Tracing the Urban Informal: Mutual Self-Help to ExNihilo

In the next twenty years subtropical and tropical countries will account for 95% of urban growth and a large portion of this growth (nearly half) will be driven by non-formal architectures. Already by 2006, a billion people or a third of the world's urban population lived in squatter settlements (variously called slums, favelas, geckecondus, bidonvilles, or barriadas).[1]

A recent study by the UN has indicated that this number "might triple (to three billion) by 2050 if no policy framework is established to address this issue"[2]. At the same time, it is well acknowledged that architects today contribute to only 3% of the world's built environment.[3] With the emergence of neoliberal, late-capitalism, architectural discourse has moved away from addressing the 'crisis of mass housing' - a subject that was clearly canonical during postwar modernist reconstruction.

In the decades following postwar reconstruction the site of the 'crisis of mass housing' progressively shifted territories, to the global south. It became increasingly apparent that the prototypical postwar housing block typology, originally formulated in Europe, was not only prohibitively expensive for the global south but was also hopelessly inadequate in dealing with the sheer scale of the housing deficit. Furthermore 'Structural Adjustment Programs' (or SAPs) by the IMF and the World Bank favored free market liberalism encouraging Third World governments to relinquish ambitions of mass public housing in favor of privatization and market oriented reform. The work of eminent scholars of the time across disciplines echoed this sentiment. John Turner's advocacy of self-help/ community driven housing with minimal government involvement and Hernando De Soto's advocacy of property rights as a way of bringing informal economies into the folds of mainstream market economy, in turn influenced neoliberal agendas and policy of the World Bank from the 60's to the 80's.[4] Learning from self-help housing experiences in Peru, Turner believed housing is best left to those who are going to live in it and favored self-build to centrally administered housing solutions.

It was under these circumstances that self-help housing emerged as a preferred alternative to mass public housing from South Asia to Latin America - a move which corresponded to an increased reliance on the urban informal

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and informal tactics of housing now vindicated through a degree of government sanction. Self-help housing promised to integrate the design and planning expertise of the professional (the architect/ engineer/ economist) with the innate benefits of harnessing community resources and drastically reduced costs of construction. As self-help evolved it encompassed a broad spectrum of typologies with varying degrees of involvement from architects.

This paper traces the trajectories of two ends of a broad spectrum of self-help housing by an analysis of four projects in the subtropics. The study focuses on the shifting degrees of architectural involvement within the urban informal. In particular the role of the architect in shaping, predicting and at times prescribing not only the design of the housing unit but also aspects of growth and temporal change. The study contrasts these architecturally involved self-help projects with ExNihilo conditions (which grew out of nowhere) to ask questions of architectural agency and posit the future involvement and efficacy of architecture as it relates to informality.

On a scale of highly involved to least involved architecturally, these four projects include: i) Architects designing the master plan and basic dwelling unit while prescribing the formal and social aspects of future growth of the unit, as in the case of PREVI Housing in Lima, Peru. ii) Architects devising a site and services approach - designing plot layouts and basic infrastructure, but not building the housing units - in some cases 'demonstration' units are built to encourage a certain aesthetic or formal elaboration, as in the case of Aranya Housing in Indore, India. iii). No master architect is involved and a very basic division of plots is provided with no initial infrastructure - often referred to as Lotes Tizados or chalk drawn lots. The housing is built entirely by the community and other services are provided on an adhoc basis as the settlement evolves, which as in Villa el Salvador [VES], Lima iv). Slum Networking where existing slums / squatter settlements are 'networked' through the provision of infrastructure and civic amenities much after the initial stage of squatting, as with the Slum Networking Project in Indore.

While the first two cases involved architects working on large 'tabula rasa' sites employing modernist 'master planning' ideals; the two latter cases do not involve centralized architectural inputs but are instead interventions on sites where squatting has, in time, been supplemented by infrastructure and the provision of basic civic amenities.

THE PRESCRIPTIVE CASE OF PREVI: [AN EXPERIMENTAL HOUSING PROJECT IN LIMA, PERU]
A visit to the PREVI housing complex today will reveal a relatively inconspicuous neighborhood, tucked away in the northern end of the Lima - appearing no different to the untrained eye from the generic ubiquitous buildings that occupy this part of the city. Yet PREVI has been described by its project director Peter Land[5] as the moment when "attempts by avant-garde architects to help overcome a housing deficit came to an end."[6] PREVI was the ultimate socialist dream of Peruvian President Fernando Belaúnde Terry. Himself an architect - Belaúnde sought a final architectural 'solution' to the crisis of mass housing that had reached a stalemate in Peru of the 1960's plagued with an endemic influx of migrants to Lima.[7] To better address the housing deficit, Land proposed the idea of an experimental housing competition to Belaúnde. Upon receiving financial support from the United Nations Development Program in 1968, the government of Peru set out

Figure 1: PREVI Experimental Housing at Lima, Peru. 2013

to organize an audacious international competition with Land travelling personally to issue invitations to architects world-wide.[8] The invited list of architects included the most eminent architects of the time, encompassing a broad global diversity from the Europeans James Sterling and Aldo Van Eyck, to the American Christopher Alexander and the Japanese trio of Kikutatke, Maki and Kurokawa.[9]

The project brief specified a low rise high density settlement with two key considerations: a) the design for a core housing unit to be built using professional contractors and taking advantage of the economies of mass production; and b) a vision for the gradual growth of the unit which would incorporate self help and involve community members making extensions to their units over time. Although the original aim of the competition was to build 1500 units of the winning project in different phases, in the end the jury proposed building a small piece of each of the 26 projects entries as a collage neighborhood of 467 units in the first, and as it turned out, only phase of the initiative.[10] As with B.V.Doshi's housing at Aranya, Indore (discussed later), the intention of the project brief at PREVI Lima, was to be simultaneously visionary and demonstrative. The housing units that were built were meant as a demonstration of how social housing could harness both the agency of its local residents, at the same time employ new technologies of construction that enhanced economies of scale and production. Indeed one of the goals of the competition was to modernize the Peruvian construction industry by improving efficiency and productivity.[11]

ARANYA HOUSING PROJECT AT INDORE, INDIA

Aranya (meaning forest) or Aranyanagar also referred to locally as Sector 78, was a site and services project located in the Indian city of Indore and designed by the famous Indian architect B. V. Doshi. It was initiated by the local government authority (Indore Development Authority) nearly two decades after PREVI and was considered to be a remarkable project through various indices of social and cultural design. Like with PREVI Aranya was also an experimental project in the face of the near total demise of government sponsored social housing schemes. Over a period of three decades total government investment in housing in India fell from 34% in the 1950's to below 6% in the early 1980's when Aranya was conceived.[12] The intention at Aranya was inextricably linked to Turner's vision of allowing people the "freedom to build". Hence a site and services approach was used with the architect designing an overall masterplan and demonstration housing. Another agenda was to encompass a diversity of economic groups - hence plot sizes varied considerably from 35sqm for EWS plots (or 'Economically Weaker Sections'[13]) to 475 sqm for higher income groups. The Architectural theorist, Cynthia Davidson called this "an unusually sophisticated scheme that should be widely studied. In a world of intolerance and strife, it is a beacon of enlightened and socially responsible architecture." [14] The drawings, process diagrams, and research provided by the architect indicate that Doshi was significantly influenced by the urban informality of slums in Indore. Hence the ubiquitous grid plan so often associated with site and services projects is replaced with a more contextual urban design which as Davidson points out 'attempts to provide an architectural vocabulary suitable to both the socio-economic circumstances and the climate'.

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Figure 2: Aranya Housing at Indore, India. 2013

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Although situated several decades apart, and located in diverse geographies there are various obvious correlations that can be extracted from the nascent growth of PREVI and Aranya. What is more notable is that today both can be easily mistaken as one of several ubiquitous settlements that have proliferated in the suburbs of Lima and Indore. The informal city and its tactics of growth and proliferation have shaped and reshaped these dwellings far more than any architectural prophesy - to the extent that both PREVI and Aranya today are not any longer distinct from the city that surrounds them.

VILLA EL SALVADOR : FROM EXNIHILO[15] TO URBAN SELF RELIANCE
Villa el Salvador (VES) is a community on the southern edge of Lima which is now home to a population of 400000 residents. It has been described as "perhaps the biggest success in creating a local self help community in the world".[16] The process of founding VES began through a planned act of land invasion. Between April 29 and May 1, 1971, a number of families, many of whom were refugees from an earthquake invaded a parcel of government owned land at Pamplona Alta to the south of Lima. From an initial size of about 200 families this number swelled to 9000 families in a matter of five days. This non-violent act of squatting was a carefully timed one; to coincide with a conference for The Inter-American Development Bank, one of the largest providers of funding for development work in Latin America, which was meeting in Lima at the time. After initially chastising the squatters and even using force to evict them, the military government of Peru eventually relented, in large part due to the immense popular support for the squatters. An alternative "relocation site" was found further south on a desert dune and the military transported 3000 families to the new site where they were allocated lots of 140 sqm with a nominal payment. Eventually most of the families decided to make the move from the site of the original settlement to the site that is now VES. A few informal guidelines were established for the settlement community such as the rule that new settlers were required to build some form of shelter within 24 hours of joining the settlement group.[17]

Figure 3: Villa El Salvador, Lima, Peru. 2013

In his article on VES written fifteen years after its founding, John F. C. Turner contends that CUAVES - (Comunidad Urbana Autogestionaria, or the Self-managed Urban Community of VES) shows that self government and devolution of power to the local level can and does work: "Over fifteen years houses have developed from unserviced cane matting shacks to two storey brick and concrete structures with water, sewage an electricity connections." [18] Turner suggests that the evolution of VES took place in six distinct phases [19], which Turner breaks down chronologically from the date of VES' occupation. He arrives at four key observations from his study of VES: a) Locally organized housing must be supported but not provided by the government; b) Government agencies must support and not substitute local action[20] c) Central planning works with local control and finally d) Self-financing requires external support. Turner makes the case that low income groups must manage their own housing programs, because the aggregate investment is far greater than any low-budget government can possibly provide. At the same time, while people must retain full control of their housing Turner sees the need for external support to self-financing - since it is "unrealistic and impractical" to expect self financed developments from "low income people with very small or no margins for savings and no access to external credit".

From a settlement of 7000 in the early 1970's VES today is a bustling neighborhood of nearly 400,000 people. A cross section of VES today reveals a intriguing and complex urban conditions. The practice of squatting and operating in a kind of legal gray zone exists till date, where one can trace the newest settlements to the same kind of tin sheet wooden huts that were part of the original settlement of 1971. Hence a fascinating pattern emerges of a place whose history is constantly being reenacted where various periods of informal proliferation exist contemporaneously and the city is built through a continuous process of encrustation.

SLUM NETWORKING PROJECT AT INDORE, INDIA

It is 25 years since Slum Networking was first conceived by the structural engineer Himanshu Parikh for the city of Indore, India. Through projects in various cities, Slum Networking has challenged base assumptions regarding the role of government sponsored housing and has convincingly shifted the focus from housing to tactical infrastructure. When it comes to infrastructure, slums have an anomalous relationship to the formal city, where infrastructures (of sanitation, roads, electricity) logically precede buildings. Slums on the other hand precede traditional forms of infrastructure - hence networking slums through a tactical insertion of infrastructure challenges established ideas of infrastructure as top down, macro and preplanned, and replaces these with a more fluid, tactical, even opportunistic notion of infrastructure.

In Indore a total of 181 slums were 'networked' with over 300km of new sewer lines and roads that doubled up as storm water drains. With the networked infrastructure in place people invested in rebuilding their own homes, the city had a new sewerage system and it was hoped the Khan river and its tributaries, once reduced to open sewers, would carry water again.[21] However, not all aspects of the project were entirely successful. A recent visit to Indore revealed the Khan river and its tributaries continue to remain sewage channels[22]. Despite this very noticeable site of squalor,

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Figure 4: Networked Neighborhood [Slum Networking Project] Indore, India. 2013

there were some remarkable discoveries at the finer grain. Former slums redeveloped under the project have evolved with individual water and toilet connections, a well developed and functional underground drainage system and at times an astounding level of cleanliness and hygiene.[23] The single most remarkable aspect of the project is that numerous former slums have moved toward becoming integrated neighborhoods blurring and at times erasing distinctions between the formal and informal city. This is obvious not only from the appearances of the dwellings but also from the presence of infrastructure - sanitation and water supply at the unit level. But increasingly the presence of Cable TV, Refrigerators, motor cycles, and in certain cases small cars are proving that these former slums increasingly house an upwardly mobile middle class. Hence despite inadequacies at the macro scale there are undeniable successes at local levels through the deployment of localized tactics. The strategy of Slum Networking was made part of urban policy by various municipal organizations, most notably in the city of Ahmedabad through a special Slum Networking Cell (now called "Parivartan Program"). This marks a paradigm shift in official responses to squatting from slum removal to slum relocation and in-situ slum redevelopment and correspondingly a shift from public housing to increasing forms of self-help.

Like PREVI and Aranya, there are various similarities between VES and the networked neighborhoods of Indore, located in highly varied contexts. For developments that started out as slums and squatter settlements, the provision of infrastructure has been a crucial pivot in aiding an inclusive idea of growth. These neighborhoods now can no longer be considered slums or squatter settlements. Surely local nuances exist that privilege one location over another, but on a macro scale these neighborhoods have asserted a right to the city with a commendable access to civic amenities. While a detailed socio-economic survey of comparative conditions of these four communities is outside of the scope of this paper, it is certainly possible to speculate upon a few emergent tendencies.

Over time these two very different paradigms of self-help housing have evolved such that their contemporary conditions are much more similar than their origins would have us imagine. Instead of having diverse futures as one might have anticipated, their urban trajectories have been convergent over time. An analysis of nascent and current scenarios can help glean various insights into this phenomenon and in doing so locate the larger question of shaping architectural agency within the urban informal.

INFRASTRUCTURAL ROBUSTNESS AND THE TEMPORALITY OF FORM AND FUNCTION
Both PREVI and Aranya employed the contemporary architectural avant-garde of the time and both represented a 'shift from a dogmatic modernist approach to housing the urban poor, to one that capitalizes on the evolutionary organic nature of informal settlements'.[24] However, the temporal strategies for growth and change of the dwelling units as prescribed by the architects were, in both cases, not adhered to by their resident-builders. At Aranya, a part of the neighborhood where some of the model houses were built by Doshi has been taken over by newer residents who have often entirely rebuilt the original houses.[25] Also, the residents, old and new, have not adhered to any of the formal suggestions made by the architect for the future growth of their dwelling. Similarly at PREVI, a large number of houses

have been transformed so radically that it is almost impossible to identify their original designs. Most notably almost 60% of the units have had intense programmatic alterations[26] - a James Sterling unit has been transformed into a school, a house by Charles Correa into a boarding house with ten rooms. In many cases corner houses and ground floors have been transformed from residential to newer 'unplanned' commercial uses, particularly as shops. Also at PREVI numerous architects proposed a variety of precasting technologies that would enable both a rationalization of construction and a modularity through which future extensions could be structured, none of which survived as the dwellings evolved.[27] Like the informal city, construction at PREVI has become a continuous, fluid and ongoing process of change. Hence what remains exemplary in the case of both PREVI and Aranya is not the dwellings one might argue but the overall robustness of the master-plan – the site and services approach, the provision of a strong network of open spaces alongside a robust infrastructure of drainage and water supply which allowed, the settlement to afford a quality of life for its residents that was starkly different from the early days of VES and the slums of Indore. It is the provision of infrastructure that provides both VES and Indore with the framework necessary for sustained growth - indeed what becomes obvious from looking closely at these four projects is that an emphasis on the robustness of infrastructure, seems to carry much more weight than the design of the individual units.

THE VERNACULAR ORDINARY OF THE INFORMAL CITY PERVADES ALL

The techniques of construction prevalent in the informal city have been deployed to make changes to the original dwellings at both PREVI and Aranya, while the prescriptive or demonstrative recommendations of architects have not been adhered to. 'The vernacular ordinary'[28], the default method of building the urban informal, has been employed to make all sorts of additions and alterations. It is intriguing that the informal self-help model of post-occupancy construction remains the same in all four settlements. While VES in its nascent stages was little more than tin roofs and sticks, this form of construction, was convincingly replaced over time with the ubiquitous wet construction of the concrete frame with brick infill walls, where roofs, staircases and all spanning elements are in concrete with the rest of the dwelling – external infill walls and internal partition walls made in brick. These are often built as un-plastered surfaces which over time get the final coat of plaster and paint. The generic condition of the vernacular ordinary makes it the default choice of construction used not only at VES as well as the Networked neighborhoods of Indore, but also in informal cities across a wide range of geographies of the global south. It also becomes the only system trusted and followed by local residents in more formal, architecturally codified dwellings that are modified using non-formal means.

STRUCTURES OF SOCIAL COHESION ARE THE DNA OF THE EXNIHILO

What is remarkable about the success of VES are the cohesive social networks within and across communities that are capable of self-organization which seem to replace in large measure the presence of state controlled structures of governance. After the initial families were forced to re-relocate to an 'alternative site' from a site of their first choice their resolve to provide for and self-organize themselves grew stronger. As John Turner

ENDNOTES

1. United Nations Human Settlements Program, The State of the Worlds Cities Report 2006/ 2007: 30 Years of Shaping the Habitat Agenda. (London: Earthscan Publications, 2006) p. 13

2. United Nations Department of Economic and Social Affairs, World Economic and Social Survey 2013. (United Nations, 2013) p. ix. "The number of people living in slums might triple by 2050 if no policy framework is established to address this issue"

3. Marie Aquilino, "Introduction" in Beyond Shelter: Architecture and Human Dignity. (New York: Metropolis, 2011) p. 10.

4. For a critique of the 'minimal state' approach see Herbert Werlin's "The Slum Upgrading Myth", in Urban Studies, Vol. 36, No. 9, 1523-1534, 1999. Werlin suggests that a minimal state as advocated by Turner is clearly unable to deal with the problems that typically merge from slum upgrading efforts and that for these efforts to be sustainable and replicable more attention must be paid to providing good, efficient governance instead of lesser governance – the market cannot Werlin argues cannot replace adequate policy, especially with regard to land tenure.

5. Peter Land was an architect trained at the Architectural Association and Carnegie Mellon and Yale Universities. After his education at Yale he was the field director of the Inter-American Graduate Program in Urban and Regional Planning at the Universidad Nacional de Ingenieria in Lima. This was a powerful position through which Land was able to gain access to Belaúnde.

6. Helen Gyger The Informal as Project: Self Help Housing in Peru, 1954-1986 Doctoral Thesis, Columbia University, 2013. p. 209. Gyger's thesis spans a broad range of self help housing projects in Peru across three decades and includes original archival research as well as recent interviews with various key figures including John F. C. Turner and Peter Land. PREVI has also been described variously as the "last great modernist social housing project"; "A Peruvian Wissenhofsiedlung"; "the coitus interruptus of social housing in the Third World"; "A Metabolist Utopia". See Gyger, p. 209.

7. The superblock model of social housing imported from Europe, and initially championed by Belaúnde, proved to be not only grossly inadequate and expensive but also static, with limited flexibility for growth, adaptability and change.

8. Gyger, p. 213.

9. - Kiyonori Kikutake, Fumihiko Maki, Kisho Kurokawa from Japan; James Sterling from England; Oskar Hansen and Svein Hatloy from Poland; Esguerra, Saenz, Urdaneta and Samper from Colombia; Charles Correa from India; Atelier Five from Switzerland; Knud Svenssons from Denmark; Toivo Korhonen from Finland; Herbert Ohl from Germany; J. L. Iniguez de Onzono and A. Vazquez de Castro from Spain; Aldo van Eyck from the Netherlands; Candilis Josic and Woods from France and Christopher Alexander from the United States. It is important to note that in addition to these famous international names, many Peruvian architects were also invited to participate and jury chose ten Peruvian projects to be built alongside the international winners.

10. Fernando Garcia - Huidobro, Diego Torres Torriti, Nicolas Tugas, The Experimental Housing Project (PREVI), Lima - The Making of a Neighbourhood, in AD - Latin America at Cross Roads. Vol 81, Issue 3. May/ June 2011. p 26-31.

11. Gyger, p. 215.

12. Lailun Ekram, Aranya Low-Cost Housing, Aga Khan Development Network. Accessed 1 July, 2013. http://www.akdn.org/architecture/project.asp?id=1242.

13. 'Economically Weaker Sections' is a term widely used in Indian bureaucracy to describe the urban poor.

14. Davidson, Cynthia C. 1995. Aranya Community Housing. In Architecture Beyond Architecture. Cynthia C. Davidson, and Ismail Serageldin, eds. London: Academy Editions. p. 64

points out the formation of the The CUAVES a self managed urban community was at the heart of Villa's resilience and self-organization. Indeed the struggles to shape the governance of CUAVES (and through it the collective organization of Villa el Salvador), has been the focus of much political debate.[29] As in the case of VES community networks have played a key role in the latter phases of Slum Networking (like the Parivartan Program in Ahmedabad). This has ensured financial investments in housing and an increased stake in the political processes of local self governance.

TACTICAL LESSONS

The legacies of PREVI and Aranya, though under studied, can be traced to various contemporary projects. The Quinta Monroy Housing Project in Iquique, Chile by Alejandro Aravena uses a robust concrete frame within which self-build housing can be generated as an emerging filler space. In India, the Incremental Housing Project for Pune by Felipe Balestra & Sara Göransson actively engages community participation in deploying the concrete frame to offer families a choice of three incremental prototypes. Both these projects rely intensely on user participation to complete the architectural process and deploy an architecture of robustness that serves as an armature for change. Simultaneously there have been numerous projects recently that have highlighted the critical role of infrastructure in empowering the informal city - the hugely publicized Metro Cable projects of Medellin, Caracas and Rio, the elevated rail line project at the Manguinhos Complex in Rio, or the Favela Bairro and Morar Carioca Projects in Brazil are a case in point. The last two projects have building upon an idea of infrastructure as expansive that includes social and civic programs embedded into physical upgradation projects.

Looking at the informal city through a section of its history offers us not only an insight into architectural agency of the time but also offers lessons for the city of tomorrow. This city provides the platform for generating newer and unfamiliar forms of urbanism, infrastructure and participatory design allowing designers the opportunity to operate innovatively and tactically. Already the informal population of the world, at one billion, is greater than the entire population of Europe (at around 720 million).[30] If current trends continue in the next 25 years the informal population of the planet will be three times that of Europe. As the rates of extreme poverty in both South American and Asia fall rapidly, the squatters of today and especially tomorrow, are going to be a class of aspiring citizens staking their right to the city and with it the right to housing, civic amenities, education, health, infrastructure, global communications and global networks. It is the light of this scenario that architecture can play an enlarged role, in both the visionary and tactical engagement of the informal city.

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15. Used more commonly in theological or philosophical contexts, the term Creatio ExNihilo is a Latin phrase for 'created out of nothing'.

16. D. Enrique & W. Frohm, The Transformation from Shantytowns to Emerging Cities: The Case of Lima, Paper presented at the City Futures 2009 Conference, Madrid : http://www.cityfutures2009.com/PDF/49_Enriquez_Dario.pdf (last accessed: 1 August 2013)

17. Global Non-Violent Action Database, "nvdatabase.swarthmore.edu." Accessed August 1, 2013. http://nvdatabase.swarthmore.edu/content/internally-displaced-peruvians-campaign-land-villa-el-salvador-land-invasion-1971.

18. John F. C. Turner, "Villa el Salvador, Atocongo, Lima. Low-Income Peruvians build a new township" in Building Community: a third world case book, Ed. Bertha Turner (London: Building Community Books, 1988)

19. Ibid

20. "villa demonstrates the difference between people participating in governments' actions, as occurs in many sites-and--services programs, rather than government providing essential resources to support locally organized housing."

21. For an extensive narrative of the history of Slum Networking see: Ashok Kumar Das, Lofty Ideal, Hefty Deal: Empowerment through participatory slum upgrading in India and Indonesia, PhD Diss., UCLA, 2008.

22. As of Jan. 2013, the Chief Minister of Madhya Pradesh has ordered for a detailed plan to be prepared for the purification and cleansing of the Khan river. (see Times of India, Jan 4, 2013). Soon after the Slum Networking project there seems to have been a momentary phase where with the construction of a check dam, the Krishnapura lake on the river was opened to boating. Yet this remained piecemeal and unsustainable with the check dam soon being demolished.

23. The author visited five randomly selected neighborhoods that were developed as part of the Indore Project and found that four of these - 'Guma-ki-Phil', 'Pancham-ki-Phil', 'Lalaji ka Bageecha', 'New Palasiya Harijan Basti' - had remarkable successes in terms of sanitation, hygiene and integration with formal structures of the city.

24. ADD REF. HERE

25. http://urbz.net/aranya/ Article by Rahul Srivastava (Published: 8 Aug 2011. Last accessed: 20 Aug 2013)

26. Juan Pablo Corvalan, The Return of The Previ from http://the-return-of-the-previ.blogspot.com. Published 6 Nov. 2007. Accessed 10 Aug 2013.

27. For a detailed reading on the various proposals for the use of precast technologies at PREVI see Julian Salas and Patricia Lucas The Validity of PREVI, Lima, Peru, Fort Years On, in Open House International . Vol. 37., No. 1, March 2012.

28. I use the term vernacular here not in its strictly architectural sense of implying an adherence to local tradition and culture, but more in the linguistic sense of being ordinary and commonplace.

29. Paul Dosh, Demanding the Land – Urban Popular Movements in Peru and Ecuador, 1990-2005 (University Park:The Pennsylvania State University Press, 2010). P. 124.

30. Data from 2007. Top of Form *World Population Prospects: The 2006 Revision.* (New York: United Nations, 2007).