a lack of necessity, a reduction in density. However, the organization of a reconstruction in an undocumented community seems to impose a certain democratisation of space; Simply put, a wealthy family with lots of undocumented land may lose access to some of the land during post-disaster rationalisation and the naturally more expansive living arrangements of a wealthy family would have to be condensed onto a standard, centrally allocated site. At Junawada this possibility appears to have been resisted by the community (or elements within it) who more than other groups I spoke to or heard of, wanted a direct reestablishment of the urban form, including old rights to land. Because of this type of direct involvement by the community in all aspects of the reconstruction at a decision-making level it is reasonable to read the housing clusters as a re-presentation of vernacular architecture within the continuum of *parampara*. This reestablishment of what can be viewed as a manifestation of inequality (the disadvantaged accepting their right to less space based on history) pertains to a key criticism of the architecture of traditional communities – that it is can be interpreted as the concretisation of undemocratic (or even autocratic) social structures (Kwolek-Folland 1995: 6). It is in large part for this reason that *synthetic* vernacular architecture is proposed as an alternative to 'ordinary' vernacular by organisations such as Hunnarshālā, at once retaining the socio-cultural and spatial knowledge of dwelling common to a community whilst promoting an appreciation of democratic ideals.

Fig. 4.64: A housing cluster (Mhega's house), showing the two primary buildings (centre and left) and the subsequent smaller building (right). The increased spacing between buildings, which was commented on elsewhere, mirrored the normal way of things in Junawada, according to the residents. It enabled extensive informal infill.
House

Individual housing units within Junawada are a direct replication of original house forms, matching traditional plan and elevational treatments but incorporating anti-earthquake structure. By using innovative building technologies, specifically the use of low-cost materials (stabilised rammed-earth) in the production of blocks Hunnarshālā, have allowed the production of the relatively large houses traditionally common to the settlement. However, because of limitations of budget, and the demands of introducing reinforced concrete structure, Hunnarshālā have generally produced a core unit which can be modified and built on at a later date. This can be seen in Fig. 4.70 below, which shows that the main building has been modified, the pitched roof either being removed and replaced by an overhanging terrace, or that the initial terrace has been extended. In either case. this both increases the private habitable space (as opposed to the 'within boundary' space) and the type of use possible in the space, the overhang affording greater shelter which in turn transforms the verandah into something more akin to the *chamod* found at Hodka, or even a sleeping space. As such, this approach has allowed for a cultural appropriation.

Many houses have been roofed with Mangalore tiles whereas traditionally straw thatch or *desi* tiles would have been used. Also, in seeming opposition to regional rural tradition, many houses have been built with flat roofs, edged with an ornamental parapet of strikingly

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'classical' design, the roof thus affording secure domestic space. This, as much as the use of concrete suggests both the desire for modern ways of dwelling, and the emergence of construction technologies and techniques which make such forms possible given the climate. Likewise, the aesthetic appearance of the new buildings speaks of the system and materials of construction, the semi-industrial processes used endowing the buildings with a more precise machined quality not found in old buildings in this region, thereby imparting a sense of contemporaneity on the buildings. This is particularly true where concrete has been used. However, customs of domestic decoration (as well as the hard climate) are beginning to soften the hard edges (see Figs. 4.65-68 below) and the visual language of the structure is being absorbed into this, and appears in some respects to be thus celebrated.

(L) Fig. 4.65: House with concrete structure painted red, Junawada; (R) **Fig. 4.66**: Decorated house, Junawada

As with other examples of Hunnarshālā's work, craftspeople have been used in the production of timber elements, thereby maintaining a direct cultural association with the traditions common to the region (see Figs. 4.67 and 4.68 below). This can be seen as being of specific importance where domination of a domestic environment will take time to be realised. The utilisation of local craftspeople and artisans is also understood to "provide confidence to their communities for the adoption of safe technologies" and to "ensure the continuity and application of new knowledge in future constructions" (KNNA 2008a).

Fig. 4.67: Front door, Junawada

Fig. 4.68: Front door, Junawada

Fig. 4.69: A new house showing the new use of concrete reinforcement beams with customary clay blocks rather than SRE blocks as per Hunnarshālā's process. Nonetheless, the aesthetic is that of reconstructed house, as are certain features such as the projecting lintel-level window shades.

Fig. 4.70: A house, showing appropriation in the addition/ extension of the flat roof.

Production

In a vernacular process, design and construction cannot be viewed as separate activities, as in professional architectural design, but occur simultaneously. Hunnarshālā facilitated a similar process at Junawada, basing their designs on the material capacities of the family to hand, in pursuit of pre-determined and community ratified 'ideal' house forms. Determined to maintain their community identity and to retain their distinctiveness in the face of what they saw as potential or active homogenisation at the hands of well-intentioned but unsubtle NGOs, a homogenisation which was seen to have been started prior to the earthquake as Kutch industrialised, the community in Junawada had rejected two previous housing schemes from other civil society organisations which were judged to conflict with this desire for the consolidation of their socio-cultural practices and norms, particularly, but not solely in relation to the physical form of the redeveloped town. The community leaders were attracted to Hunnarshālā's approach to design and development which would demand high levels of personal and communal responsibility for the built, managerial and financial components of the development.

After it was decided that construction for the most vulnerable people should begin first, three pilot houses were built to designs based around a study conducted of existing housing and habitation patterns in the village[77], to demonstrate the method by which the whole development would be established. These also served to demonstrate Hunnarshālā's funding strategy: allocated funds for each house were handed over to the individual families to spend as they wished in instalments, each tranche of money being released as certain designated stages in the construction process were completed. Certain regulations had to be met (assessed by engineers employed by the development authority) such as those relating to sanitation, and structural integrity but otherwise the money made available could be spent in any way the resident families saw fit. Whilst this system was open to abuse, because of the communal nature of the development it was presumed that the arrangement would be self-regulating, which proved to be the case.

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[77] These designs were built as models initially and presented to the community who suggested modifications in line with their notions of what their homes and village as a whole should be. Here we have a crucial difference between Junawada and the other case studies at Hodka and Sadar Nagar: the community wanted (and received) a direct reconstruction with minor alterations to road width. It was not like the pre-earthquake Junawada but, rather was the pre-earthquake Junawada. Hodka, in contrast, was a representation or a re-presentation of the old village, re-envisaged through a prism of Indian or Gujarati conceptions of modernity.

Three separate committees were established from within the community by Hunnarshālā: one to oversee construction activities, one to deal with the government and another to oversee material purchase. It was decided that the homeowners would be in charge of the construction, and Hunnarshālā would provide fixed financial assistance, design and technical support, liaison with government for land and infrastructure, training to those who were willing to produce any building components, and assistance in financial management and transparency. Further, each household could provide their own building materials, thereby saving themselves money, which Hunnarshālā had to assess the quality and value of. Local building material suppliers presented their produce to the community at a general meeting and prices were fixed through a bidding process between the suppliers, reducing costs substantially. Labour costs were fixed in the same way[78]. To limit opportunities for misuse of money Hunnarshālā instigated a token payment system. Every household was allocated tokens equivalent to the value of materials they needed and labour required. Suppliers and contractors were given these by the homeowners in return for goods or services rendered at the predetermined price and at weekly community meetings Hunnarshālā would exchange these tokens for money.

Construction methods and building technologies used at Junawada were the same as those used at Sadar Nagar and Hodka: concrete strip foundations, stabilised rammed earth or compressed mud block construction with reinforced concrete framing where stipulated by building regulations (threshold, lintel and eaves where necessary) and timber roofing members supporting Mangalore tiling. These technologies and their installation were conceived of and functioned as per vernacular self-build practices. Again, the use of more commercial Mangalore tiling in conjunction with the application of more stringent building regulations regarding their installation necessitated the use of a decent fixing system which would reduce the dislodging of tiles in high winds or earthquake. Members of the community (largely women) were trained to make 'storm clips' for use on their houses and which they could also sell.

The first phase of 50 houses were completed at an average cost of Rs.74000 with an area of 35m² (9m² more than required by planning and/ funding organisations). Saved money was

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[78] This may seem a rather aggressive strategy to pursue, especially with regards the establishment of labour costs. However, NGO work had and continues to attract massively inflated prices, many seeing it as an opportunity to make a great deal of money. Because the money for constructing new houses was the homeowners it was in their interests that Hunnarshālā should initiate such a system.

used to make extra houses, as mentioned, as well as enabling the addition to water-tanks to each of the new houses. A R200000 maintenance fund was established by regular public contribution, managed by an elected committee.

Again, as per Hunnarshālā's previously stated agenda, house designs were maximal given the economic and social conditions, but were not viewed by Hunnarshālā or the community (and presumably the state, although this is would not be admitted given their role as guarantor of the regulation and legality of urban development) as being 'finished', although they were functionally complete. 'Cores' were constructed which were at once complete homes but which also invited extension and development. The realignment of human needs towards a more holistic view of the person as a fundamentally encultured being, which underpins Hunnarshālā's work ensured that they did not presume that the provision of basic shelter, whilst the community re-established itself, would suffice. Thus the approach which saw Hunnarshālā promote types of core units which were of themselves complete homes (as per Heidegger's formulation), but ones which invited incremental addition and development. This was seen as being central to the idea, described by Vivek Raval of UNNATI, that external forces (such as the state or civil society actors) were incapable of 'recreating the natural growth of the urban sphere' but it could at best make such a process 'more likely to occur' (Vivek Raval, UNNATI). Due to this approach, the urban and house forms had evidently undergone extensive change in the few years prior to the fieldwork (See Fig. 4.71 below).

Fig. 4.71: A new extension to a reconstructed house which, although incomplete, is already used as a space for cooking. The raft foundation in the foreground implies on-going further development. Note that concrete ring-beam construction has been used, although stabilised rammed-earth blocks have been replaced by more traditional clay bricks.

4.5.4 Analysis

In contrast to the other case studies at Hodka and Sadar Nagar, at Junawada the community wanted (and received) a direct reconstruction of their original settlement with relatively minor alterations to road width and moderate changes in the spacing-out of housing units. As such architecturally and urbanistically Junawada was very similar to the pre-earthquake settlement. The modest house sizes common to the original settlement in combination with the innovative building processes, materials and technologies as well as the defensive approach to engagement with private enterprise employed in the reconstruction, particularly in the purchase of building materials, meant that this type of 'total reconstruction' was possible unlike at Sadar Nagar . Even so, the same core units approach was adopted, allowing for development or growth. In contrast to the direct reconstruction at Junawada, Hodka can be seen to have been something akin to a representation or a re-presentation of the old village, re-envisaged through a prism of Indian or Gujarati conceptions of modernity; Sadar Nagar likewise was a re-conceptualisation of the fundamental notion of Kutchi dwelling, set within the socio-economic and environmental constraints presented in the aftermath of the earthquake.

4.5.4a Vernacular architecture in Junawada

Organisation

As stated earlier, the form of the houses emerged out of participatory exercises conducted by Hunnarshālā with community members. Hunnarshālā designed three model houses based on studies of existing structures at the level of individual units and on a cluster, neighbourhood and settlement level. Residents then chose one that best suited their means (how much money they had, materials available to them and space they had to build on). The urban form followed the village's pre-earthquake incarnation, thereby keeping family groups close together and maintaining communities on a micro-scale, although as with all new building work in Kutch, new building regulations stipulated larger spaces between individual buildings. House clusters are organised traditionally but with reduced unit numbers so as to reduce initial costs, with space for expansion over time allowed for. In

this way Junawada is spatially similar to its previous incarnation, appearing as an organically fluctuating vernacular settlement, but now one that has been 'rationally' planned to allow access for traffic, particularly emergency and security services. Additional non-formal (i.e. unregulated, self-built) constructions were already in evidence during the second period of fieldwork however and a return to less academic formal arrangements was evidently re-emerging.

Appearance

The houses constructed at Junawada have a vernacular 'look', mirroring typologies associated with this region (Oliver 1997: 951), with rectangular plan forms elevated to a single story with either a flat or low pitched, tiled roof, the ground-floor raised up by approximately 300 to 450mm and a 'in-built' recessed verandah serving as the nexus off which entrances and service facilities are located. The custom of painting buildings has been maintained, which preserves the chromatic tone of the settlement, as does the use of Mangalore tile roofing which is of a similar (if somewhat more machined) appearance to the vernacular norm of *desi* tiling. The new technologies have been embraced, and are often 'celebrated', emphasised within the decoration schemes that characterise houses of this type, although subsequent work to individual houses by the owners has not always been so sensitive to text-book ideas of history, continuity and culture: one house had been clad in flattened cooking-oil cans, which had rusted (See Fig. 5.3). The redeveloped houses were all single storey as per regional norms, but engineered so as to allow for the addition of upper levels presumably in anticipation of Junawada becoming increasingly city-like as Bhachau grows. At the time of fieldwork this option had not been adopted within the settlement although as demonstrated some households were keen to do so and had extended their homes with this in mind. The organisation of individual units that composed a homestead allowed for the creation of a *chowk*-style space in between; this generated a visual sense of traditional dwelling, although the spaces were themselves larger than was customary due to new planning regulations.

Manufacture and technology

As at Sadar Nagar and Hodka, Hunnarshālā introduced alternative technologies to into the construction of buildings at Junawada, specifically low cost materials which utilised waste products but which simultaneously improved structural standards in-line with post-earthquake state regulations. The use of such systems allowed the construction to be community-led and normally carried out by residents themselves, utilising family as labour where possible with hired labour where necessary, as was customary. Even more complex earthquake-resistant construction, which was used in all houses, was self-built into the new structures and evidently was still used without oversight or enforcement by the state in subsequent further development. SRE and concrete ring-beam construction was demonstrated by Hunnarshālā; concrete-framing is still used widely in subsequent building, although to what constructional standard was not verified by this research.

Use

Because the residents of Junawada saw the reconstruction work as being a direct copy of what had gone before, by and large because it was, the residents engaged with it in customary ways. Homesteads were and remained the setting for daily activities of work, recreation and rest for the whole family, although education was now formalised and carried out in the purpose built school, which was, according to those in the community spoken to, in contrast to before the earthquake. Unlike at Hodka, there was less of an air amongst institutional agencies that the original form of the village on the urban and domestic scales embodied inequality perhaps because there actually *was* less inequality within this unusual community, relative to other places. Further, the unusual harmony between the caste groups was perhaps seen as not worth destabilising for the sake of what would be viewed as the imposition of an alien ideological agenda. The direct replication of vernacular forms at Junawada ensured that those socio-cultural ways of dwelling that generated the architectural and urban forms could persist, a tacit approval in many ways of the culture itself.

4.5.4b Coproduction at Junawada

Coproduction as per Ostrom's definition is occurring at Junawada with the four criteria in evidence, producing an architecture that at once incorporates the socio-spatial and

constructional norms common to the community into both the technical standards of professional institutional bodies and (broadly speaking) into agendas that pertain to democracy as practiced on a state-level in Gujarat. As with Hodka, the 'service' to be coproduced was housing and democratic rights, viewed as empowering. Hunnarshālā's coproductive method promoted this, both through the processes of building houses, and via this, in the establishment of legal status in the form of land rights, ratification of indigenous building practices and in the development of more robust engagement with state and third sector bodies.

The crucial difference between Junawada and the other case studies at Hodka and Sadar Nagar was that the community wanted *and received* a direct reconstruction of their settlement, with minor alterations to road width. As such, it was not *like* the pre-earthquake Junawada but, rather *was* the pre-earthquake Junawada; a replication, not mimesis. Hodka, by contrast, can be understood as a representation or a re-presentation of the old village, re-envisaged through a prism of Indian or Gujarati conceptions of modernity. This implies that the original settlement as-was was viewed as 'acceptable' by those with authority to judge such things whereas Hodka by implication wasn't. Consequently, coproduction became easier – both the state and the community wanted the same ends, which was a product in the form of a house. The peculiar cohesion evident within the community, distinct amongst the three case studies, may have also tempered in some way the actions of those charged with encouraging democracy. The evidence of inter-agency cooperation between a broad range of actors using the specific socio-cultural capacities already in evidence within the community to achieve multiple outcomes satisfies Ostrom's requirements.

Technological complementarity (Ostrom 1996: 1082) was evident in the housing in Junawada which was built according to local customs as interpreted through Hunnarshālā's professional-technical expertise. Working with other NGOs Hunnarshālā augmented traditional construction practices, developing them in light of earthquake-resistant technologies and building standards demanded by state authorities, so that they were at once suitably robust and in keeping with local traditions of building design and construction. This has been singularly successful at Junawada where such practices are still used.

As with the previous case studies Ostrom's final three conditions (legal options; credible commitments; incentives [ibid.]) can be grouped. At Junawada, bureaucratic processes were made accessible to persons not accustomed to engagement with them. As elsewhere, this did not mean things were 'vernacularised' at source, rather that those civil society agencies involved served as a conduit through which access to state processes was channelled and clarified. This was seen as a welcome alteration to previous engagement which was characterised by a lack of trust (and therefore lack of engagement). The revivification of local democratic bodies and their renewed acceptance by the state has helped this; representatives from within the village feel able to bring their issues forward and to suggest solutions, generally working with civil society. With legal land rights now established and access to services therefore possible, the community have recourse to the law in their favour; likewise the state retains oversight of building standards and urban growth within the settlement. The incentive in such coproductive processes is of course access via recognition, representation and rights.

The processes of procurement in an aggressive materials and labour market place which emerged after the earthquake also required reorientation towards the community. Less formal trading or acquisition of the type expected in vernacular building systems, particularly as earth construction and thatch was normative and generally sourced locally and by hand by the families themselves, meant that the community were liable to be exploited or worse, unable to acquire structurally adequate materials at all if they were to enter the commercial material and labour market at this time. The processes outlined in the previous chapter demonstrate how such a possibility was avoided through the coordinated efforts of NGOs in developing transparent (although complex) and accountable trading practices. These were not intended to be long-term strategies; once things had been established and settled down, normative vernacular practices were presumed to be adopted once again.

4.5.4c Social perceptions of the development at Junawada

The ethnographic element of the research at Junawada (as elsewhere) involved short semi-structured interviews with key community members. Naran Rabaris, one of the main community organisers for the village and a much respected figure, put me in contact with these people. Naran was a former employee of UNNATI, an NGO working in the region

on land rights and political recognition, who became a leading representative for the village on the community's recommendation. The interviews reinforced some of the primary assertions of Hunnarshālā: that the housing was vernacular insofar as it was a representation of the community's and individuals' social use of space; that the housing design was an extension of the historical typologies particular to these communities; that the contemporary innovations were welcome and had been appropriated more generally in subsequent developments which was evidence that the new forms had both grown from and become part of the vernacular language of the communities. Also, interviews confirmed that the emergent social dislocation observed within the community prior to the earthquake and attributed to the demands and pressures of industrialisation, and which had been massively exacerbated by the destitution and social disorientation caused by the destruction of the earthquake, was giving way to a sense of communal 'solidity', the community as a defined, distinct socio-cultural entity, in part as a consequence of Hunnarshālā's work. The development itself and the particularities of Hunnarshālā's development processes were seen as having served to bring together the community to such a great extent that those I spoke to regarded the urban conditions as better than those that existed before the earthquake and were in fact more like the traditional, pre-industrial environments.

Change was seen to have occurred by many of those interviewed however in terms of the urban fabric, a sense being frequently stated that Junawada was becoming 'like a city' and that village life was becoming 'more developed' (Naran). However, these effects were seen as being largely positive. The past was contradictory for those spoken to, both bathed in the golden glow of simpler, purer times and simultaneously less pleasant; likewise the contemporary city which was spoken of as representing both iniquity and degradation and, at the same time, health and wealth. Hunnarshālā, in providing a 'modern' vernacular, answered a general requirement for the perceived 'dynamic stability' of contemporary urban lifestyles within the continuum of communal culture. As at Hodka, an embracing of change perhaps represented an acceptance of the growing desire, particularly amongst the youth, for the trappings of contemporary 'urban' lifestyles.

This willing adoption of change extends into social organisation. Coproductive practices introduced into the community to facilitate development have persisted, particularly with regards structures designed to enable housing construction such as the three committees

established by Hunnarshālā outlined above which, whilst serving a practical use, fundamentally represent a changed engagement with the authorities and in the eyes of the authorities and has facilitated something approaching Schlosberg's three conditions for environmental justice (Schlosberg 2004: 518). Likewise, the use and consequent revivifying of village-level governance (*gram panchayats*) for the purposes of community decision making, through which the communities voice could be rationalised and amplified, giving it influence beyond its customary communal scope, was embraced. Because of the close bond of understanding and objectives which had been forged through coproductive engagement with civil and state agencies, and the subsequent cross-fertilisation between actor groups during the processes of reconstruction, the community was *by design* empowered at a broader governance level.

Socially, the process of engagement was also seen as having resulted in the modification of a more customary or traditional existence, changes which can be seen as being the result of the progressive agenda of the external actors, particularly civil society. Paradoxically, this simultaneously enabled the reestablishment of more traditional social forms, but with modifications. This is well illustrated by the example of the school. Prior to the earthquake education was, according to those spoken to, conducted in the open in a yard and was primarily for boys; girls were largely excluded because their future was more likely to be orientated towards family and home-based work. However, as industrialisation and urbanisation gathered pace in the Bhachau/ Junawada region and traditional livelihoods such as herding became less profitable on decreasing amounts of available land, a process seemingly accelerated by land regularisation in the wake of the earthquake, many of the village's families were forced to re-locate to the salt-panning fields of the Great Rahn, 100km away. On top of this, the psychological disorientation caused by the cataclysm of the earthquake, that was apparent in Hodka according to KNNA's Sushma Iyengar, may have also resulted in a desire to leave the scene of the disaster and the memories of loss now embodied by it. The village emptied of children, leaving with their fathers and mothers because there was no place for them to be adequately cared for in the destroyed village. The customary way of life thus changed entirely; whereas before extended family units dwelt together, sharing houses and labour and child-raising responsibilities, a custom which had to a great degree informed the traditional *wada*-style housing form, the migration led to a fracturing of the family and therefore of the raison d'être of the architecture. It can be assumed by extension that the building and maintenance of houses would have been

affected, the customary self-build processes usual in vernacular settlements necessarily becoming commercialised due to a lack of familial labour. Hunnarshālā's ODR development process (collective bargaining, self-provision or supplementation of materials, self-building, and the promotion of a cheap building technologies) and the nature of the community itself (unusually cohesive with a very firm conception of itself as a collective entity and of its members as individual parts of a greater whole) generated surplus out of the funding provided for the community. This surplus was spent on, amongst other things, houses for two disabled, otherwise destitute people and a school building. As a consequence of this school the children (both girls and boys – again in part a consequence of KNNA's input) have a safe, acceptable environment in which to be school-educated and have thus been induced to return with their mothers to the village. In this way and as a consequence of the coproductive strategy employed, holistic and multi-generational family home life has re-emerged, once more making sense of the housing form. Perhaps more than anything, however, the establishment and acceptance of the school and schooling represents a shift in how the community views itself in relation to wider world, the earthquake acting as a catalyst for a (partial) rejection of the declared uniqueness which characterised the community's self-image.

On a domestic level, according to those I spoke with, the architecture was not markedly different to that which had gone before, as the interpretive analysis would suggest. Manu, an elderly man who was part of the committee who oversaw material purchases, suggesting only that it was the "same style, but bigger" than his old house but "less comfortable". He described his old house as "weak" in comparison to the new one. As far as could be seen the accusation of lack of comfort in the new house was not solely a suggestion of a lack of physical comfort but pertained to ideas of cultural comfort, what might fit within ideas of 'identity within Max-Neef's matrix of needs and satisfiers within a Human Scale Development programme (See Appendix 2). This, again as at Hodka, suggests an important reason for the establishment of *bhunga* and other more informal constructions within the confines of the homestead in which many essential daily activities were carried out, rather than in the new houses.

Nama was a wealthier community member who, due to age suffered from diminished mobility and therefore needed to live amongst family which, under the terms of the development plan would not have been as possible because she did not receive 100%

funding for the reconstruction of an equivalent home to that which she lost. Instead, she stated, she'd sold her farm in part to pay for the building of the new house. This was an outcome she didn't voice great concern about. This story supported the general impression received from other elder village members whose lives had in truth radically altered since 2001 but who did not describe a sense of loss or reorientation away from the 'correct' way of doing things. In itself, this too perhaps suggests a post-earthquake shift away from the traditional agrarian lifestyle that has evidently characterised the culture for many generations, towards a more 'urban' mind set. Nama saw "no change" on an urban or domestic level to the architecture of the village, citing only the Mangalore tile roofs. As for her house, she insisted that she "built it myself" with the assistance of three of her sons and the same two masons she had employed to build her old house, denying any external, institutional assistance.

However, as with the perception of the now city-like village being both a revolutionised and the same culturally stable place, so too is the effect of the school subsumed into the common narrative. Megha Bhil, a grandmother and elder of the village, saw education as disrupting traditional ways of life by ("bad education [in the new school] could break the traditional knowledge"), in particular, and surprisingly, by providing opportunities for new employment. At the same time she understood that education might also be a forum through which traditional practices and beliefs could be transmitted, thereby having a reinforcing effect on her culture. The new extension of education to females made possible by the school was not resisted as an infringement on tradition by Megha but, it would seem, accepted as an extension of the present continuum, entirely acceptable and of a piece with what had gone before. In such a conception, the school is entirely acceptable because it exists in their village and is therefore within her/their tradition. This notion seems to correspond to the common and naturally progressive conceptualisation of the idea of tradition, that of *parampara* or 'going forward'.

4.5.4d Summary analytical comments on Junawada

The community at Junawada had rejected two previous housing schemes from other civil society organisations which were judged to conflict with this desire for the consolidation of their socio-cultural practices and norms, particularly, but not solely in relation to the

processes of production and physical form of the redeveloped town[79]. The realignment of the development approach taken towards a more holistic view of the person as a fundamentally encultured being ensured that they did not presume that the provision of basic shelter, whilst the community re-established itself, would suffice; In contrast, Hunnarshālā promoted types of core units which could function as spaces for dwelling (in an 'Heideggerian' fashion), of themselves complete 'homes', but ones which invited incremental addition and development. As described above, 'anti-earthquake' construction technologies and methods designed to function as per vernacular self-build practices, satisfied improved building regulations, themselves devised through scientific modelling and testing in line with international standards.

As described, whilst the fabric at Junawada is not identical to its pre-earthquake form, it reflects formal arrangements on a domestic and urban level quite closely, as do the elevational and planar treatments. Detailing such as carving and decoration had adapted to these altered forms and is presently a main tool for co-opting the new into the continuum of a historical typology. This similarity between the new and the pre-earthquake architecture has to some degree been verified by the residents interviewed who all viewed the new condition as the same but better and who often described the construction as their own work. This is perhaps indicative of the *parampara* nature of tradition found in Junawada, and elsewhere, that continuity and tradition is interpreted from within, or as, a social framework; where the processes of living are maintained, tradition is seen to be maintained, even if to the outsider, so much appears to have altered.

To some degree the length of time that has elapsed since the earthquake and the re-development will have blurred memories of how Junawada was before the earthquake, and softened views on the new work in relation to this. Also, subsequent informal development will have blurred boundaries between community- and NGO-led building works. However, at no point did I get the sense that those spoken to pined for the past condition, although it was clearly valued and fondly remembered, which although not concrete evidence, does intimate again at the subtlety of Hunnarshālā's intervention and the delicacy with which their processes have attempted to implement what can be seen to be in actuality a cosmopolitanist agenda. The intended or design plan for Junawada appears, arguably, to be

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[79] Other civil society organisations were involved in the reconstruction work at Junawada. See, for example Sanderson, Sharma and Anderson 2012 on the work of the NGO association termed FICCI-CARE.

a plan to 'metropolitanise' an essentially rural Kutchi village typology, seemingly responding to demands for a modern urban existence by transposing a city footprint onto a village, by re-forming a village as a city. There are obvious problems with this idea, not least that a city is not an image and has developed an urban form to satisfy its needs. A village has different needs expressed in a different footprint. Such a design speaks of a more layered agenda on the part of the institutional actors than simple 'Rebuild and Empower', perhaps one more orientated towards social change than its rhetoric implied to the community.

Of interest also is the fact that some of those I spoke to disavowed Hunnarshālā's involvement in the production of the houses. Again, time and fading memories must be in part to blame for this but perhaps it is also because of the closeness of Hunnarshālā's three prototype designs to the originals. This implies also that there were relatively few house types within the village to begin with, housing emerging out of a rooted image of *houseness* from which there was little possibility (or desire) for deviation. Others have written about this as a reality of vernacular cultures across the world (Hubka 1979: 28, Lewcock in Oliver 1997: 121, Oliver in Bourdier and AlSayyad 1989: 53, Wells 1986: 2). Either way, the absorption of design into communal memory again speaks of the continuity of the new houses. As described, community members spoken to quite vociferously insisted that Hunnarshālā had no involvement in producing their houses, that they were direct reconstructions of what had collapsed and that whilst construction had been funded in part with grant money from the government, wherever possible private funds had also been utilised, even if it necessitated selling the family farm as in the case of Nama. Other residents acknowledged that perhaps Hunnarshālā played a minor role in helping to rebuild. This perception of autonomy and personal responsibility for the houses was common amongst those I spoke to and it indicates both the intelligence of Hunnarshālā's approach and of a particular quality of coproduction in development work, which is to link communities to their infrastructure. This is of particular importance if one considers the possibilities for detachment from 'handed-down' development amongst the recipient group that is evident globally in low income or marginal communities and the problems that arise when a community has such a relationship to its habitat.

Another way of identifying the success of Hunnarshālā's development strategy is to examine its continued use as a practice for producing housing. Does it still occur and in

what ways? Many new structures in Junawada utilise concrete as a build material, particularly when replicating the ring-beam construction required by engineers and by the terms of the government funding, even if no funding is now available. However, as the reconstruction in this instance was so complete and so generous little major construction has been undertaken in the intervening years. Only once major regeneration is required town-wide or on individual homes will it be possible to assess the sustainability of the new typologies. Even so, the building that has occurred has tended to be upon incremental lines common to vernacular urban development: small units as extensions to houses, storage sheds and lean-to shelters. By and large this development qualifies as infill, narrowing gaps and thoroughfares, encroaching on communal spaces. This is inevitable: new building regulation space requirements have allowed for more space than people are used to, think is necessary or would choose for themselves and it was always likely therefore that this land would be built on until the urban condition more closely resembled the way things would naturally be. Vivek Raval, an urban designer from another NGO who also worked with UNNATI on this project spoke of this as a positive thing though, arguing that the 'slow, piecemeal, informal, organic processes that develop communities… evolved by the people themselves… cannot be replicated by external processes'. As such, as if by accident the new spatial planning requirements instituted from on high by government and implemented by Hunnarshālā have actually enabled the incremental processes of organic urban growth in a way that no program of exact replication of the original urban form could have. What has been understood, perhaps subliminally, is that housing is a social process, not a product. Hunnarshālā's position as the fulcrum of the coproduction development axis gives them the opportunity and capacity, evidently not always realised, to process and filter or manipulate the central dictates of government so that they are culturally valid to specific communities.

Small infill developments of the kind mentioned occurring at Junawada are built out of available materials, often with tin roofs supported on tree branch columns and joists. Mud brick is used but does not appear to be stabilised as per Hunnarshālā's technologies. Again issues of ownership of ideas may play a part in this, the evolution of these systems, whilst based in native principles, being too removed from the original form. To some degree decisions about how a house is developed is solely economic in relation to need: if a household need a facility it will produce it from within its means if it is able to. Industrial

and building waste products are becoming a building material as they become more abundant.

However, whilst it may seem to the outside observer that village life has reverted to type, in actuality a fundamental social change has occurred. Concealed in the vocabulary of traditional architecture and urbanism, the processes of development organised by Hunnarshālā and the community established a change in the village condition which was primarily social. Firstly, by prioritising the most needy, their domestic condition was altered directly and dramatically. Marginal people with no land rights in Kutch generally live in *bhungas* (circular mud, dung and straw construction with conical grass roofs) because they are cheap and easy to build and maintain and require little professional or specialist knowledge in their construction. Charitable and government funding sources did not establish the capacity to purchase outright standard new 'modern' (i.e. concrete) houses for low-income households but, because of Hunnarshālā's innovative technologies and production techniques (stabilised rammed earth and china-clay concrete, self-made roofing systems, partial self-build) costs were lower and complete, larger traditional Kutchi houses were possible. In this way all those community members assisted by Hunnarshālā (98 households, as described earlier) acquired a house of the kind previously reserved for the better off and a previously unimagined level of material emancipation was promoted, concealed in the language of traditional architecture. It must be added; this great change does not appear to have unsettled the community's sense of order, as might have been expected but actually seems to have unified them. This unrecognised change was illustrated well when talking to Harbaam Raybari, a village elder and member of one of the development committees, who informed me when talking of the way in which the village had been rebuilt that the development had resulted in a social 'revolution in the village' but that the culture had not changed. This easy capacity to integrate radical material and social changes into the existing narrative of the village was reoccurring theme of those I spoke to in Junawada and elsewhere and I think speaks of the intelligent way Hunnarshālā insinuate their social agendas into traditional contexts through the tool of synthetic vernacular development. As such both the processes of development and the architectural language of tradition have been used to legitimise communities, families and individuals to the state (who share, at least in theory, an agenda of democratisation with Hunnarshālā) and inter and intra-communally. Likewise, it is possible to suggest that what might be seen as a

cosmopolitanist agenda imposed with subtlety by institutional actors was in reality met half way, so to speak, consciously pursued by the community too.

4.5.5 Summary

As at Hodka, the redevelopment of Junawada was both described as, and appeared as a cohesive narrative through which the older settlement was re-made in line with local norms. Indeed, the mapping of the settlement in its pre-earthquake form enabled a formal analysis which confirmed this. Hunnarshālā in this instance appeared to have been able to create a synthetic vernacular architecture as their owner-driven agenda suggested was possible and ideal and the reaction of the community, both rhetorically and in terms of the social reinvigoration evident within the community, confirmed the approach as operable and positive. The original re-built architecture, although based on the core-house model, complied with indigenous forms and construction practices, and in line with traditional technological approaches, although subsequent infill highlighted the basicness of the approach, a basicness necessitated by the limited funding. It also implied that there remained a need for appropriation in pursuit of a sense of place and of utility, and perhaps also of ownership, a theme further discussed in the following chapters.

As Appendix 9 suggests, the redevelopment of Junawada went according to the ODR approach adopted, which emphasised the right to local decision making in all significant areas of the project within Hunnarshālā's construction remit. Funding, of course, did not fall within this but, through innovative procurement procedures established by Hunnarshālā (and other NGOs), the community controlled those monies they did receive and to such an extent that reconstruction could be largely complete, rather than approximate. Again, as Hodka, the benefits of the redevelopment were apparent to all parties, which explains the fulsome initial engagement, particularly by the state. However, the completeness of the project and the lack of strategic value the community have to the broader Development agenda in the area means that the community is now quite independent of external oversight and the potential on-going cooperation. The settlement has consequently begun to re-form itself according to more traditional forms less in-line perhaps with external agencies' conceptions of 'the modern state'. As argued later, this perhaps represents an inadvertent capacity for empowerment inherent to Hunnarshālā's

coproduction within the built environment, one that corresponds to issues of access to justice, but not in ways that correspond to ideals of a democratic state.

4.6 Chapter Summary

This chapter presented interpretative and ethnographic data collected in the three case study settlements of Sadar Nagar, Hodka, and Junawada and analysed them as a way of interrogating the thesis statement (see Chapter One, Section 1.3). Following a general description of Hunnarshālā at the beginning of the chapter, which served to describe the ideal form of an Hunnarshālā development according to the sources available during the research, each case study was described in terms of: a) their precedent which, according to Hunnarshālā's agenda, was a significant driver of architectural form; b) the design intention as interpreted from illustrative sources and oral evidence; c) the built realisation of the projects as they were completed and as they have developed in the decade after the 2001 earthquake. On analysis the data for each case study was presented through two questions: 'What was done?' and 'What was made?', the first pertaining to processes, the second to artefacts. The subsequent analysis likewise can be condensed into two simple questions:

1. Was it coproduction?
2. Is it vernacular architecture?

These questions were addressed in each case study in turn, relating the data back to those definitions of the core research themes developed through the literature review, including theoretical concerns. In the following chapter this data and analysis will be used to draw conclusions, initially looking at Hunnarshālā, discussing its approach as an example of coproductive architectural practice before turning to more general analysis, specifically proposing some thoughts on how the two central themes of coproduction and synthetic vernacular architecture are manifest in an architectural context as well as a discussion of the methodological approach.

Chapter Five - Conclusion

In Chapter Four I analysed the development of Sadar Nagar, Hodka and Junawada in relation to the dual themes of coproduction and vernacular architecture as defined through the Literature Review (Chapter Two). In this chapter I will present and discuss the main findings of the research and suggest some implications of it. Based on the previous chapters I will use the analysis to suggest what it is Hunnarshālā actually do and describe the architectural development model they use to do it. From this it will be possible to give an identity to synthetic vernacular architecture as both process and artefact and to describe its 'location' within the scope of Indian architecture and to extrapolate from this the potential of coproduction as a valid means of generating sustainable architecture and what, practically speaking, such an approach entails and engenders. This will allow me to reflect upon the capacity of the production and product of synthetic vernacular architecture to address the theoretical concerns of Schlosberg's conception of environmental justice (Schlosberg 2004) and Max-Neef's re-conceptualisation of human needs theory in the form of Human Scale Development (Max-Neef 1991), concluding with a proposal for coproduced synthetic vernacular architecture to be understood as a model of sustainable architecture. Before making some final comments on the research, I will propose ways in which the research might develop and suggest further work that could emerge from the work conducted in Kutch, particularly in relation to the practice of architects and normative architectural development methods.

In Chapter One a series of questions were proposed that were implied by the thesis statement.

> Synthetic vernacular architecture is a sustainable architectural typology and can be produced through coproduction, as manifest in the work of Hunnarshālā.

In this chapter, in offering some concluding comments on the work of Hunnarshālā as manifest in the three case studies described and interpreted in the previous two chapters, I will propose answers to the questions.

1. What is synthetic vernacular architecture?
2. What is coproduction?

3. How is coproduced synthetic vernacular architecture sustainable architecture?

I will address the two principal themes of the research, synthetic vernacular architecture and coproduction, and will suggest their value with regards the production of housing as understood through the case studies, and how they might assist in pursuit of the primary objective of the research, which is the description of a model of sustainable architecture. As it was, it was found that these two themes were contingent on each other to such an extent that it isn't really feasible to talk each independently – the definition of synthetic vernacular architecture, outlined below, identifies the principal intent of synthetic vernacular architecture as being empowerment occurring through the instigation or augmentation of positive relationships (social processes) via the production of buildings.

The research was concerned with identifying the nature and scope of Hunnarshālā's architectural development strategies as an example of grassroots housing production. It was supposed that a more resident- or community-driven approach would produce more sustainable housing than do top-down housing provision models because any outcome would be more closely aligned to the actual needs of the residents as situated, encultured beings. From this the research engaged with coproduction as a model of grassroots service provision. Hunnarshālā was approached as an example of something that looked like coproductive architectural development, in line with Ostrom's description of coproduction, as applied to the sphere of architectural production (Ostrom 1996). It was not certain that Hunnarshālā's practice would satisfy the fairly indistinct notions of what coproduction is, as currently found in the literature, primarily because it is contestable that housing can legitimately be understood as 'service', as per Ostrom's (and others') portrayal, that is a service provided by the public sector and not merely one financed by the public purse.[80]

Therefore the first objective of the research was to discover and describe what it was Hunnarshālā actually did and how the production of housing for low income and/ or marginalised groups occurred in their practice. This was described through case studies as

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[80] This definition is challenged by new interpretations of what constitutes services as a consequence of 'the growth of contracting-out and the development of public-private partnership models'. As such the 'Public Services Industry includes those private and 'third sector' enterprises that provide services to the public on behalf of Government or to the Government itself.' (*The Public Services Industry in the UK*, June 2008, Oxford Economics See: www.bis.gov.uk)

had been suggested was suitable in Chapters One (Section 1.4.4) and Three (3.2), coproduction and vernacular architecture largely being identifiable through the instance of their occurrence and not so explicitly in the abstract. From this data the two principal research themes of synthetic vernacular architecture and the coproduction of architecture could be analysed and discussed. Each of the descriptions of the three case studies was tabulated (Appendices 6, 7 and 8), and was therefore set in contrast to the proposed ideal development form (Appendix 4) described in Chapter 4 and based on an owner-driven reconstruction model, which was used to promote an agenda of empowerment in part through democratisation. In this ideal, for Hunnarshālā the process was initially analytical and used to instigate a rights agenda, pursuing legal recognition for the community as a means to land rights which in turn opens up access to other services and, most pertinently, to political recognition. Funds are distributed into the community and allowed to percolate through it so that it is effective at various levels (family, neighbourhood, settlement). Synthetic vernacular technologies were proposed, augmenting the technical practices of a community with contemporary technological know-how to produce appropriable construction systems which will ensure long-term and sustainable use. Acquisition of materials is managed through the establishment of self-organising and self-regulating trading schemes, seen to increase the chances of value being attained in the marketplace and the chance that money will be spent both wisely and according to individual's perceived needs. Maintenance of urban and domestic fabric is aimed at via replication and appropriation of these processes.

Appendices 6, 7 and 8 illustrated the developments at Sadar Nagar, Hodka and Junawada respectively. At Sadar Nagar (Appendix 7) an ODR approach was instigated and an urban and domestic housing model was proposed in line with this. As per the ideal, this emerged from a sensitive analysis of regional typological forms and processes, but was complicated by the hybrid and unstable demographics for whom, it appeared from discussions, no singular vision of architecture could be said to exist, and which resulted in frequent and complex political wrangling. Personnel and policy changes within regional government hindered the ODR approach before it had been extensively applied, citing safety concerns in light of the frequency of natural disasters. The financial model that ODR was contingent upon at Sadar Nagar remained however, and a level of financial autonomy has been maintained, particularly through the availability of Hunnarshālā-backed loans from private finance companies. Much of the community has not been granted legal tenure however

(despite assurances to contrary) and consequently the economy of the settlement remains depressed – the poor infrastructure did not permit let alone invite appropriation through the establishment of some kind of internal market, as one might expect in amongst such a sizeable and relatively discrete population. Synthetic vernacular technologies were applied in the community, as per the ideal, and have proven very successful in structural performance terms, as has the 'core house' model – where opportunity or need has demanded, homes have grown. Whether there are very many parallels between the form and aesthetic of the settlement with indigenous norms is difficult to assert at this early stage of the settlement's life, and the social tensions within the community did not appear to cultivate an atmosphere in which cultural production could take precedence over security. As such, whilst instances of coproduction as defined in the Literature Review were visible, it was not visible overall. If as stated coproduction's primary function in architectural production is empowerment, then the sense of disempowerment which pervades the community suggests the absence of coproduction. Fundamentally, whilst all the various actions delineated in Appendix 7 pertain to a coproductive strategy and could feasibly have led to a coproduction-generated approachment between the community, civil society and state authorities, the fact that they didn't indicates that coproduction was not in evidence, that one (or more) of Ostrom's four criteria were absent. As stated, technologically the architecture and infrastructural system devised for Sadar Nagar met the notion of complementarity stipulated. However, due to a lack of tenure and associated rights, credible commitments did not develop and legal options were therefore not available. Any notion of incentives, already challenged by the simple fact of relocation, dissolved as the community's funding disappeared into a bureaucratic black-hole.

At Hodka and at Junawada however, this situation did not materialise (or was not in evidence) and Hunnarshālā, approaching the communities with the same agenda and in a similar economic and environmental (post-disaster, etc.) context as at Sadar Nagar, found cohesive and outwardly homogenous communities who had, in their architectural and urban traditions, a form both replicable and readily augmented. In addition, the communities wanted replication, perhaps as a means of maintaining their discrete identities and could thus express their needs with a more singular voice which was not the case at Sadar Nagar. Appendices 7 and 8 demonstrate the apparent effect of this, with the communities in conjunction with *their* civil society agents, able to stipulate conditions of engagement by institutional bodies from the beginning, including site layout, material use

and design, but most importantly the legitimation of their historical urban land-rights and thereby their political recognition. Once achieved, more detailed considerations could be addressed but having tenure ensured legal options. Of course, at Hodka the presence of the Shaam-e-Sarhad resort was a huge incentive for both community and government, bringing jobs and education to the community, and served also as a gateway for the modernising agenda of both state and civil society; thus credible commitments were if not guaranteed then certainly strongly advocated. Even at Junawada, where no such incentive exists and where the community has once again cultivated a level of separation from the wider urban region, the state has remained relatively engaged principally because the community self-represents in a cohesive manner, which makes dialogue with both civil society and state agencies more likely to occur because it is both feasible and more likely to be effective. At both communities, the singularity of voice also appears to have both driven Hunnarshālā to produce 'architectures' which corresponded closely to custom at formal, detail and aesthetic level, and also technologically, ensuring something like a 'complimentary [sic.] production possibility frontier' (Ostrom 1996: 1082), but also to have given credibility to their (Hunnarshālā's) demands that such a synthetic vernacular agenda be permitted, which was not certain. Subsequent maintenance and development at both villages however, has not wholeheartedly embraced the principles of synthetic vernacular architecture, instead resorting by-and-large to what one might describe from an historical perspective as an early 21st Century hybrid vernacular shanty typology, utilising normative practices, tarpaulin and found objects. As suggested in Chapter 4, this might suggest both suspicion in the communities of the appropriation-agenda of institutional actors but also an awareness of the need to appear to democratise so as to acquire such fruit as the communities themselves desire. Likewise state indifference to the continued emergence of such building might imply tacit approval or acceptance by the authorities of this, it being seen as a price worth paying for a level or type of engagement hitherto absent. In this way, Appendices 7 and 8 illustrate the contested identity of the processes of the coproductive redevelopment employed – a single word acquiring a plurality of contrasting meanings.

5.1 Synthetic vernacular architecture

It is argued in the Literature Review that synthetic vernacular architecture derives from a legitimate extension of existing descriptions of what might be called 'unadulterated' vernacular architecture. The Literature Review demonstrated that such a purist notion of

vernacular architecture was problematic insofar as it derived from apparently false premises, namely that adulteration was avoidable and that environments were or are constructed with reference only to the immediacy of the site (as a socio-environmental space), that climate plays *the* primary role in the shaping of architectural form and materiality and that the absence of a supposedly Western notion of 'the professional' and professionalism meant that the production of vernacular environments did not entail some form of commercial or transactional arrangement involving specialists. Also, the Review identified an historicist tendency in some parts of the literature, a sense that, fundamentally, vernacular architecture couldn't exist in the modern world. Instead, the Literature Review proposed a notion of vernacular architecture as a 'socio-cultural phenomena … built by people *in the world* to meet their needs and is therefore in a state of flux. … [It therefore] embodies the social, cultural, technological and economic practices of those who build it and dwell in it and their spatial practices or preferences.' In line with this, the vernacular or *parampara* ('a process of change') tradition described as being a customary understanding in India is arguably a foundational characteristic of the vernacular tradition *per se*, along with fluidity and organic growth, rather than stasis and calcification.

This idea both flies in the face of many interpretations or descriptions of vernacular architecture currently found in the literature but also matches dominant ideas of modern architecture, based around its flexibility, sitelessness (paradoxically in the form of its site-specificity) and therefore its ubiquitous applicability, usually in contrast to tradition. However, a proposition emerges from a *parampara* interpretation of traditional environments that suggests that vernacular architecture is by nature *more* fluid, *more* organic, *more* 'in motion' than the what is understood as the modern architectural realm because it is socially and individually constructed by people in the immediacy of need from the tools at hand, rather than beholden to innovation within a market system. This is not to say it is 'more modern'; rather the 'signs' of modern architecture are not restricted to buildings constructed in the modern era or from within a modern paradigm. This inherently fluid characteristic was ably demonstrated in the case studies at both Hodka and Junawada where the materials, technologies and new spatial norms demanded by state building-control authorities were accepted easily, at Junawada willingly so. Much of the credit for this however should perhaps be given to Hunnarshālā who proposed an agenda which would represent and promote the 'indigenous agenda' of the communities to the development authorities and the modernising agenda of the state to the community.

This interpretation of vernacular architecture, whilst challenging some widely accepted narratives as to its character, did accept that as a socio-cultural phenomenon built to meet needs, vernacular architecture embodied not only many of those details we now appreciate as being features of sustainable architecture but also the essence of sustainability in architecture, that is, those constructions which are socio-culturally resonant and that will sustain the community that inhabits it in a way that corresponds to their identity as socially and culturally situated beings. From this a notion of synthetic vernacular architecture could be proposed which, using coproduction, integrated this essential character into a contemporary socio-political and technical framework. The principal characteristics of synthetic vernacular architecture as artefact as it emerged in Hunnarshālā's work grew from the above description of sustainability in conjunction with the description of coproduction as Ostrom suggests it, incorporating the four criteria proposed to 'heighten the probability the coproduction [will be] an improvement over regular government production or citizen production alone' (Ostrom 1996: 1082). This suggests that synthetic vernacular architecture and coproduction are inseparable; when coproduction is applied to the production of housing synthetic vernacular architecture occurs. Likewise, when synthetic vernacular architecture is in evidence, coproduction has been applied. In this way, through the case studies the research can suggest that synthetic vernacular architecture is architecture as good or service produced by people 'not "in" the same organisation" (ibid. 1072) through negotiation and in pursuit of a plurality of ends, the chief of which is empowerment through the nurturing of inter- and intra-social networks via the production of houses, but which also includes spatially and formally indigenous building designs that incorporate contemporary and traditional construction processes and technologies to generate structures which are fit for purpose in a contemporary social, economic and environmental context.

This above definition of synthetic vernacular architecture is in part illustrated in Fig. 5.1, below:
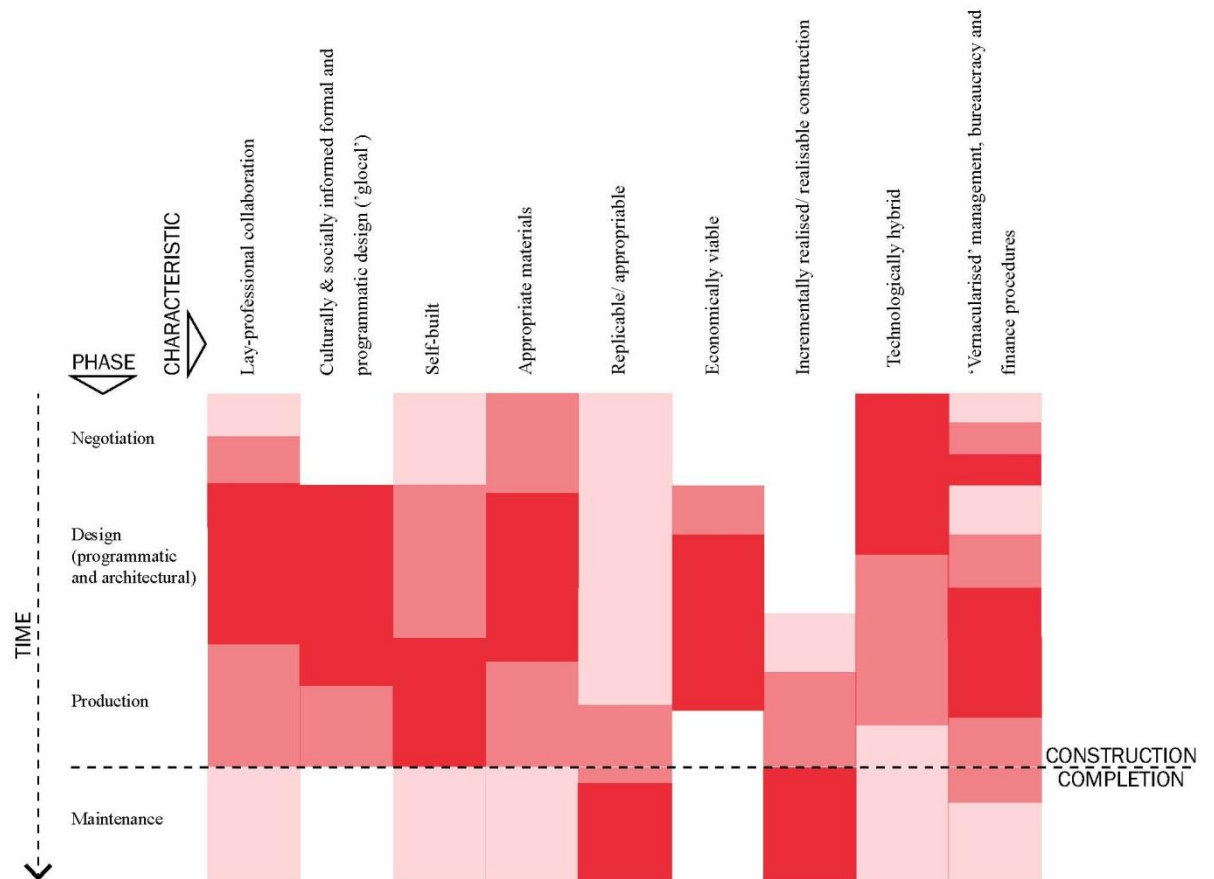
Fig. 5.1: Showing the principal Characteristics of a synthetic vernacular architecture (*x*-axis) as observed during the development process Phases or 'actions' (*y*-axis) in the work of Hunnarshālā in Kutch. Increasing colour intensity (white-pink-*blush*-red) corresponds to an increased association between a characteristic and a development phase, i.e., 'replicable/ appropriable' as a characteristic is seen as being mostly (but not only) associated with the post-construction 'Maintenance' phase, whereas 'technological hybridity' emerges as strongly associated is with the early 'Negotiation' phase principally through communication between institutional actors.

As suggested above and in Fig. 5.1, synthetic vernacular architecture's identity is found both in the artefact and the processes of the artefact's development, each 'Characteristic' (*y* axis) in the above diagram pertaining to both simultaneously. Also, it suggests that there is considerable 'play' or overlap between the emergence or production of a characteristic and the development phase; it is an organic, 'live' process which results in a live product. Nonetheless, both the Phasing and the Characteristics permit the emergence of truly vernacular characteristics which, whilst not being perfectly delineated (as the Literature Review demonstrated) nonetheless correspond to or, better perhaps, pertain to a socio-culturally specific sense of dwelling in a place, as per Heidegger's description as described in Section 2.4. As such, and in line with purist interpretations of vernacular architecture,

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synthetic vernacular architecture emerges from communally-situated and therefore environmentally, socially and economically responsive praxis and theory.

In short, as artefact, synthetic vernacular architecture is combination of processual and artefactual features in pursuit of a socio-cultural sense, it is building as noun and verb (Turner in Turner and Fichter 1972: 153). Both aspects feed each other and are inseparable in authentically synthetic vernacular construction. This was perhaps most explicitly demonstrated at Junawada where the coproduced procurement systems established by the community with civil society actors as a means of achieving value in an inflated market, allowed the community to purchase sufficient materials to establish old homesteads and to build to previous scales and styles. As was evident at Sadar Nagar, this was not always possible; the core-house model was established on the basis that financial constraints would necessitate a longer term approach to achieving complete reconstruction.

The production of the case studies, particularly at Junawada also demonstrated that vernacular environments as a network of artefacts and process emerging from dialogue, could be developed (more or less) through a coproductive arrangement, again *contra* purists definitions, and that Ostrom's four criteria to increase the possibility of coproduction occurring operated to 'vernacularise' the technical and bureaucratic aspects of contemporary architectural development. As such, whilst there is an evident shift in design and construction practices in each of the three settlements studied, away from largely or entirely self-supporting processes, the reconstruction *as process* can be seen to fit within the broader vernacular language inherent to the communities prior to the earthquake.

Hunnarshālā's process was summarised in tabulated form in Appendix 4, as constituting four principal stages:

1. Negotiation
2. Programmatic and architectural design
3. Production
4. Maintenance

In each case study, the precise task was modified by the specifics of the project and, importantly, the nature and strength of Hunnarshālā's association with the community.

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Thus at Junawada, where relationships were established, a sympathetic interpretation of the identity of the community (at all levels) was more possible than was the case at Sadar Nagar where in-fighting and institutional disinterest gave way to a burgeoning sense of defeat amongst all parties, itself doing little for institutional-community relations. Therefore whilst at Junawada and Hodka reconstruction followed a relatively linear path from negotiation, through design and production into a largely self-organising maintenance phase, at Sadar Nagar production was largely complete in some form with maintenance and informal building occurring whilst the initial negotiations over land rights, compensation, house design and infrastructure still continued. In many ways this relational characteristic, whilst common to building generally, also reflects vernacular norms: where healthy rapport was established the new vernacular norms, which were defined through dialogue between institutions and communities, between the past and the present, between local and global, emerged and were absorbed. This was evident in the widespread use of reinforced concrete ring-beam construction in post-reconstruction self-built buildings.

This critical difference in the relationship between the community and institutional actors at Sadar Nagar compared to both Junawada and Hodka was perhaps the underlying issue, affecting the emergence of a satisfactory architecture. Where and when the relationship was good, as seen in the early phase cluster housing model described, a synthetic vernacular architecture could emerge which did correspond to indigenous socio-cultural norms.

However, it can be argued that the processes begun by Hunnarshālā, whilst well intentioned, in fact clears the way for an architectural modernisation which will destroy much if not most of the indigenous architecture. In attempting to demonstrate the viability of updated indigenous forms and aesthetics, by cooperating with state regulation particularly in relation to accessibility, the redevelopments in fact permitted the penetration of the community's urban fabric by the state agencies and by contemporary commerce, ensuring its eventual appropriation. Whilst not wanting to suggest whether such a thing is good or bad, it is permissible to suggest that it could radically change things, as was evident in the re-configured urban plan at Junawada (Chapter Four, Section 4.5.2, Fig. 4.58) and to the alterations to the form and number of housing units and their spacing at Hodka (Chapter Four, Section 4.4.3), although, as was evident at Junawada and to a lesser extent at Hodka, informal infill structures go some way towards obstructing this aspect of modernisation.

5.1.1 Indian Vernacular

As suggested in Section 2.6.2, the context of Hunnarshālā's design work is the processes and artefacts of vernacular cultures specific to any given community. An analytical framework was devised in relation to this. However, an alternative approach to researching the work of an organisation engaged in the kind of work described in this thesis might be to consider it within wider post-colonial formal architectural practices found in India which, as with the described synthetic vernacular architecture approach, have in part sought to embrace a modernity that is moderated through indigenous norms as a way of using architecture to reinvigorate identity and generate empowerment. The reconstruction work of Hunnarshālā in Kutch, insofar as it is concerned with the organic processes of urban development adopts a vernacularist approach to architecture. However, it can also be read as falling in part within this seam of formal, post-colonial architectural work because, whilst it is reconstructive and small-scale (in terms of individual building units) and its formal and aesthetic programme is orientated towards vernacular typologies, the work is also the result of a professional, abstracted design process. As such it can be read as straddling the boundary of both the formal and vernacular paradigms. The tradition of formal, post-colonial vernacular modernity is briefly described below, and is followed by an explanation of the use of the notional synthetic vernacular architecture as a better way of interpreting the work of the kind undertaken by Hunnarshālā.

In the post British Empire colonial period and in response to the apparent singularity of the architectural and urban vision enforced by colonial rule, a tension in architectural discourse arose which at once sought to situate India (as a singular nation) within the prevailing narrative of the modern state (Evenson 1989: 224), as progressive, dynamic and industrial, by embracing modernist architecture's universalist approach, at the same time as re-embracing India's specific regional architectural forms. Within formal architecture this resulted in the emergence of new forms which pertained to a synthetic approach. Architects such as Balkrishna Doshi, Charles Correa and Raj Rewal devised forms that can be understood as part of this nationalist architectural movement (Appadurai 2009: 14) insofar as they sought to align modernistic universalism with socio-cultural and environmental specifics. This was set in contrast to the modernism of architects such as Le Corbusier and Louis Kahn, which was beginning to be seen as having a tendency to 'crush' (Tillotson 1989: 136) local culture. Instead, the 'architecture of independence' (Evenson

1989: 224) drew references from 'India's past, often by drawing on a pool of forms, materials, and strategies which are distinctly classical, such as the mandala, the chakra, and the combination of water, trees and shade to evoke some special forms of Indian rusticity' (Appadurai 2009: 14) whilst at the same time ignoring the 'kitchness' and 'chaos' (ibid.) of the actual urban experience in India, 'electing instead the simplicity and silence of an abstract, quasi-Hindu metaphysics which seeks emptiness and solitude in the midst of India's heat and dust.' (ibid.)

This seemingly romanticising approach is not as farfetched as it might seem: settlement foundation is often imbued with mythological and spiritual significance, as stories in the vein of Romulus and Remus' Rome make evident, and as India was being 'reborn' in the wake of colonial rule, foundational attitudes might be expected. This sense of rebirth and 'return to origins' also renewed interest in the vernacular and ideas as to its purity, the sense that the vernacular embodied the 'natural' or inherent ways of living of the people unadulterated by outside (and particularly western) preferences. This notion, contestable to begin with (Hubka 1979: 27), was further challenged by the agenda of synthesis with international modernism which 'Indian modernism' displayed (Tillotson 1989: 132). Such a use of vernacular forms could however be understood as an attempt at generating empowerment through the manufacture of culturally resonant buildings which can be 'owned' by the user (ibid. 135).

In this way, the posture of the 'architecture of independence' becomes part of the context through which Hunnarshālā's approach might be examined insofar as their objective and product can be interpreted as a descendent of this formal and established architectural movement. However, as outlined below, the synthetic vernacular typology proposed in this thesis is seen as producing a more fruitful engagement and better describes how coproduction is used to transform vernacular processes and artefacts towards more holistically sustainable ends for an array of actor-groups.

Firstly, whilst Hunnarshālā's stance is to design well and they do embrace a notional modern vernacular, their principal intention lies in the direction of reproducing normative vernacular processes updated to meet the contemporary socio-environmental context, rather than simply reproducing vernacular artefacts. Processes are seen as being more reliable sources of culturally resonant buildings and can actually serve as a mechanism for

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various aspects of empowerment. It is for this reason their methodological approach is interpreted in this thesis as exceeding participatory practices as described in much of the literature; whereas participation is 'the involvement of the user at some stage in the design process' (Blundell Jones, Petrescu et al. 2005: xiii), coproduction in housing requires the users' involvement with production, and sees the processes of production as leading to both a more suitable built solution, and greater empowerment of the builders, as well as other practical advantages, such as cost reduction and decreased institutional responsibility in the actual activity of building. The nature of coproduction, the collaborative working together of lay and professional people, makes possible technical complexity and engagement with those complex bureaucratic processes that are a necessary part of building in the twenty-first century.

Secondly, the architectural model described at Sadar Nagar and Junawada appears to derive from what might be described as a 'core-unit model' in which a unit is constructed by the resident and Hunnarshālā which is at once culturally rooted in the architectural traditions of the site and also permits of future appropriation by the resident in pursuit of a more satisfactory idea of their domestic needs. The construction of the core-unit works as a mechanism for educating the residents in the technical, processual, and spatial norms of modern architecture and urbanism so that the processes of incremental expansion which will inevitably occur are done in such a way as to sustain a vernacular architecture relevant to the social and environmental conditions to hand. In this way, the core-unit model can be seen as permitting of the recreation of actual vernacular architecture, albeit a synthetic one mediated through engagement with professionals and bureaucratic agencies. This idea reiterates the notion of vernacular processes as of primary significance to the production of vernacular architecture, rather than the recapitulation of vernacular spatial forms and aesthetics. Indeed, it has been suggested that both an abandonment of traditional spatial planning and an aesthetics-led approach to vernacular architecture were contributory factors in the structural weakness evident in traditional buildings in other disasters (Salazar 2002a: 5). Certain actors within the reconstruction area spoken to informally in Kutch suspected the same to be true in Gujarat, although this sense, it is argued, enables government to impose demolition programmes on *kachcha* or vernacular settlements simply because they are not *pucca* or 'modern', and is therefore strongly countered elsewhere (Duyne Barenstein and Iyengar in Lyons and Schilderman 2010: 166 & 178). To this end, the work of Hunnarshālā should be analysed against those typological forms that are

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understood in the literature to be the region's vernacular architecture and not those formal architectures that have been devised to embody the essence of 'Indian architecture'.

Whilst Hunnarshālā's works could be read as descending from the formal architectural categorisation definable as 'vernacular modernity' insofar as they are carefully designed artefacts which attempt to synthesise modern concerns and tradition, this thesis is concerned with their nature as 'architecture-as-process'. The notion of synthetic vernacular architecture is, as defined earlier, one that emerges from the practice of laypeople and professionals coproducing an architecture which is at once traditional and modern in formal, technical and socio-economic ways. This differentiates it from customary notions of the vernacular which, even in many broader contemporary definitions, do not admit of the level and type of integration between lay and professional knowledges and expertise in its design and construction as does the notion of coproduced synthetic vernacular architecture.

Finally, Hunnarshālā's concern is principally the reconstruction of anonymous architecture in the instances described. This is the more immediate context into which the buildings they design sit; their work as designers is subsidiary to their actions as a post-disaster reconstruction NGO, a fact emphasised by their working practices in collaboration with rights- and livelihood-orientated agencies, as described in later chapters. In this context, Hunnarshālā's work is perhaps not entirely novel; community- and owner-driven approaches to development are widespread and the approach has been promoted in architecture for a significant period of time in India (ibid. 164, Barakat 2003: 7). However, work of this nature has not been extensively examined in terms of its typological characteristics as synthetic vernacular architecture, as a subsection of vernacular architecture particular to the contemporary period.

5.2 Coproduction

The three case studies described a singular (but not monolithic) coproductive agenda played out over three differing social and environmental contexts. Below, the three case studies will firstly be briefly recapitulated and then discussed in light of the analysis. A critique of the approach and Hunnarshālā's method will be given.

At Sadar Nagar, originally a relocation site for those persons whose homes had been destroyed in the earthquake or during the redevelopment of Bhuj, as described in Appendix Six ('Actor diagram of Sadar Nagar'), a process of engagement between the community and institutional actors was established by non-community agencies (including Hunnarshālā) in order to address the evident decline towards 'slum' status and entrenched informality that had taken hold. An owner-led programme of development devised by Hunnarshālā was adopted which sought to replace the emergency housing with culturally resonant and structurally sound buildings and urbanism. Funding was provided by both state and civil society agencies and, because Hunnarshālā had devised a maximalist housing programme in line with community wishes, one which promoted an holistic interpretation of human needs over basic needs in pursuit of social emancipation for the residents (and which therefore cost more), by families through loan agencies and private savings. To off-set this, housing designs utilised low-cost and self-procured or manufactured materials and necessitated extensive self- and community-build. At the time of fieldwork the development of Sadar Nagar had not been completed, and substantial sums of money ear-marked for infrastructural development had become frozen, which was according to those spoken to, allegedly for political reasons. The heterogeneous community, curiously grouped along caste lines in the initial post-disaster resettlement plan by state authorities, had not gelled but instead had become more and more divided, the divisions manifest in an increasing reluctance to act collectively in pursuit of communal goals. The decline of the settlement had only been stopped in part and the area had become known (or remained known) for its criminality.

At Hodka Hunnarshālā had provided the semi-nomadic community with a complete 'updated' reconstruction of their settlement through a participatory design and construction process, as described in Appendix 8. As with Sadar Nagar, the scheme was maximalist, attempting to align traditional formal and aesthetic designs characteristic common to the community and contemporary building regulations whilst, at the same time, satisfying the apparent and stated urge for modernity evident in the community. Further, traditional modes of procurement and construction as well as traditional governance structures provided a framework into which new processes could be inserted, particularly relating to both the physical re-building of the settlement but also, and most importantly, in relation to democratisation agendas central to the approach of state and institutional actors. At the

time of the fieldwork the reconstruction of the settlement was long finished and a self-sustaining business in the form of the Shaam-e-Sarhad tourist resort had also been constructed with state government and civil society assistance. The original village appeared to be flourishing and regular engagement with state agencies was frequent still; the community was also being promoted as something of an exemplar vision of community- and owner-driven construction by agencies concerned with it and some community members travelled very widely to promote it with NGO actors.

The reconstruction of Junawada involved various organisations coming together with a clear purpose, as described in Appendix 9. The community themselves enabled this by being very demanding and not accepting a handed-down solution. Hunnarshālā met these demands by making the community's self-reliance a key element of the process, endowing them with rights and contingent responsibilities, particularly in relation to the procurement of materials and services. Civil society actors had had to begin the process of reconstruction by establishing land rights which had never been formalised or documented so that legal recognition was granted. Only once this had been established could central post-disaster funding be allocated and services provided. Architectural and urban designs again promoted community- or owner-led construction and continuity with the past. As at Sadar Nagar and Hodka materials, technologies, construction techniques and design processes derived from community norms, but augmented to improve structural standards, lower costs and to ensure lower embodied energy. Building work was undertaken by the residents themselves with hired labour where necessary. At Junawada redevelopment was entirely community-driven, although the choice was presented, and reconstruction funds were given to the families to spend as they saw fit. The state authorities approved of this type of development and, whilst perhaps not a strategy that could work in all contexts, at Junawada the well-established community knew, trusted and was willing to care for itself. Consequently the funding provided by external agencies was sufficient for a direct reconstruction of that which had been demolished in the earthquake; indeed, Hunnarshālā's innovative material procurement process, involving price tendering by suppliers and permitting home-owners to use reclaimed materials, ensured a surplus that was used in communal building work. At the time of fieldwork the community was apparently flourishing and whilst engagement with civil authorities was not frequent or unnecessarily pursued or particularly expected, it was possible.

It is evident from the analysis that coproduction did occur in all three settlements: the formulations posited in the Literature Review and derived from Ostrom's definition and criteria, were apparent to varying degrees. As such, it is possible to state that 'Coproduction can be used to make architecture'. However, the analysis also demonstrated that whilst coproduction might be identifiable though the framework proposed (Ostrom's four criteria), coproduction is also more than the framework proposed: coproduction is a socially constructed phenomenon, a network of relationships, and as such is irreducibly complex. That is to say, coproduction *means* something to the actors involved. We can suggest, for example, that for Hunnarshālā coproduction at Sadar Nagar was seen as a way of generating empowerment through the building of housing that was culturally significant in its design, procurement, construction and maintenance, much as is implied by Ostrom's four conditions which, whilst being orientated around physical artefacts in her example, are also seen to produce 'synergistic relations … based on complementary actions' which are implicitly more co-equal engagements around material products between development actors. (Evans 1996: 1119)

For the community members I spoke to, coproduction with the state and civil society served to facilitate access to better quality housing, funding opportunities and assistance. For the state, coproduction can be seen to have reduced their exposure to substantial financial costs as well as criticism and public disaffection and latterly, once the rather awkward problem of cluster housing was removed, given them swift access and oversight of a troublesome neighbourhood in a contested area of India. Perhaps on an individual level it also allowed state officials to maintain a measure of distance from a troublesome problem, thereby permitting indifference when necessary. In this way the ends of coproduction can be seen as varying between actor-groups involved in it: for Hunnarshālā the ends were both physical (better quality housing that promoted and maintained the benefits of customary ways of dwelling) and immaterial, pertaining to the psycho-social state of the community as both a single entity and as individuals and families. The community received houses (and sometimes even title deeds!), basic amenities and in the cases of those whose tenure in Old Bhuj had been non-formal (implicit or illegal), the promise of citizenship with its associated benefits, not least amongst which is the sense of being legitimated. For the state the benefits were likewise mixed – undocumented poor people properly housed away from the city; low-cost urban development with self-

sustaining services in the form of the DEWATS sewerage system and the allocation of basic service provision (infrastructure if not housing) to the third sector.

The sense that coproduction means something is perhaps central to its appropriateness as an architectural development strategy. It permits of interpretation and architectural development produced through it is limited in its capacity to promote singular aims or visions: each actor group's agenda is moderated. But this would appear only to work if it is accepted that this arrangement is a good thing. As was eventually seen in the development at Sadar Nagar, when one actor assumes primacy, as eventually did the state, either actively ('Design it like this') or implicitly (by withholding funding) the confidence and trust that is built up through a coproductive process dissipates very rapidly.

The characterisation of coproduction as a tool for empowerment is therefore dependent upon the parties involved agreeing to this, as was evident at Junawada. With no agreement it would appear that this is not possible. Again, this highlights coproduction's constructed nature: for Hunnarshālā empowerment was being coproduced via the construction of a house. For them unequal distributions of power (either between communities, castes, organisations, democratic bodies, genders, creeds, etc.) were one of the primary causes of social instability and poverty. Coproducing a house was seen as going a long way towards addressing this disparity, both through the process itself, through establishing networks of constructive relationships between the community and the state and civil organisations and through educative opportunities within communities as part of the urban regeneration process, as was seen at Hodka and Junawada. For the state (as institution and individuals) at Sadar Nagar empowerment evidently became of secondary importance (at best), demoted as post-disaster fervour dimmed and the spotlight moved on to devastated pastures new, even though money was available to finish the job. For the community this almost schizophrenic condition, caught between the utopian promise of recognition, representation and rights as promoted by Hunnarshālā and the hard-headedness and defeatism of the state, must have been deeply disorientating.

But if coproduction requires tacit acceptance by all parties that its principal function in these contexts was empowerment, this does not mean other purposes are impermissible; coproduction appears to be amenable to individual interpretations. Thus at Hodka the construction of traditional, old-style *bhunga* next to the new *bhunga* provided by

Hunnarshālā, and the evident fact that informal constructions were the principal spaces for dwelling (cooking, eating, sleeping, resting) whereas new *bhunga* seemed to serve very little purpose[81] except for children's play and storage, combined with the fact that I, a near stranger who was nonetheless understood to be an institutional actor, was entertained specifically in new *bhunga*, may suggest that for the community the acceptance of the synthetic vernacular house was understood to be the price to be paid for access to other things. Certainly, by submitting to a coproduced synthetic vernacular architecture agenda the community received a reconstructed village which largely maintained tradition and addressed the stated desire for modernity which was seen as drawing the youth away from the community and into the city and also gained access to new markets for their indigenous craft products. It is possible also that gaining a new *bhunga* was an issue of status; receiving anything so finely crafted as did the recipients of Hunnarshālā's assistance would have been of significance in contrast to those communities elsewhere who were provided with rectilinear block houses from their NGO. In a similar vein, association with Hunnarshālā, a respected and celebrated organisation, may have been seen as bestowing status in itself, an attitude manifest in more developed contexts by the continued pursuit of the 'Gehry Effect' through the production of buildings by celebrated designers.

Another issue that emerges from the analysis of the processes of coproduction as manifest in the case studies is the difficulty that can be seen to emerge when customarily self-provided services are supplied by an external body. In such a condition the community may not gain the least but it certainly seems to lose the most in that, where both the funding and materials as well as complex technological innovations place the community in a subservient position, even if only briefly, efforts to nurture a grass-roots movement are automatically at a disadvantage. For example, the reliance of the community on limited and external funding and the demands this money places upon the individual families to comply with external agendas, whilst appearing to result in a levelling-out of more extreme disparities in terms of building/ homestead size and detailing and quality, can at the same time be seen to be undermining the traditional modes of self-identification common to the community which, whilst perhaps not meeting with modern democratic ideals may nonetheless represent more than they appear to on the outside. This issue is amplified in those contexts where NGOs in Kutch (not Hunnarshālā or any KNNA agency) received

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[81] This supposition is not based on a wide-ranging survey but largely on observed evidence in the communities I visited.

direct reimbursement from the government for building houses for the community; in such instances one cannot expect anything but imposition. Comprehensive coproduction as enacted by Hunnarshālā was designed to ensure that this didn't happen.

It is important to reflect upon the intention of Hunnarshālā and the associated NGO actors in assessing the urbanism of the reconstructed settlements. At Junawada for example, a process of reconstruction by external actors was seen as being incapable of recreating the natural growth of the urban sphere and therefore what may be seen as the normal form of urbanism in that place , but it could at best make such a process "more likely to occur" (Vivek Raval, UNNATI –interview 30/03/10). Junawada was therefore not conceived of as a scheme with a finish; construction viewed through the lens of those who guided its reconstruction was only part of an on-going story. This seems to ratify Vivek Raval's assertion that the civil society actors involved in the redevelopment "don't see housing as a construction project, but as a social project" (ibid.), that is, as requiring the initiation of a set of productive relationships, the intention of which is the relationships themselves. Housing is not so much an incentive to engage in this formulation (although it certainly operates as such) but rather a framework around which engagement can occur.

Joshi and Moore argue that there are two main motivations for the use of coproduction: *'governance drivers* which respond to declines in governance capacity' and '*logistical drivers* which arise when some services cannot effectively be delivered because the environment is too complex or too variable or because the cost of interacting with large numbers of households is too great' (Boviard 2007: 855 quoting Joshi and Moore 2004). The work of Hunnarshālā in urban development in Kutch sits somewhere between the notion of logistical and governance drivers: they are not responding to a decline in governance *per se*, as in Joshi and Moore's description (Joshi and Moore 2004: 38), but are instead, and to a great degree, assisting government in providing an essential public good, that is housing for the vast numbers of people rendered homeless by the earthquake in 2001, and those who were inadequately housed before the earthquake but whose informal housing arrangements were deemed suitable for redevelopment. These can be seen as logistical drivers – Hunnarshālā and KNNA were best placed physically and in terms of contextual knowledge to facilitate the production of massive numbers of houses over a huge geographical area. However, in the particular context of post-disaster Kutch the work also seems to be designed to facilitate the integration of what were, before the earthquake, fairly remote

communities into the 'citizenry'. As such, what could be called 'governance drivers' can also be seen to be operating too: whilst there was no specific decline in governance capacity, because there was limited formally recognised governance, Hunnarshālā's work lays the foundations for a more full democratic integration by helping disenfranchised or un-recognised communities acquire legal land rights and serviced housing built to meet their needs.

This sense that 'governance drivers' were central to the acceptance by the state authorities of what might have been seen as an otherwise *laissez-faire* attitude to the maintenance of authority in the region can perhaps be explained more sceptically however. In the aftermath of the Kutch earthquake of 2001, there was a distinct shift in the way in which architectural development occurred in the area, partly for logistical reasons (the emergency appears to have permitted the state to move into areas of civic life, such as house building, which previously they had not had access to) and partly for governance reasons (the increased access afforded by the earthquake increased governance capacity by the state); this can be translated as moving the state towards a more state-driven housing production model. The situation in Kutch was in its context the opposite of that described in much of the literature on coproduction, in which the static or declining governance capacity of the state or an emerging or established logistical condition forces the use of coproduction and which permits the state to accept a reduced role in any given development. In Kutch coproduction can be seen to facilitate an *increased* role for the state in the civic life of the region. This is perhaps most explicitly demonstrated by the Shaam-e-Sarhad resort at Hodka, where institutional actors, particularly the state, appear to have used the 2001 earthquake as an opportunity to advance a democratisation and development agenda into a region that had thus far resisted it. Shaam-e-Sarhad in this interpretation became a means of co-opting indigenous cultural practices/ processes to serve as the 'delivery mechanism' for the implementation of an 'alien' (and often contrary) culture.

Through this analysis it might be suggested that whilst Hunnarshālā's approach addresses issues of distribution, participation and recognition in this way (Schlosberg 2004: 518), at the same time, the approach can be seen as reflecting and enabling the modernising state's desires for a new urban form based around the characteristics of, or tools of 'Modernity' – cars, communications, cleanliness, orderliness (Prasad in Tillotson 1998: 187) – which it can be argued, is more to do with the commercialisation of a region and a contingent

commodification of its culture. By commodifying the socio-cultural norms of the communities it is arguable that Hunnarshālā objectify them to the community themselves, simply by demonstrating their comprehensibility as cultural objects to the outsider, rather than as inherent parts of the community's self-identity as builders-as-dwellers (Heidegger 1971: 348). The use of the cultural artefact (*bhunga*; *panchayat*; rammed-earth; etc.) in this way becomes a commodity choice and makes the community members cultural consumers. Thus one may ask whether the outcome of Hunnarshālā's undoubtedly well-intentioned processes is the promotion of the communities as competent client-consumers, rather than service users. Do the processes of coproducing architecture lead to cultural commodification through the 'aestheticisation of everyday life' (Featherstone 2008: 404)? Either way, can the Hunnarshālā/ coproduction project be seen within the broader post-modern discourse of pluralistic (that is, pluralist-like) realities? Does the coproduction of architecture differ from the provision of other services such as policing because, as Max-Neef's matrix makes abundantly clear, housing, even housing for the very disadvantaged, is (or at least should be) fundamentally an aesthetic exercise?

5.3 Coproduced synthetic vernacular architecture as a model of sustainable architecture

Sustainable architecture was defined through the Literature Review as an 'architecture that meets the social, environmental and economic needs of a place' in pursuit of an holistic sense of ownership (See Section 2.4). In this way seen it was seen as being intrinsically linked to notions of empowerment in this research; ownership of a home in its psychological and material (actual and legal) manifestations pertains to notions of dwelling which endows the resident with a sense of 'meaning and belonging'. Similarly, but more practically, legal tenure within a house ensures a measure of political recognition. Where both such forms of ownership cannot be assured, the capacity for empowerment will be deficient and, as seen at Sadar Nagar, the long-term sustainability of coproduced elements will not be guaranteed. However, where habitation which engages with an holistic view of dwelling (as per Heidegger, through a human scale development approach) is constructed, sustainable housing will emerge, as the case studies at Hodka and Junawada showed. By using the ingenuity, skills and sense of purpose as well as the money and sweat of the homeowners as the key resource in the development, Hunnarshālā ensured the long-term

sustainability of the projects, endowing the community with the social, technical and environmental knowledge to develop the villages further, as resources permitted, in a modernising 21st century context. Through this, the communities could appropriate the reconstructed villages and once more make them their own. Such appropriation is perhaps less predicated on apparently idealistic notions of being and dwelling than it might at first seem.

The infilling of the modernised settlement plan, as seen at Junawada and Hodka, and the emergence of informal constructions in all three case studies points perhaps to the critical issue in discerning the worth of a coproduced synthetic vernacular architecture as a tool for empowerment. Vernacular architecture is a socio-cultural phenomenon and as such it is necessarily independent: more than it is a response of the traditional, indigenous communities to the climatic environment or the economic status in which the community stands, or access to material supply lines, it is a manifestation of self-definitions, of 'who we are', how the world is viewed and understood, as individuals and as a community in relation to the world at large. The link between this architectural form and social identity is thus inseparable in vernacular communities, unlike modernised ones where the house is seen as (and therefore operates as) a commodity and is thus subject to the vagaries of taste. To alter the vernacular architectural and urban form is therefore to alter the social form. The destruction of vernacular environments through indifferent or careless planning by external agencies is therefore an abrogation of specific and varied social and cultural identities; in the opinion of this research this is not an entirely good thing.

Synthetic vernacular architecture as proposed by Hunnarshālā permits of a negotiated settlement between the vernacular ideal, through which a population self-creates, and the demands of the modern state. As such, and perhaps more inadvertently than the any party active within the reconstruction accepts, communities (broad and immediate) acquire architectural environments which invite engagement in a number of ways: they are intellectually appropriable. As seen at all three case studies, and one might presume, beyond the intentions of the state, for the communities this appropriation can be seen as a process of vernacularisation, of restating indigenous cultural identities from within the framework of a modernised environment. As such, the attempt to modernise traditional cultures through manipulation of 'habitat' is undone, or rather subverted. The outwardly generous, democratising approach of the state can in this way be viewed as an attempt to gain control

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of 'the other', insisting through buildings on a singular modern identity. The outwardly pliant attitude of the communities to this, offering only moderate resistance to what can be viewed as the wholesale reconstitution of their identity, can likewise be seen as highly subversive, taking what they need from the state to achieve their goals whilst always playing the role of pliant recipient, Hunnarshālā acting as the facilitator for all this through design and urban plans that not so much permit appropriation but actually invite it.

In light of this suggestion, three photographs become quite telling:

Fig. 5.2: 'Kutchied' house, Sadar Nagar

Fig. 5.3: Oil tin clad house, Junawada

Fig. 5.4: New house with traditional *bhunga* next to it, Hodka

Each of the above photographs demonstrates incremental vernacularisation. At Sadar Nagar (Fig. 5.2) the resident has added details and decoration to re-form the home into something very similar to traditional Kutchi forms. At Junawada (Fig. 5.3) the resident has vigorously rusticated their donor-built house, including re-cladding it with flattened oil cans. At Hodka (Fig. 5.4) a traditional *bhunga* has been built beside the residents' donor-built house, for the purposes of dwelling. Whilst there will be a practical logic at play in each of the above cases, this research presumes that to a great degree a cultural imperative is crucial too. In each case a donor house was accepted and in so doing, the residents gained certain resources (a shelter, for example) and gained access to other resources (recognition, for example). Once these resources had been gained, a real house that permitted 'dwelling' was either built or the donor house was modified in such a way as to permit it. In the Junawada and Sadar Nagar examples above modification is to such a degree as to rupture any aesthetic, 'branded' link to the donor house form.

The core-house model promoted by Hunnarshālā is predicated upon future appropriation. This allows all parties to engage with the house (artefact) as they want to. This can be seen as empowering for all parties concerned, each letting them see themselves in the buildings. But it is particularly so for the residents who can gain not only the fruits of democratic political states via the recognition that is associated with the ownership of legitimate housing, but also the subtle knowledge, central to any notion of sustainability, that their house permits of their identity and will over time and as part of the wider urban realm come to reflect their identities as social and cultural beings in the world.

The processes of making a synthetic vernacular architecture house is therefore not about the reconstruction of a facsimile copy of the original home with 'modern' bits. It is rather about understanding what vernacular architecture means to the community in which it originates and providing a constructional, but also a social and economic framework through which it can develop through stages of appropriation towards something that also satisfies the drive for the benefits of modernity. Coproduction can be used to make this form of architecture because it operates by vernacularising the building process: otherwise complex technical, organisational and bureaucratic practices are made accessible to non-trained and non-professional people, thereby making them appropriable and eventually part of the vernacular lexicon of the community. When applied to incremental forms of construction, coproduction increases the chance that contemporary knowledges will be absorbed into vernacular practices and because it generates empowerment (moves relationships between the empowered and the disempowered towards equity through engagement and negotiation) which implies environmental justice, it is manifestly worthwhile for communities to cooperate.

5.3.1 Critique of the Organisation

Notwithstanding the positive conclusions of the previous section, certain nuances are discernible in terms of the value of a coproductive housing development strategy, particularly in the context in which Hunnarshālā were operating. Whilst the research was not designed as a comparative analysis of Hunnarshālā as an organisation towards a critique of their agenda, one might suggest that inadvertently their coproductive strategy causes them to participate in a deliberate process they would not have designed themselves: the acceleration of the disintegration of traditional lifestyles within the region by government in pursuit of more vigorous industrialisation, urbanisation and contingent commercialisation. Whilst Hunnarshālā as part of KNNA were certainly and wholeheartedly engaged in a process of modernisation within communities, this related specifically to greater social emancipation both for the communities in relation to wider society and within communities themselves, engaging issues of gender, affluence and creed. The intention was to do this in such a way as not to disestablish the culture around it, as per the strategic approach of the KNNA association, which according to Alka Jani of KMVS was 'to sensitise the society [immediate and wider] as to what norms were actually impacting the

society, and what norms are disempowering the women'. (Interview with Alka Jani 24/03/10) This, it was stated, could be undertaken without effect on cultural practices because of the difference between what they saw on the one hand as social norms and structures (such as patriarchy) and on the other, as culture (such as dress).

The involvement of the state and international civil society in such a process however can be seen to have reorientated intended outcomes; Hunnarshālā's development agenda was unlikely to mesh easily with such a large range of international agencies and there was a sense that the real social emancipation pursued by the NGO was diverted (or subverted) in pursuit of a more vigorous state-led social agenda aimed at commercial exploitation of the region and social control, nominally due to external military (terrorist) threat.

As such, whilst coproduction is a feasible strategy for producing more sustainable domestic architecture, in contexts such as that found in Kutch, in which large numbers of people had for many years self-provided, the actual price of coproduction is infringement on a community's right to self-define as they customarily have, offset only by non-customary benefits such as access to markets, education and safer buildings. In this way, as described above, coproduction can be seen to function for the state (both national and international) as a way of establishing governance via well-meaning civil society organisations in pursuit of control and eventually possession, all the while cloaked in the language and processes of democratisation. Therefore, whilst it is unnecessary to criticise Hunnarshālā themselves outside the context of a comparative analysis, it is legitimate to use them as a basis to question the value of coproductive development strategies, which in the context of post-disaster reconstruction, may be used in ways that would appear to fly in the face of stated agendas of cultural preservation and enrichment.

This raises four significant differences between what might be called 'classical' coproduction as described in Ostrom's example of the implementation of a condominial sanitation system in Brazil and the form of coproduction used by Hunnarshālā in building houses:

a) A project such as the one described by Ostrom is discrete, being of an absolute size. Arguments amongst service users about favouritism are perhaps not applicable therefore. In addition, a sewerage system is relatively quick to build and low-cost compared to a reconstructed settlement, which can take a long time, run-over budget and programme and does not necessarily have definite final size.

b) A sewerage system appears as demonstrably just, insofar as each household's acquisition of a trunk line is beneficial to the whole community. It is in everybody's interest for the project to happen, as quickly as possible. Houses and housing need is much more diverse. The DEWATS sewerage system implemented at Sadar Nagar by Hunnarshālā was the most, if not only truly successful and enduring aspect of that scheme, perhaps for similar reasons.

c) A sewerage system is not an improvable asset as is a house. The technical knowledge that governs the design and construction of a sewerage system is to all intents and purposes absolute. Consequently there is little space for discussion and dissent. A resident cannot be dissatisfied with the design of their well-made sewerage system in the same way or to the same extent as they can with a well-made house. This is principally because housing relates to socio-cultural values and the vagaries of individual needs and tastes and not only utility, as Max-Neef's human scale development suggests.

d) The sanitation system was not built as a replacement for an existing or destroyed one in Ostrom's example. Issues relating to powerlessness in the face of state authority were less relevant in her example therefore, although perhaps not absent. This does not change the nature of coproduction as an inherently empowering strategy however; the need for empowerment was perhaps less apparent in relation to the production of the service in the Brazilian example.

As these three differences suggest, whilst coproduction may be able to generate sustainable housing, in certain social, political contexts, it may not be the most suitable strategy to deal with the myriad competing interests of a needy and pressurised community. However, as demonstrated at Junawada, where social conditions were at least outwardly settled and stable, coproduction was highly effective.

5.4 Theoretical frameworks in context

Below I will briefly outline the theoretical frameworks as they emerged from engagement with the subject in context, relating it back to earlier research concerns which remain relevant and influential. Subsequently, engaging with the subject in the field resulted in further moulding, the 'context' (perceived as both a single concern and as a network of actors and events) emerging as an active agent in the delineation of the research focus, scope, method and outcomes, as I had presumed and hoped it would.

The 'context' of the theoretical frameworks outlined here is therefore threefold: the agendas of both the research and the researched and the geographical place. I approached this initially as two separate things: 'my' agenda and 'theirs'. However, it has become apparent that the agenda of this research is bound-up with Hunnarshālā's and that the theoretical frameworks have emerged out of a dialogue between myself, the organisation as a single entity, individual people within and around it and its public identity as an NGO and business, as well as the communities with whom they work. As such, the agenda of the research grew from observations of and dialogue with the organisation: the theoretical narrative of the subject was formative. This may seem to call in to question this research as being objective or, at least, having something of the objectivity characteristic of robust research. However, research of the kind undertaken is dependent upon relationships with human subjects engaged in relationships with other actors, both live and inanimate. In getting close to the subject the researcher affects it and is likewise affected by it, their perception modified by these engagements. This is an unavoidable factual reality under which all researchers labour and as such, when reflexively recognised, doesn't undermine to a significant degree the veracity of observations on social phenomena.

Of great importance also was the general geographical context, that of Kutch as a place in Gujarat, in India. Inevitably this also exerted an influence on the trajectory and direction of the research, the extreme poverty and the connected issues of social justice I witnessed in India coming as a shock. This sense of bewilderment was to some degree endorsed by Hunnarshālā and KNNA later, who suggested that aspects of the dominant culture were in need of reform.

5.4.1 Environmental Justice

For Hunnarshālā inadequate housing for the poor can be understood as constituting an environmental justice issue and is a manifestation of structural violence. The question of how 'structure' makes people behave in certain ways was a topic outside the scope of this research, which instead attempted to deal with the contention that poor-quality housing is typified by an inadequate analysis of human needs as a consequence of structural violence, manifesting itself as a form of environmental injustice: post-earthquake, the poor were often forcibly relocated to inadequate, culturally meaningless reconstructed housing away from their social and commercial networks. This resulted in a mismatch between the type of urbanisms that was provided and the desired types that would have enabled more complete socio-economic engagement by those who had to live in them.

As expressed in the hypothesis and described in the general introduction, this research was concerned with two central themes within the literature: coproduction and vernacular architecture. These themes have dictated the theoretical grounding of the research to a substantial degree; both can be seen to fit within the 'grassroots' agenda typified by the writing of John Turner, Hasan Fathy, Colin Ward, Nabeel Hamdi and others, and which informed early forays into topics such as self-build and vernacular architecture and the devolution of the role of the professional architect (see Cedeno 2006: 3-4, Frank 2004: 173-4, Paredes 2001: 12), as both are concerned with the action of the non-professional in the manufacture and maintenance of the public and private realm. The dual theories of environmental justice and human scale development, were also seen as promoting a layperson-centred engagement at both policy and realisation level. A coproductive, vernacular approach to housing and, more generally, urbanism was seen as necessarily entailing the synthesis of human needs and capacities with artefact, thereby producing artefact which is aligned with the needs of the whole person as both an individual and as a part of society. This in turn, it was suggested, addressed the structural violence in evidence by changing the structure of engagement and development between the powerful and powerless.

Likewise coproduced synthetic vernacular architecture could be said to 'work' to the extent that it addresses issues of environmental justice. It does this in the work of Hunnarshālā by realigning customary models of housing production for the poor (as process and artefact)

towards a more holistic understanding of human needs, by approaching the subject (people who need houses) as encultured, social beings. In addition to Schlosberg's description of environmental justice, others have promoted the notion of 'just sustainability', in which the dual concerns of environmental justice and sustainability are understood as being innately linked (Agyeman, Bullard, et al. 2002: 78, Agyeman and Evans 2003: 155):

For just sustainability to be applied to the production of architecture it is necessary to better appreciate the nature of the architectural environment, that it is the eco-sphere of the human. As such, just sustainability's concern with 'ecological principles' can be applied to architectural environments: environmental justice will be achieved for people not only when the negative consequences of the unequal distribution of environmental risk are negated, but also when architectural environments which do not diminish representation, recognition and rights are universally available. Max-Neef's human scale development can be seen as a suitable means of addressing this concern, as exemplified in the case studies, whereby good development is predicated upon the appreciation of the essential value of the specific local knowledge of a community (at all scales).

This embellishment of the idea of environmental justice also raises the significance of sustainability to the research, particularly that relating to the sustainability of buildings, which becomes an issue of justice. As described in the Literature Review, the research adopted a view of architectural sustainability as being primarily about 'an architecture that meets the social, environmental and economic needs of a place' (see section 2.4) with the suggestion that this relevance was principally to do with meeting local needs for meaning amongst the community, thereby reflecting it as a distinct entity.

If vernacular architecture is first and foremost a social construct its sustainability 'credentials' emerge largely from its social capacity[82]. Therefore, to see vernacular architecture as a sustainable architecture it is necessary to place equal weighting upon the social (and economic) aspects of the sustainability debate rather than simply fixating on environmental concerns. Indeed, it is the position of this research that environmental sustainability flows from sustainable socio-economic conditions which therefore becomes

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[82] This is not to indicate that the widely reported environmental responsiveness of vernacular architecture is irrelevant, as is clearly outlined in the writing of Coch, Glassie, Oliver, Rapoport, Vellinga, Wells and others.

the primary imperative of urban development: they are the precondition for any other form of sustainability. Vernacular architecture, which is inherently 'local', place specific and 'every day' (Bourdier and AlSayyad in Bourdier and AlSayyad 1989: 5, Coch 1998: 68, Heath 2009: 40, Rapoport 1969: 47, Upton 2002: 708) addresses this problem, at least in theory, by evolving out of the needs, capacities and desires of those who it is to serve. As such it grows from a collective community discourse, and the evolving worldview of people is then reflected in the evolving approach to their urban sphere. Thus vernacular architecture, often seen as a twee or nostalgic style, a throwback to a bygone age of agrarian harmony (in the UK at least) is in other contexts a dynamic and contemporaneous reality and as such can be understood as (still) being socially constructed. It is from this capacity that its relevance and usefulness as a sustainable building typology emerges, but also as a means to address disparities of equity, recognition and participation – if it is permitted it becomes a potent way for communities to dictate the formation and maintenance of their urban sphere.

As indicated above, coproduced vernacular architecture based around human scale development necessarily entails a measure of co-learning, in this case between professional and non-professional or lay persons or, more abstractly, between professionalised and lay knowledge. Co-learning, whereby the expertise of contemporary, scientific knowledge is augmented by local, place and person-specific knowledge, is demonstrative of a pluralistic approach which, following Guy and Farmer, is ideally suited to both the study and design of sustainable architecture. This approach emphasises the validity of numerous 'typologies', from eco-centric to eco-technic (Guy and Farmer 2001: 141). Just as there are sustainable architectures, there are arguably also vernacular architectures; vernacular architecture is not a discrete or necessarily generalisable entity in stasis but is an organic, evolving social reality which grows out of the needs and desires of the community, their material capacity and the environmental context in which they are situated. Such an approach certainly validates this research which seeks to create new understandings of a synthetic vernacular architecture fit for the 21st Century.

This pluralism is relevant to all aspects of the theoretical framework, and the research methodology. Schlosberg, in his description of environmental justice states that 'The call for justice, in this instance, is a call for recognition and preservation of diverse cultures, identities, economies and ways of knowing' (Schlosberg 2004: 524). The promotion of

coproduced vernacular architecture as a means to sustainable urbanism is also a call to preserve diverse cultures, through of the promotion of strategies which make traditional modes of habitation fit for purpose in a world of globalised knowledge. Hunnarshālā, the organisation 'under observation' in the fieldwork, was examined in terms of its ability to preserve culture therefore, but also, through their work, to ameliorate inequality inter- and intra-communally. Persuasive arguments for sustainability have to be couched within a wider notion of social justice because, and especially within the contextual setting of this research, many of the problems of sustainable futures deal with the present and future circumstances of the poor.

5.4.2 Human Scale Development

Human scale development as proposed by Max-Neef is based on the assertion that human needs are 'finite, few and classifiable' and are 'the same in all cultures and in all historical periods' (Max-Neef 1991: 18). It was promoted in the thesis as a way of re-conceptualising the provision of housing for the poor in contexts where housing is provided as a service by an external, institutional body. Max-Neef writes:

> 'Human Scale Development, geared to meeting human needs, requires a new approach to understanding reality. It compels us to perceive and assess the world, that is, people and their processes in a manner which differs completely from the conventional [development] one.' (ibid. 14)

Human scale development proposes that because 'Development is about people and not about objects' (ibid. 16) a systemic reappraisal of approaches to development, in this case architectural development, is required. Moving towards a dialectical approach that engages with 'interrelated and interactive' (ibid. 17) human needs based on a thorough understanding of what these are, human scale development proposes a matrix of existential (Being, Having, Doing and Interacting) and axiological (Subsistence, Protection, Affection, Understanding, Participation, Idleness, Creation, Identity and Freedom) needs and satisfiers which are useful for diagnosing, planning, assessing and evaluating development programmes. Simply put, by accepting that human needs are stable, it is possible to identify them. In so doing, Max-Neef suggests that rather than being hierarchical, they are instead

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highly networked and it is therefore impossible and nonsensical to presume a development approach from outside the context itself; development necessarily emerges from the community dialogically. It is the external agency's job to engage with this pre-existing dialogue and to join it on <u>its</u> terms, if the development is to satisfy the needs of the recipient/ coproducers.

On analysis Hunnarshālā approached development from a (more-or-less) human scale development perspective, presuming an inherent rationale to any given community that would serve as the engine for post-disaster reconstruction. As was evident at Sadar Nagar and to a slight degree at Hodka, this was not always the case but nonetheless the approach was there and housing was produced which engaged with the enormously complex socio-cultural demands of the 'site' in an innovative and a (more or less) sensitive manner. Coproduction as a development strategy promotes this too, emerging out of dialogue and as suggested earlier, being predicated upon an agenda of emancipation and empowerment; building recognition, representation and rights through the production of houses. In many ways the difficulty with human scale development is that by accepting the highly complex and dialogic nature of human needs it is difficult to say with any degree of certainty when it has occurred. Nevertheless, methodologies based around ethnographic methods and the intuitive interpretation of artefactual data in relation to precedent can reveal the negotiated form and intention of the realised buildings.

Also, because vernacular architecture is not monolithic, that is, Kutchi vernacular architecture is different is some fundamental ways from, for example, north Lancastrian vernacular architecture, it is tempting to suggest that processes of engagement and renewal applied in one context have little relevance in another. However, following Max-Neef's human scale development, it is possible to propose an engagement with habitation that emerges from an appreciation of universal housing needs, which are stable. A close engagement with the subject of development by concerned agencies can form a 'dialectic of development', so to speak, through which the satisfaction of these stable needs is negotiated by all parties according to the specifics of time, place and culture.

5.5 Further work

The research described in the preceding chapters is based upon the assumption that non-professional and non-specialist people and groups are capable of producing their own architectural and urban environments. That the majority of people self-build already is perhaps evidence enough of this; self-build, particularly in urbanising environments is arguably used out of necessity rather than tradition however, in conditions where resource-poverty and/ or lack of representation necessitate self-supporting processes. Added to this is the increasing complexity of the technologies and processes used in housing production, often required by those institutional bodies who can facilitate access to legal recognition and democratic representation and thus to associated rights, which seemingly necessitates the abandonment of cultural ways of being, of dwelling, and the acceptance of a fairly low-grade global modernism which is unsatisfactory and expensive (Lewcock in Oliver 1997: 122). We are therefore confronted with a situation in which people both can and need to produce their own housing and neighbourhoods but are disallowed from doing so in ways that permit them to live in such a way as to best ensure their self-actualisation. The research described an architectural design and development organisation, Hunnarshālā, which attempted to address this obvious disparity by producing what is named in this research as a synthetic vernacular architecture, that is, an architecture which synthesises lay and professional knowledge through a robustly coproductive development process to produce an hybrid typology which at once addresses both institutional and local concerns in relation to issues of democratic representation, education, indigenous culture, health and poverty, sustainability (broadly speaking) and security. Results of this approach were partially successful in architectural terms, producing housing and urbanism at a micro- and mezzo-scale that built from and supported cultural norms consistent with an holistic and community-driven interpretation of 'being' and 'dwelling' for the residents as individuals and communities, whilst also enabling state and civil society agendas.

Two principal areas of the research suggest themselves as suitable areas of further research:

- Temporary shelter
- The education and production of Architects

Below I will describe how both of the above emerge from the thesis and propose ways in which each might develop as extensions of it.

5.5.1 Temporary shelter

Conditions in Sadar Nagar at the time of fieldwork indicated that there is an evident need for reappraising the design of temporary shelter, being that such accommodation is likely to remain in use for long periods of time either because of a lack of permanent housing provision or other complex social and institutional issues. [83]As such, and in relation to issues of cost-reduction and carbon production, research into temporary housing models that presume or even promote long-term use, and which therefore invite appropriation and modification, would be of value. In essence, temporary housing which followed the core-house, synthetic vernacular model used at Junawada and Sadar Nagar could reduce both costs and waste. With forward planning (which is possible in disaster zones – they *will* happen), temporary sites such as Sadar Nagar could be 'earmarked' and urban and architectural designs based on indigenous typologies could be pre-prepared. If such an approach is already in evidence, an interpretative design analysis methodology might be used alongside ethnographic and archival research elements to ascertain its validity. Otherwise a research-by-design methodology could be used to test such an approach.

5.5.2 Architects and their production

Sanderson, in an article for The Guardian newspaper written in the wake of the 2010 Haiti earthquake suggested that:

> 'the role of architects in these [post-disaster] circumstances is "marginal at best". In fact, most architects are taught almost the exact opposite of what is needed. Architects are taught to focus on the product (a building), whereas humanitarian practitioners major on the process (involving people). For architects, ownership of the design rests with them and fellow professionals; for the aid world, engaging beneficiaries through sharing decisions is paramount.' (Sanderson 2010)

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[83] Of course, it might be that the temporary shelters at Sadar Nagar were simply good houses, capable of modification and appropriation and which, in the end, satisfied the human needs of the residents.

This analysis rings true not only in conditions of post-disaster re-construction concerning the explicitly (or visibly) disadvantaged and humanitarian practitioners. In contexts of publicly-funded housing-provision for lower-income groups, the tendency also appears to be to provide architectural products, varying in form from the confusingly High to the drearily Low (see Figs. 5.5 and 5.6, below), with little meaningful or sympathetic analysis or sensitivity towards the social processes of dwelling, which incorporates all conception-to-completion development processes as well as those activities which constitute the daily lives of the residents. This sense became a central motivation for the research: architecture as practiced by many architects in the UK (and by implication in other such places where the production of architecture has become increasingly specialised and consequently professionalised) is not able to respond to the needs of those to be housed; architectural practice make products which to all intents and purpose do not (or cannot) represent the lived reality and values of those who lived in them. This sense grew from an awareness of the growing divide apparent between the 'culture' of architects and their architecture, and that of everybody else, specifically those people dependent upon publicly-subsidised housing, a divide which is nurtured through their training. In light of this, research which seeks to engage with an apparent tendency in (and perhaps objective of) much architectural education, which too often appears to be the promotion of 'hero-architects' and the acceptance that their genius is the vital ingredient in the production of good architectural environments, would be of great and growing value.

Fig. 5.5: Social housing in the Gorbals, Glasgow, Scotland by Anderson Bell + Christie Architects c. 2009) for Ogilvie Homes & New Gorbals Housing Association. (Image from www.andersonbellchristie.com – accessed 17.12.2012)

Fig. 5.6: New social housing Weston, Bath, England (c.2011) by Curo (social landlord) and Lovell (builder/ developer). (Image from Flickr.com – accessed 17.12.12)

Having undergone five years of architectural education at two universities, and having worked for more than a decade in architectural practice, I was aware when I began this thesis that the design-production of architects was principally (and arguably of necessity) focused on objects, principally buildings as objects. In most instances in which architects are employed, this approach appears sufficient: the transactional nature of the engagement with an architect and the legal framework for the work they commission implied that what the client really wants is a *thing*, received in exchange for money, just like any other market-place transaction. Architects for obvious reasons work along these lines too, producing the *things*, the objects they say they will; once they have done this, they can be paid and shouldn't get sued. A problem arises when what one needs from a built environment is not a thing, but rather a process, a problem particularly pertinent to housing. Housing that is designed as an image set at a moment in time lacks complexity and therefore rarely addresses real lives, which occur *through* space and *over* time and are not discrete and definable.

It is perhaps unsurprising that, as architecture as a profession declines as a significant force in the production of urban environments (Jamieson, Robinson et al.[2010: 2], reports a 40% reduction in use of architect's services between 2008 and 2012), the buildings produced and promoted as exemplar seem to become ever more taste-derived, combining apparently arbitrarily selected aesthetics with developer-led spatial planning which does not appear to encourage anything but an extremely basic, minimal specification. In this context,

the most aesthetically inspired architect rises to the top and becomes in turn a bellwether for the profession. But as Sanderson points out, "funky housing types" (Sanderson 2010) are really not what is needed in the context of extreme need although architectural education too often appears to encourage this kind of personality-based approach to design, not least through essentially adversarial studio-crit pedagogical method.

However, in conditions typified by dynamic indigenous architecture and urbanism and by a population used to self-producing their built environment, the 'hero-architect' does not seem fit for purpose; as this urban condition becomes almost normative in many southern contexts (and once again apparent in the North – Gentleman 2012) the traditional (at least, in the Modern period) architect risks becoming obsolete, a relic of a more formalised, professionalised age. Novel design, which seems to be the common currency of the hero-architect, is not likely to be useful in the condition of housing for low-income groups, particularly in developing contexts and particularly if one's concern is generating long-lasting and productive socio-cultural spaces, which can serve as the framework for the natural organic processes of settlement growth. A new kind of architect is needed, perhaps one more akin to that described by Frank in her 2004 paper 'A market-based housing improvement system for low income families: the Housing Incentive System (SIV) in Ecuador' (Frank 2004) and thus a new kind of architectural education which promotes not only the primacy of the site as a socio-cultural and environmental framework but also the knowledge of the community, which as an ecological environment in its own right requires exceptionally careful handling, as a means of redistributing power into the communities through the production of homes. Such an architect was described in Hunnarshālā through the case studies. Although not perfect, the model of architects using their expertise and their access to enable a redistribution of power, or perhaps an augmentation of the power of the unrecognised and under-represented through nurturing networks of coproductivity, thereby achieving Arendt's notion of power (Arendt 1970: 44) that 'corresponds to the human ability not just to act but to act in concert', is certainly one that might permit of application in other contexts.

5.6 Global-local Knowledge – an agenda for the thesis

Both vernacular architecture and coproduction develop from, to a greater of lesser extent, the use of local knowledge. Local knowledge is the knowledge of the layperson as opposed to that specific to the professional, academic or scientist. Whilst 'lay' or 'local' is obviously a false antithesis to 'professional' because neither sphere are immovable and discrete entities (Agrawal 1995: 430), methods of verification, production and dissemination do differ between the two spheres, at least in theory (Corburn 2003: 412). 'Local knowledge is often acquired through life experience and is mediated through cultural tradition', in contrast to a more scientific approach, and 'can also include information pertaining to local contexts … including knowledge of specific characteristics, circumstances, events and relationships, as well as important understandings of their meaning' (ibid). However, that local knowledge can be both 'geographically located and contextual to specific identity groups' (ibid) does, paradoxically, globalise the local. Groups with 'shared culture, symbols, language, religion, norms' are no longer necessarily tied to particular places, that is, the origin of that culture or artefact, nor tied to each other. Because industrialisation and modernisation purports to facilitate endless choice globally, people can, at least in theory live more or less as they like anywhere on the planet.

Increasingly local knowledge (and knowledge of local conditions) is being used in the design and implementation of development programs as a way of creating place-specific and thus locally relevant (and sustainable) projects (Corburn 2003: 430, Agrawal 1995: 416 quoting Warren 1991: 1)[84]. This is in essence what Jose Carlos de Melo instituted in Brazil in the water and sanitation example cited by Ostrom (Ostrom 1996: 1074). The use of local knowledge in professional work does not however necessitate a reduction in the quality of output but simply attempts to 'revalue forms of knowledge that professional science has excluded, rather than to devalue scientific knowledge itself' (Cozzens and Woodhouse 1995: 538). Its use facilitates the coproduction of information, with the public a different but equal source of information. The public's expertise is differently located, often embedded within the community and often inaccessible to outsiders, demanding that professionals use alternative approaches to reveal, analyse and act upon it.

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[84] The emergence of strategies which use local knowledge may also be in part due to the normalisation of 'post-development theory', through which indigenous people direct their own development, rather than accept the hegemonic Western model of development as currently practiced.

As described above, vernacular architecture is understood to be a deep repository of lay knowledge, embodying on a macro-scale indigenous, local perceptions of technology and culture, the form and use of urban space, and social orders and, on a micro-scale, familial and individual preferences. Coproduction is a means by which this knowledge is used in conjunction with contemporary technical knowledge to produce a synthetic vernacular but its application could be broader, and should be if the value of lay or local knowledge to the development of sustainable architectures is fully understood. This thesis has attempted to describe how such a process occurs by describing three examples of the work of Hunnarshālā. Although the context of a post-disaster Kutch is very specific, the two themes of vernacular architecture and coproduction identified as constituting the structure of their approach are not and have potentially broad application. Every culture has its own indigenous cultural forms and methods of housing, evolving over time in relation to not only economic, social and environmental changes, but also in light of changing notions of themselves as people in the world. Synthetic vernacular architecture promotes these two aspects of housing – artefact and process – as mouldable to culture at a household level in pursuit of a greater measure of justice for the disenfranchised. There is nothing to say that such a form of engagement couldn't be used elsewhere.

Appendices

Appendix 1 – Structural Violence

(See Chapter 2, Section 2.2)

An outline of the notion of structural violence (in relation to environmental justice and human scale development) undergirded this research's interpretation in the field due, in no small part to the fact that the organisation Hunnarshālā had suggested it as a way of understanding the post-disaster context and the necessity of their development approach. It served as a way of describing and understanding the 'malady'. Environmental justice and human scale development represent approaches to engaging with the problem of structural violence.

Described by Farmer as 'mechanisms through which large-scale social forces crystallize into the sharp, hard surfaces of individual suffering' (Farmer 1996: 263), structural violence can be experienced and understood through an examination of housing provision which (quite literally) makes concrete wider societies' attitude towards those being housed. Galtung, describing this expanded but logical application of the word violence, writes 'violence is present when human beings are being influenced so that their actual somatic and mental realizations are below their potential realizations' and later '[t]here may not be any person who directly harms another person in the [social] structure. The violence is built into the structure and shows up as unequal power and consequently as unequal life chances' (Galtung 1969: 169). Re-housing programs such as those in Bhuj, and similar state-authorised socio-cultural endeavours, serve to delineate state and civil society attitudes to the poor more explicitly than do, for example, informal settlements because they represent an holistic, over-arching and authorised vision implemented over a short space of time. As such, prevalent attitudes in state and civil society organisations (and even perhaps the society at large) are expressed starkly through housing programs of this kind and in such settings.

That iniquitous socio-cultural structures not only shape society in parts and as a whole, but are equally manifestations of society is a (contestably) acceptable proposition. Bad housing for the poor, which is affective to the general physical and psychological well-being of the

resident, is therefore an indication of structural violence. As such, the prevalence of sub-standard housing, the continued existence and growth of informal settlements which lack basic sanitation, security and service provision and the relative indifference the residents of such places are held in by institutional actors indicate the existence of structural violence. In post-earthquake Kutch the reflex tendency towards donor- and state-driven models of housing reconstruction, imposed upon a 'subservient' populace who were allowed little influence on the development of their new houses and who therefore received accommodation that in no way satisfied their socio-cultural and economic needs, was again indicative of structural violence; a manifestation that disparities of power in urban development can lead to the recipient being affected so that their life-chances are directly and considerably reduced. This, however, is not the focus of this research, nor is it 'to identify the forces conspiring to promote human suffering' (Farmer 1996: 273) or how social structure is able to make people do certain things, or indeed how structural violence makes people make bad housing, but simply to investigate the capacity of coproduced vernacular architecture to generate housing which addresses its manifestations (in this case, inadequate and unsuitable housing) by responding to the human needs of its inhabitants. Max-Neef's human scale development is a comprehensive way of doing this in light of the other theoretical concerns and research themes.

As such, post-disaster housing represents a test-bed for practices which contest the tendency in top-down housing provision programmes towards ignoring human needs and thereby embedding structural violence. Vernacular architecture, which is seen in this research as embodying most explicitly at least in formal and spatial architectural terms the human needs of any given community is therefore in contrast to much top-down housing provision. Hunnarshālā's agenda of synthetic vernacular architecture therefore becomes a suitable framework for discussing ways architectural production might address issues of disempowerment and inequality as found in architectural design and production.

Appendix 2 – Matrix of Needs and Satisfiers

(See section 2.2.2 Human Scale Development)

Table 1: MATRIX OF NEEDS AND SATISFIERS*

Needs according to existential categories / Needs according to axiological categories	BEING	HAVING	DOING	INTERACTING
SUBSISTENCE	1/ Phiasical health, mental health, equilibrium, sense of humor, adaptability	2/ Food, shelter, work	3/ Feed, procreate, rest, work	4/ Living environment, social setting
PROTECTION	5/ Care, adaptability, autonomia, equitibrium, solidarity	6/ insurance systems, savings, social securitia, health siastems, rights, family, work	7/ Cooperate, prevent, ptan, take care of, cure, help	8/ Living space, social environment, dwelling
AFFECTION	9/ Self-esteem, solidarity, respect, tolerance, generositia, receptiveness, passion, determination, sensuality, sense of humor	10/ Friendships, family, partnerships, relationships with nature	11/ Make love, caress, express emotions, share, Cake care of, cultivate, appreciate	12/ Privacy, intimacy, home, space of togetherness
UNDER-STANDING	13/ Critical conscience, receptiveness, curiosity, astonishment, discipline, intuition, rationality	14/ Literature, teachers, method, educational policies, communication policies	15/ investigate, study, experiment, educate, analiaze, meditate	16/ Settings of formative interaction, schools, universities, academies, groups, communities, family
PARTICIPATION	17/ Adaptabilitia, receptiveness, solidaritia, willingness, determination, dedication, respect, passion, sense of humor	18/ Rights, responsibilities, duties, privileges, work	19/ Become affiliated, cooperate, propose, share, dissent, obeia, interact, agree on, express opinions	20/ Settings of participative interaction, parties, associations, churches, communities, neighborhoods, family
IDLENESS	21/ Curiositia, receptiveness, imagination, recktessness, sense of humor, tranquility, sensuality	22/ Games, spectacles, clubs, parties, peace of mind	23/ Daydream, brood, dream, recall old times, give waia to fantasies, remember, relax, have fun, play	24/ Privacy, intimacy, spaces of closeness, free time, surroundings, landscapes.
CREATION	25/ Passion, determination, intuition, imagination boldnoss, ration ality, autonomy,	26/ Abilities, skilis, method, work	27/ Work, invent, build, design, compose, interpret	28/ Productive and feedback settings, workshops, cultural groups, audiences, spaces for expression, temporal freedom

Table 1 - continued

Needs according to existential categorie / Needs according to axiological categories	BEING	HAVING	DOING	INTERACTING
IDENTITY	29/ Sense of belonging, consistency, differentiation, self-esteem, assertiveness	30/ Symbois, language, religion, habits, customs, reference groups, sexuality, values, norms, historical memory, work	31/ Commit oneself, integrate oneself, confront, decide on, get to know oneself, recognize onesetf, actualize oneself, grow	32/ Sociat rhythms, everyday settings, settings which one belongs to, maturation stages
FREEDOM	33/ Autonomía, self-esteem, determination, passion, assertiveness, openmindedness, boldness, rebelliousness, tolerance	34/ Equal rights	35/ Dissent, choose, be different from, run risks, develop awareness, commit oneself, disobey	36/ Temporal/spatial plasticity

'The column of BEING registers *attributes* personat or collective, that are expresed as nouns. Tho column of HAVING registers *institutions, norms, mechanisms, tools* (nct in a material senso), *laws,* etc. that can be expressed in one or more words. The column of DOING registers *actions,* personal or collective, that can be expressed as verbs. The column of INTERACTING registers *locations and milieus* (as times and spaces). ht stands for the Spanish ESTAR or the German BEFINDEN, in rho sense of time and space. Since there is no corresponding word in English, INTERACTING was choson á faut de mieux.

Table 2: VIOLATORS OR DESTROYERS*

Supposed Sattsfier	Need to Be Supposedhy Satisfied	Needs, the Satisfactton of Which it impairs
Arms race	Protection	Subsistence, Affection, Participation
Exile	Protection	Affection, Participation, Identity, Freedom
National Security Doctrine	Protection	Subsistence, Identity, Affection, Understanding, Participation, Freedom
Censorship	Protection	Understanding, Participaion, Mimosa, Creation, identity, Freedom
Bureaucracy	Protection	Understanding, Affection, Parficipation, Creation, Identity, Freedom
Authoritarianism	Protection	Affection, Understanding, Participarton, Creation, Identity, Freedom

* Violators or destructors are elements of a paradoxical effect. Applied undor the pretext of satisfying a given need, they not only annihilate the possibility of its satisfaction, but also render the adequate satisfaction of other needs impossible. They seem to be especially related to the need for protection.

[Highlighted in red]: "The column of BEING registers *attributes* personal or collective, that are expressed as nouns. The column of HAVING registers *institutions, norms, mechanisms, tools* (not in a material sense), *laws,* etc. that can be expressed in one or more words. The column of DOING registers *actions,* personal or collective, that can be expressed as verbs. The column of INTERACTING registers *locations and milieus* (as times and spaces). It stands for the Spanish ESTAR or the German BEFINDEN, in the sense of time and space. Since there is no corresponding word in English, INTERACTING was chosen *á faut de mieux.*" (Matrix and quote from Max Neef et al. 1991, pp.32-33, with amendments to typography and corrections to spelling by Gillick 06.12.2012)

Appendix 3 – Interview log for first and second research fieldwork

Interview log for first fieldwork trip

	Date	Place	Person(s)	Sex	Organisation/ group/ community
1	26.09.08	KMVS Office, Bhuj	Paarth Mehta	M	KMVS
2	27.09.08	In Old Bhuj	Hirji Siju	M	Hunnarshālā
3	27.09.08	Abhiyan offices	Kiran Baghela	M	Hunnarshālā
4	27.09.08	Hunnarshālā offices	Mahavir Acharyo	M	Hunnarshālā
5	28.09.08	In the yard of house	Narayan	M	Setu Mahiti Kendra (NGO)/ Junawada
6	28.09.08	In the yard of house	Nabathi	M	Junawada
7	30.09.08	Hunnarshālā office	Sandeep Virmani	M	Hunnarshālā
8	03.10.08	Hunnarshālā office	Sushma Iyengar	F	KNNA
9	05.10.08	Verandah of house	Govind Mugan	M	GIDC
10	08.10.08	Hunnarshālā office	Mahavir Acharyo	M	Hunnarshālā

Interview log for second fieldwork trip

	Date	Place	Person(s)	Sex	Organisation/ group/ community
11	19.03.10	In workshop in Old Bhuj	Sukur Lohar	M	Sadar Nagar
12	20.03.10	On verandah of house	Shanti Mugan	M	Sadar Nagar
13	20.03.10	On verandah of house	Govind Mugan	M	Sadar Nagar
14	20.03.10	In temporary house	Vali	F	Sadar Nagar
15	20.03.10	In house	Ghanshan Thacker	M	Sadar Nagar
16	20.03.10	In house	Nita Tucker	F	Sadar Nagar
17	20.03.10	In house	Kalpuna Tucker	F	Sadar Nagar
18	22.03.10	At Shaam-e-Sarhad	Dhangi Bhasar - manager Shaam-e-Sarhad, leather worker	M	Hodka
19	23.03.10	In house	Sumar Khoyla	M	Hodka
20	23.03.10	In house	Bharma Khoyla	F	Hodka
21	23.03.10	In house	Khima, - musician, leather worker	M	Hodka
22	23.03.10	In house	Jumma – musician, leather worker.	M	Hodka
23	23.03.10	In house	Hemo – musician, leather worker.	M	Hodka
24	24.03.10	KMVS offices	Alka Jani	F	KMVS
25	24.03.10	Hunnarshālā office	Prashant Solanky	M	Hunnarshālā
26	25.03.10	Garden of house	Naram	M	Junawada
27	25.03.10	In garden of house	Harbham	M	Junawada
28	25.03.10	In garden of house	Sura	M	Junawada
29	25.03.10	In garden of house	Daya	M	Junawada
30	26.03.10	In garden of house	Munu	M	Junawada
31	26.03.10	In garden of house	Sabhi	F	Junawada
32	26.03.10	In garden of house	Nama	F	Junawada
33	30.03.10	UNNATI offices, Ahmedabad	Vivek Raval	M	UNNATI

Appendix 4 – Speculative model of Hunnarshālā's 'ideal' synthetic vernacular architecture

| Actors > / Action v	Community - collectively	Community - individuals	Civil society - Hunnarshālā	Civil society - other	State	Other/ business
1/ Negotiation .	• Demand recognition of their voice within any redevelopment • Demand acceptance of historical land rights. • Select NGOs (Hunnarshālā, preferably) who would best represent their interests, specifically those promoting an agenda of self-organising, community-led culturally normative development through renewed local governance bodies (*panchayats*). • Negotiate property boundaries intra-communally according to historical condition.	Demand: • rights to original land-use • use of owner-construction and vernacular techniques and processes in conjunction with the production and assimilation of new technologies and materials into new houses. • Use of owner-provided/ sourced materials.	• Negotiate permissible extent of community-led agenda with community, other agencies/ business and state, including control of finances. • Define alternative owner-driven reconstruction model and promote benefits to community and institutional actors. • Negotiate access to land, compensation and extra funding. • Design infrastructural development and secure support from the state. • Assist in negotiating boundaries within re-configured settlements between community members, in line with new state-defined building regulations. • Negotiate right to use of vernacular and SVA typologies and technologies with the state.	• Ascertain local needs through survey and analysis and cohesive documentation and representation. • Undertake administrative and legal processes for land regularization and negotiate suitable mechanisms. • Political recognition promoted and attained in conjunction with Hunnarshālā's urban redevelopment and funding plan. • Renew and promote local democratic bodies. • Negotiate land-rights for the community and contingent service provision assurances. • Provide additional funding.	Authorities at all necessary level stipulates reconstruction norms, including: • Instigating and overseeing a development plan that includes stipulating norms for land regularization and ratifying land rights, land use and infrastructural development. • Granting permissions for community-led, vernacular processes and building systems • Designing building approval norms. • Promoting economic and social policy in line with overall development goals (broadly, democracy).	• Engage other businesses with the community so as to foster self-sustaining livelihood generation within the community and into other marketplaces.

2/ Design (programmatic and architectural)	• Demanded input into the processes of design (at all scales - settlement to domestic) and the processes of production, including spatial characteristics, technical and material specifications and methods of construction.	• Advocate for personal representation within domestic and urban forms, within continuum of normative cultural practice.
		• Advocate for spatial provision for the 'work, rest and play' at micro, mezzo and macro scales.
			• Document pre-earthquake urban and architectural condition.
			• Assess precedent and develop precedent-based typological house forms through this and through participatory design process and communal negotiation.
			• Devise 'core design' model that permits of future development.
			• Develop alternative token-based trading system to ensure lower material, labour and transport costs.
				• Provide education in use of and assimilation of 'SVA' self-build construction into buildings.
				• Promote:
				  o community-led and owner-led reconstruction processes.
				  o self-build as indigenous, sustainable norm.
				  o commercial production of new SVA technologies.
					Legislate/ allow for the provision of vernacular house forms in conjunction with:
					• new urban spatial forms (more generously sized houses further apart)
					• incorporation of new earthquake-resistant technology.
						Local construction and building firms:
						• Agreed to participate in regularised and price-controlled tendering process for right to supply materials and labour to community on house-by-house basis
						• Agreed to alternative payment scheme with tokens.

3/ Production	• Oversee equitable and/ or fair access to resources (material and social), negotiated through democratically mandated community-level bodies. • Build communal facilities, such as sewerage and water filtration systems • Undertake material supply negotiations, provision and price control. • Oversee construction standards. • Build housing for those unable to house themselves.	• Houses self-built using family labour and paid labour where necessary, as per traditional models. • Assistance for collective projects including the provision of community facilities and housing for those unable to house themselves. • Acquire supplementary materials to augment core-house model, in line with specific house-hold requirements.	• Construction education in new materials, technologies and processes. • Design and building quality oversight. • Oversee price negotiations in the market and at regular community meetings, ensuring consistency, fairness and value. • Provided funding. • Establish a community fund to undertake community infrastructure work. • Assistance with building/ labouring.	Promote: • Commercial production of new SVA technologies. • Indigenous craft skills as commercial enterprise. • Gender-equity in development decisions. • Promote retrofitting of houses having inadequate safety features through technical and financial support.. • Provide additional funding.	• Build infrastructure including roads and pavements. • Provide materials and/ or funds for other substantive utilities (water provision, electricity, telephone, etc.) including alternative decentralised water treatment facilities. • Construction regulations oversight on houses.	• Use of paid labour and provision of supplementary materials where households demand.
4/ Maintenance	• Larger infrastructural works instigated by community working collectively through community-level, mandated representative bodies, negotiating for legal permissions, oversight, technical assistance, labour and funding from competent external agencies (state, private or civil society). • Everyday maintenance implemented and funded by the community through community-controlled funds.	• Low-cost, 'semi-tech' SVA technologies and materials promote assimilation and repetition, as well as ad hoc maintenance, undertaken by individual families as needs arise, in conjunction with the incremental development and expansion of households.	• Hunnarshālā maintain close links to the community through contact with community leaders and through providing piece-meal technical expertise where requested.	• Other NGOs remain involved in the community to some extent, continuing to work to promote indigenous livelihoods to the broader public and to promote education and emancipation within the community through this.	• Nominal oversight of spatial and technical aspects of urban and domestic development within the community, as well as promotion of a broader agenda of 'democratisation'.	• Incremental, long-term maintenance and development of community requires some external paid assistance, provided by local businesses. • Development of community leads to sustaining commercial opportunities within and with the settlement.
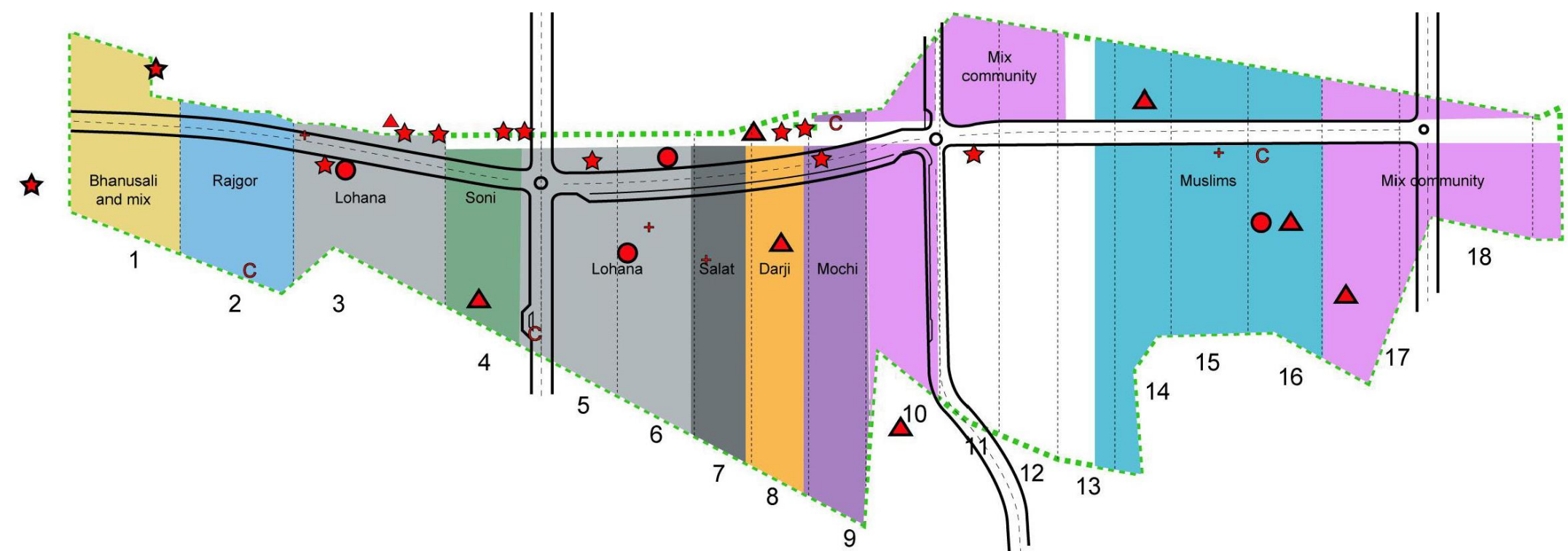
Figure 4.5 - Sardar Nagar 2001 showing initial zoning according to caste and religion, as instituted by state authorities. (See Section 4.3 Sadar Nagar)
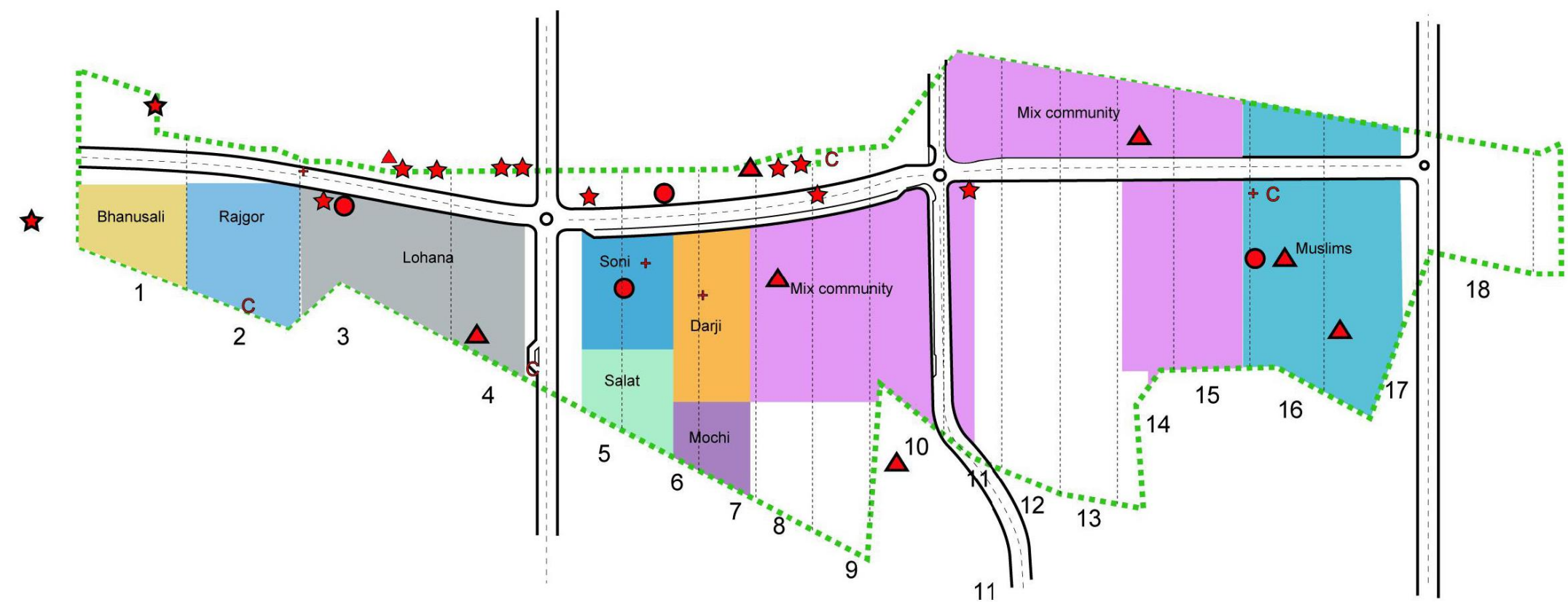

Figure 4.25 - Showing location of caste-groups in Sadar Nagar circa 2007. (See Section 4.3.2 Intention)

BHUJ CITY

1100 families settled in Sadar Nagar given a R 55,000 grant, minus R15,000, the cost of a 65m2 plot of land. Many families spent much of the money on more immediate needs. HUNNARSHALA and other NGOs were invited to help fund and build new homes with the beneficiaries making a financial contribution.

PEOPLES' ORGANISATION
65 PEOPLE SELECTED
TO REPRESENT 1100 ON SITE

1100

ORGANISED

165 — G5 tenants

PEOPLE whose dwellings were damaged by the earthquake to G5 categorisation and have been therefore been demolished and cleared away, rendering the tenants homeless.

HUNNARSHALA/ KNNA — list eligible families

327 — Development Plan affected 'unauthorised' families

PEOPLE whose houses were cleared during the rennovation and road-widening that took place in Bhuj after the earthquake.

LOBBIED

465 — Earthquake displaced tenants

PEOPLE whose LANDLORDS re-took control of their often illegally occupied property after the earthquake. HUNNARSHALA built 115 houses for those people the COMMUNITY decided were the most needy with charitable financing; 350 houses required PRIVATE FINANCING and the allocation of land, which HUNNARSHALA helped organise.

BhADA

BUILDING REGULATIONS

DISTRICT GOVERNMENT
WORLD BANK
GSDMA

POLICY

LOCAL KNOWLEDGE

FINANCIAL SERVICES

LAND + SERVICES

$

SADAR NAGAR

SYNTHETIC VERNACULAR ARCHITECTURE
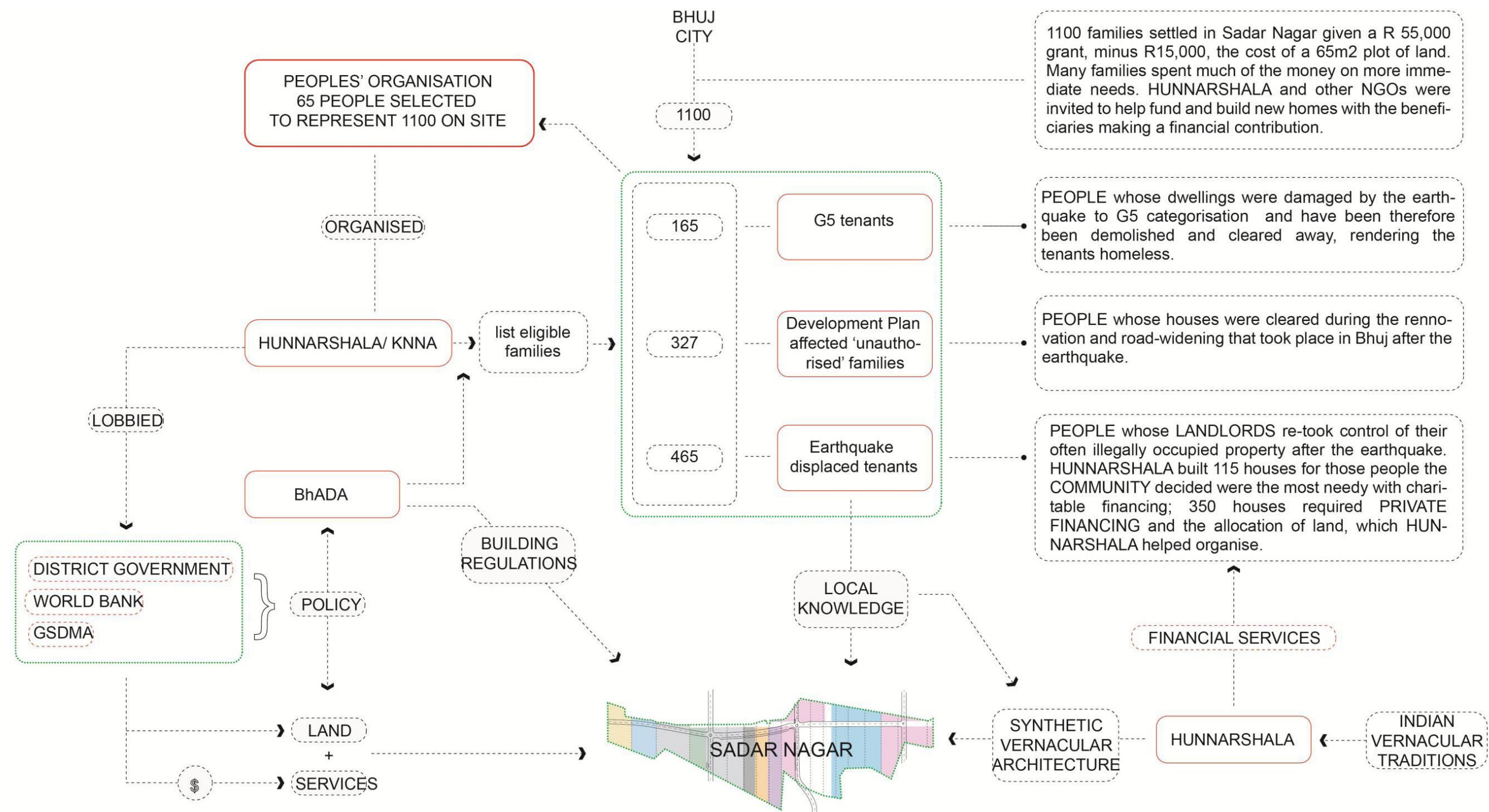
HUNNARSHALA

INDIAN VERNACULAR TRADITIONS

Fig. 4.24: Actor/ action diagram of development at Sadar Nagar. (See Section 4.2.4 Summary)

Appendix 7 – Synthetic vernacular architecture at Sadar Nagar

Actors > / Action v	Community - collectively	Community - individuals	Civil society - Hunnarshālā	Civil society – KMVS/ KNNA/ Setu and others	State	Other/ business
1/ Negotiation	• Worked with BhADA/ KNNA to identify needy households. • Elected representative development committee. • Requested assistance from KNNA/ Hunnarshālā towards rehabilitation. • Community structures were lacking in the initial phases due to the newness of the heterogeneous community, clustered in temporary shelters according to caste groupings.	• Applied for housing and where necessary proved need through documentation or, where lacking, testimony from community members. • Temporary condition of both site and housing militated against much individual engagement in the initial phases	• Negotiated permissible extent of community-led agenda, including household-control of finances. • Negotiated access to land, compensation and extra funding. • Secured infrastructural development. • Assisted in negotiating boundaries within re-configured settlement between community members, in line with new building regulations. • Defined alternative ODR model and promoted benefits to community and institutional actors. • Negotiated with other civil society agencies for funding and support. • Secured 100% housing grant support for 270 households.	• Political recognition was promoted and attained in conjunction with Hunnarshālā's urban redevelopment and funding plan. • Land-rights were negotiated for the community and contingent service provision was assured. • Funding was provided. • Local needs were ascertained through survey and analysis and cohesive documentation and representation. • Administrative and legal processes for land regularization were undertaken and suitable mechanisms were negotiated. • Building approval was negotiated. • Funding was acquired from a broad base of international NGO and governmental bodies.	Bhuj Area Development Authorities: • Allocated legal right to land and where implicit, ratified it in law Bhuj Area Development Authorities stipulated reconstruction norms, including: • Funding provision • Land rights • 'Permissions' for community-led processes • Development plan (land use and infrastructure) • Building approval norms • Provided each needy household with R55,000, 65-75m2 plot (for R6500-R11250)	• R25,000-50,000 bank loans offered to individual households at reasonable rates (due to NGOs acting as guarantors) through local financing company.
2/ Design (programmatic and architectural)	• Mediated involvement in design through participatory events and meetings in relation to external-actor proposals.	• Houses and familial clusters designed to replicate pre-earthquake forms through adaptation of Hunnarshālā's house typologies, where demanded; in general houses designed as per Hunnarshālā's historical precedent local prototypes.	• Designed infrastructural plan in conjunction with private engineering firm, including DEWATS • Designed cluster-housing courtyard typology for ODR, based around state agency demands for greater density including: o decrease the size of the courtyard o add more units around each courtyard o minimum 10% common spaces includes incidental spaces too • Designed models using recycled and waste materials (china clay	• Provided education in use of and assimilation of 'SV' self-build construction into buildings. • Through community meetings and participatory events, civil society promoted: • community-led and owner-led reconstruction processes through social facilitation. • self-build as indigenous, sustainable norm. • vernacular technologies augmented with new technologies and rigorously tested according to scientific norms. • commercial production of new SV technologies. • democratic rights within communities and to external bodies.	Legislated/ allowed for the provision of vernacular house forms in conjunction with: • new urban spatial forms (more generously sized houses further apart; cluster housing model) • incorporation of new earthquake-resistant technology. • a reappraisal of vernacular construction technologies augmented with new technologies and rigorously tested according to scientific norms. Permitted use of alternative development models, including: • Owner-driven reconstruction • Community-driven reconstruction Provided: • Technical/ structural specifications for the production of earthquake-resistant buildings, developed at State and regional level in relation to international norms.	Local construction and building firms: • Accept price-control mechanisms proposed by Hunnarshālā / KNNA. • Accept use of alternative construction technologies.
3/ Production	• Families build own homes, using paid labour where necessary (i.e. in conditions of incapacity • Community development committee oversaw construction standards	• Houses are built by Hunnarshālā with home-owner assistance when available and/ or possible.	• Provided training in construction methods and new technologies. • Oversee construction.	Attempted to instigate and/ or expand livelihood schemes that could be undertaken within the community, including: • Promoting commercial production of new SV technologies.	• Urban development and infrastructure funded by BhADA/ Gujarat State government and various national and international quangos. • Each household given R55,000 by state • Construction regulations oversight.	• Construction workers/ labourers employed by households individually where necessary. • Private financial organisations assessed and provided 30 – 50% loans to individual families, guaranteed by Hunnarshālā.
4/ Maintenance	• The community continues to fund and operate the DEWATs system. • ODR houses more evidently co-operate on domestic and street maintenance issues than do terrace or temporary households • caste and religious divisions	• Low-cost, 'semi-tech' SV technologies and materials promote assimilation and repetition; there is much evidence that this is occurring, although not everywhere. Rather the 'core house' design approach is being used as a foundation onto which more laissez-faire 'vernacular' can be attached in conjunction with widely-sourced waste material use.	• Continuing role as principal advocate for assistance from the state, principally in relation to the completion of infrastructure. • Oversees basic maintenance particularly of DEWATS sewerage system. • Continuing role as 'agitator' within community for cohesive community-led agenda.	• As money for infrastructural development has failed to materialise momentum has been lost and wider NGOs have apparently cut their losses. KNNA (through Hunnarshālā and others) remains involved, through programmes such as the *Homes in the City*.	• Nominal oversight of urban and domestic development within the urban district as part of its remit as regulatory authority. There is little sign that this role has been assumed. Likewise any agenda of 'democratisation' appears to assume its inevitability rather than actively promote it.	• In principle paid labour is used to maintain private dwellings, undertaken according to custom – house-hold-led and largely self-built, with paid labour where necessary. • Infrastructural maintenance overseen (and largely undertaken) by the community, certain members of which are charged with the role. Payment to them is via community funds collected by the settlement's elected council.

Appendix 8 – Synthetic vernacular architecture at Hodka

Actors > / Action ˅	Community - collectively	Community - individuals	Civil society - Hunnarshālā	Civil society – KMVS/ KNNA/ Setu and others	State	Other/ business
1/ Negotiation	• Demanded acceptance of historical land rights. • Negotiated boundaries within the community according to historical condition.	Demanded: • Rights to original land-use • Owner-led construction • Vernacular techniques and processes	• Negotiated permissible extent of community-led agenda, including household-control of finances. • Negotiated access to land, compensation and extra funding. • Secured infrastructural development. • Assisted in negotiating boundaries within re-configured settlement between community members, in line with new building regulations. • Defined alternative ODR model and promoted benefits to community and institutional actors. • Negotiated with other civil society agencies for funding and support.	• Political recognition was promoted and attained in conjunction with Hunnarshālā's urban redevelopment and funding plan. • Land-rights were negotiated for the community and contingent service provision was assured. • Funding was provided. • Local needs were ascertained through survey and analysis and cohesive documentation and representation. • Administrative and legal processes for land regularization were undertaken and suitable mechanisms were negotiated. • Building approval was negotiated. • Funding was acquired from a broad base of international NGO and governmental bodies. • Local democratic body/ies renewed and promoted.	• allocated legal right to land and where implicit, ratified it in law Area Development Authorities stipulated reconstruction norms, including: • Funding provision • Land rights • 'Permissions' for community-led processes • Development plan (land use and infrastructure) • Building approval norms	• NGO-led diversification of tradable products promoted, including development of Shaam-e-Sarhad tourist resort. • NGO- and community-led analysis into customary business routes revealed a collapse in demand/ trade for traditional products.

2/ Design (programmatic and architectural)	Demanded input into the processes of design at all scales (settlement to domestic) and the processes of production, including:
	• the use of personal resources/ materials, acquisition of other resources (building materials, labour),
	• the employment of external labour and expertise,
	• the design of local house typologies and urban forms and construction methods based on cultural norms
		• Houses and familial clusters designed to replicate pre-earthquake forms through adaptation of Hunnarshālā's house typologies; in general houses designed as per Hunnarshālā's historical precedent local prototypes. Some subsequent construction has incorporated new technologies in places but much (most?) construction has not, instead embracing a more singularly vernacular approach in conjunction with traditional materials.	• Documented pre-earthquake urban and architectural condition through material and social surveys.
			• Assessed precedent.
			• Developed precedent-based typological house form through material and social surveys, participatory design process, communal negotiation and archival research.
				• Provided education in use of and assimilation of 'SV' self-build construction into buildings.
				• Through community meetings and participatory events, civil society promoted:
				  • community-led and owner-led reconstruction processes through social facilitation.
				  • self-build as indigenous, sustainable norm.
				  • vernacular technologies augmented with new technologies and rigorously tested according to scientific norms.
				  • commercial production of new SV technologies.
				  • democratic rights within communities and to external bodies.
					Legislated/ allowed for the provision of vernacular house forms in conjunction with:
					• new urban spatial forms (more generously sized houses further apart; cluster housing model)
					• incorporation of new earthquake-resistant technology.
					• a reappraisal of vernacular construction technologies augmented with new technologies and rigorously tested according to scientific norms.
					Permitted use of alternative development models, including:
					• Owner-driven reconstruction
					• Community-driven reconstruction
					Provided:
					• Technical/ structural specifications for the production of earthquake-resistant buildings, developed at State and regional level in relation to international norms.
						Maintenance of self-building 'mechanisms' and the holistic support of NGO organisations, particularly in relation to livelihood initiatives such as at Shaam-e-Sarhad, ensured minimal need for 'external' support.

3/ Production	• Families build own homes, using paid labour where necessary (i.e. in conditions of incapacity)	• Houses were self-built using family labour and paid labour where necessary as per traditional models, with Hunnarshālā assistance when necessary and/ or possible. • Produced and assimilated new technologies and materials into new houses.	• Construction education in new materials, technologies and processes • Design and construction standards oversight. • Price negotiations in the market and at regular community meetings, ensuring consistency, fairness and value. • Provided funding.	Promoted: • Indigenous craft skills as commercial enterprise. • Gender-equity in development decisions	• Urban development and infrastructure funded by BhADA/ Gujarat State government and various national and international quangos. • Construction regulations oversight	• Construction workers/ labourers employed by households individually where necessary, largely from within the community, as per custom. • Labour, materials, etc. negotiated collectively; pricing moderated by collective bargaining.
4/ Maintenance	• Customary processes re-established for the provision of most infrastructure, communal facilities and for those people in conditions of disability, inability or poverty.	• Low-cost, 'semi-tech' SV technologies and materials promote assimilation and repetition; there is much evidence that this is occurring, although not everywhere; rather the 'core house' design approach is being used as a foundation onto which more laissez-faire 'vernacular' can be attached. • Shaam-e-Sarhad receives communal attention year through, but particularly after the rains.	• Oversee seasonal renewal and expansion of Shaam-e-Sarhad endogenous tourist resort. • Hunnarshālā maintain close links to the community through contact with community leaders and provide informal advice.	• NGOs remain involved in the communities to some extent, including KMVS (part of the KNNA network) who continue to work to promote indigenous Kutchi crafts to the broader public and to promote education and emancipation within the village through this.	• Nominal oversight of urban and domestic development within the urban district as part of its remit as regulatory authority. There is little sign that this role has been assumed. Likewise any agenda of 'democratisation' appears to assume its inevitability rather than actively promote it.	• Infrastructural maintenance overseen (and largely undertaken) by the community, certain members of which are charged with the role. Payment to them is via community funds collected by the settlement's elected council. • Undertaken according to custom – house-hold-led and largely self-built, with paid labour where necessary. • For major works (water tower, electricity) assistance either bought in or provided by the state.

Appendix 9 – Synthetic vernacular architecture at Junawada

Actors > Action v	Community - collectively	Community - individuals	Civil society - Hunnarshālā	Civil society - UNNATI	State	Other/ business
1/ Negotiation	• Demanded acceptance of historical land rights. • Selected NGOs who would best represent their interests, specifically those promoting an agenda of self-organising, community-led development through renewed local governance bodies (*panchayats*). • Negotiated boundaries within community according to historical condition.	• Rights to original land-use, owner-construction and vernacular techniques and processes demanded. • Produced and assimilated new technologies and materials into new houses.	• Negotiated permissible extent of community-led agenda, including household-control of finances. • Negotiated access to land, compensation and extra funding. • Secured infrastructural development. • Assisted in negotiating boundaries within re-configured settlement between community members, in line with new building regulations. • Defined alternative ODR model and promoted benefits to community and institutional actors.	• Political recognition was promoted and attained in conjunction with Hunnarshālā's urban redevelopment and funding plan. • Local democratic bodies were renewed and promoted. • Land-rights were negotiated for the community and contingent service provision was assured. • Funding was provided. • Local needs were ascertained through survey and analysis and cohesive documentation and representation. • Administrative and legal processes for land regularization were undertaken and suitable mechanisms were negotiated. • Building approval was negotiated.	Bhachau Area Development Authority stipulated reconstruction norms, including: • Funding provision • Land rights • 'Permissions' for community-led processes • Development plan (land use and infrastructure) • Building approval norms District Collector's office stipulated norms for land regularization under Revenue department procedures	

2/
Design
(programmatic and architectural)
	Demanded input into the processes of design at all scales (settlement to domestic) and the processes of production, including:
	• the use of personal resources/ materials, acquisition of other resources (building materials, labour),
	• the employment of external labour and expertise,
	• the design of local house typologies and urban forms and construction methods based on cultural norms
		Houses and familial clusters designed to replicate pre-earthquake forms through adaptation of Hunnarshālā's house typologies, where demanded; in general houses designed as per Hunnarshālā's local prototypes. Some subsequent construction has incorporated new technologies in places but much (most?) construction has not, instead embracing a more singularly vernacular approach.	• Documented pre-earthquake urban and architectural condition.
			• Assessed precedent.
			• Developed three precedent-based typological house forms through participatory design process and communal negotiation.
			• Devised 'core design' model that permits of future development.
			• Developed alternative token-based trading system to ensure lower material, labour and transport costs
				• Provided education in use of and assimilation of 'SV' self-build construction into buildings.
				• Promoted:
				  • community-led and owner-led reconstruction processes through social facilitation.
				  • self-build as indigenous, sustainable norm.
				  • commercial production of new SV technologies.
					Legislated/ allowed for the provision of vernacular house forms in conjunction with:
					• new urban spatial forms (more generously sized houses further apart)
					• incorporation of new earthquake-resistant technology.
						Local construction and building firms:
						• Agreed to participate in open tendering process for right to supply materials and labour to community on house-by-house basis
						• Agreed to alternative payment scheme with tokens.

3/ Production	• Financing (of houses for most needy) • material supply negotiations, provision and price control • self-regulating construction standards oversight	Houses were self-built using family labour and paid labour where necessary, as per traditional models.	• Construction education in new materials, technologies and processes • Design and standards oversight. • Price negotiations in the market and at regular community meetings, ensuring consistency, fairness and value. • Provided funding. • Established a community fund to undertake community infrastructure work.	Promoted: • Commercial production of new SV technologies. • Indigenous craft skills as commercial enterprise. • Gender-equity in development decisions • Promoted retrofitting of houses having inadequate safety features through technical and financial support.	Construction regulations oversight	
4/ Maintenance	Where necessary those people in conditions of disability, inability or poverty, were assisted by the wider community.	Low-cost, 'semi-tech' SV technologies and materials promote assimilation and repetition; there is much evidence that this is occurring, although not everywhere; rather the 'core house' design approach is being used as a foundation onto which more laissez-faire 'vernacular' can be attached.	Hunnarshālā maintain close links to the community through contact with community leaders.	Other NGOs remain involved in the organisation to some extent, including KMVS (part of the KNNA network) who continue to work to promote indigenous Kutchi crafts to the broader public and to promote education and emancipation within the village through this.	Nominal oversight of urban and domestic development within the urban district as part of remit as regulatory authority. There is little sign that this role has been assumed. Likewise any agenda of 'democratisation' appears to assume its inevitability rather than actively promote it.	

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