

Beyond the Binary: Risk, Governance and Infrastructure

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The steepest and most risk-susceptible topography of Peru's capital city is home to some of its most economically vulnerable residents. Miho Mazereeuw and Claudia Bode address how formal and informal realms might better interact in order to successfully manage the risks associated with building in such contexts. They make a plea for overcoming binary categorizations that tend to keep these two realms separated, acknowledging that infrastructure is not the sole property of the formal city and that true risk governance is not possible without integrated solutions.

The vast urban landscape of Lima stretches from the densely built flat plains on the Pacific coast to the perilous terrain of the surrounding mountains. These slopes, which often crumble as people climb them, are host to the majority of city's lower-income residents. This topographic segregation of the population is particularly troubling because Peru is situated in one of the most seismically active regions of the world. Seismolo-

gists are concerned about the capital insofar as there has been little seismic activity since the mid-eighteenth century, a notable gap in tectonic activity, which in all likelihood points to the threat of a significant earthquake in the near future. This prospect notwithstanding, and despite the potential hazards of building on steep slopes, informal construction in the form of small brick and wooden homes perched on steep hillsides continues unabated, often with little or no infrastructural provisions.

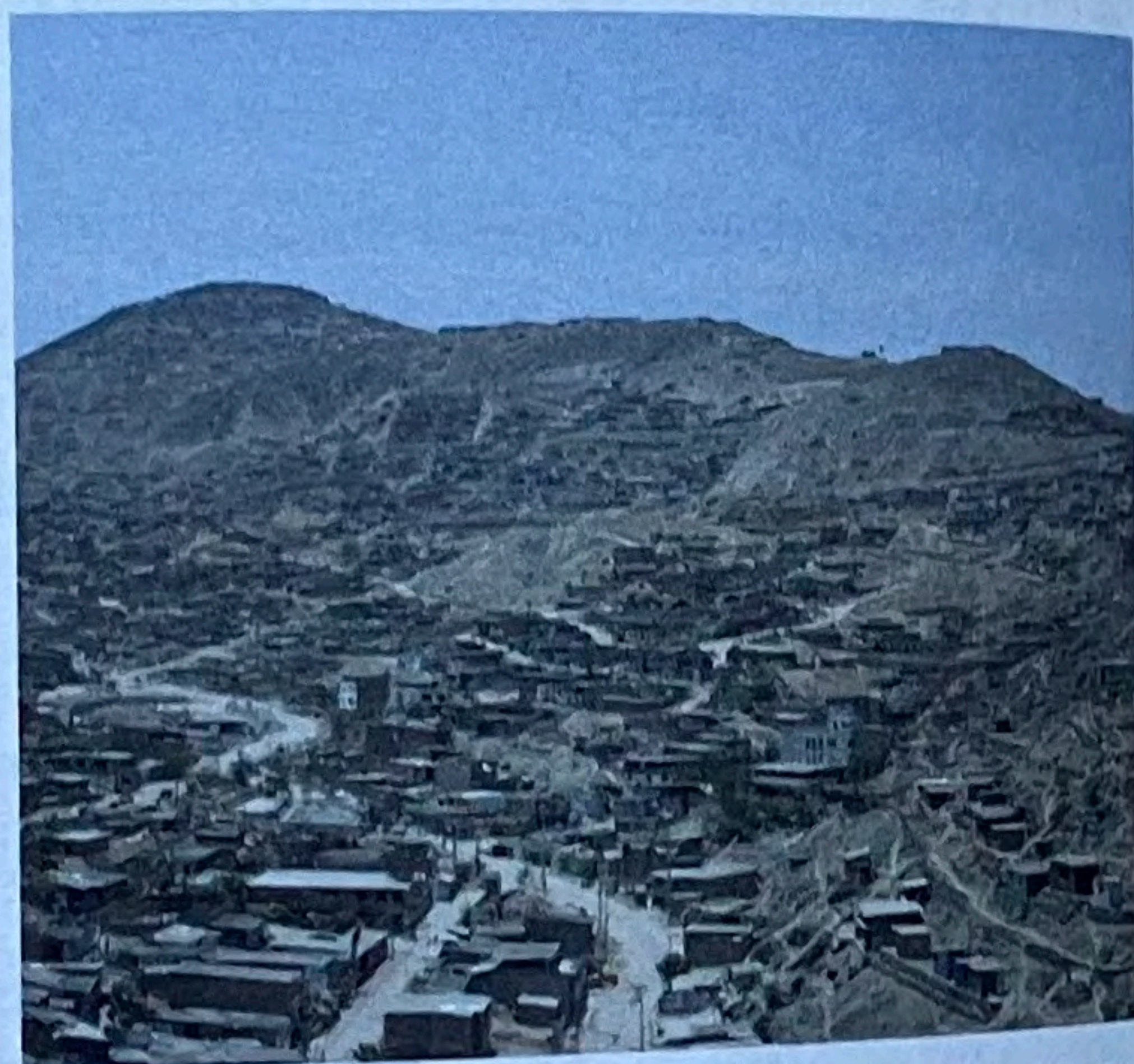


Fig. 1: Housing covers the sloped terrain in the Villa María del Triunfo district on the outskirts of Lima.

This predicament, whereby economically weaker sectors of society are left with few housing options and thus are forced to live on dangerous, marginal land plots, is not unique to Lima. When seen in the context of decreasing municipal government investment, the issue of risk in relation to urban poverty becomes all the more pressing. This is where the concept of "risk

governance" becomes timely and relevant, referring to a political framework in which multiple actors are brought together to devise ways of dealing with systemic risk in an adaptive and integrative way.¹ This concept builds on Ulrich Beck's study of what he called "risk societies," pertaining to societies that require new forms of governance to manage new—and at times unforeseeable—threats, such as nuclear fallout or global warming.² With this in mind, the risks in Lima's mountainous periphery raise challenging questions concerning the role of governance in risk-prone and poverty-stricken contexts, where officials are disinclined to act and where the poor are disproportionately affected by endemic marginalization, government oversight, and the ever present threat of natural disas-

ters. More to the point, what does risk governance entail in what is essentially a state of exception?

The case of Lima foregrounds just this condition and points out the urgent need for synergies aimed at fostering social capacity-building, more responsive governance, more resilient urban structures, and more adaptive infrastructure to reduce risk. After decades of prioritizing large-scale infrastructure projects that basically cater to the formal city, alternative means to providing amenities to all sectors of society must be sought, which might require a more decentralized and incremental approach to building infrastructure. This process needs to be coupled with a durable organizational framework for citizen governance during the planning and construction



Fig. 2: Homes built upon arid slopes in the Ate District of Lima Province.

of projects, as well as for management of projects *after* they have been completed. This would be a much needed first step at including those so often excluded from the social contract, which ultimately might overturn those divisions premised on the simplistic binary distinction between the formal and informal city.

Risk and Governance

The term "risk" is often misunderstood or overly simplified. As a matter of fact, it connotes three interrelated concepts: the presence of a *hazard*, a person's *vulnerability* to that hazard, and his or her ability to *cope* with that hazard. Hazard in this case is usually considered to be of a physical nature, most often associated with a specific event and assessed in terms of its magnitude and frequency. Vulnerability may refer to a person's health, social position, economic status, age, or other attributes. Geographer Susan Cutter defines vulnerability, in particular with regard to environmental hazards, as "the potential for loss."³ Reducing risk may mean mitigating hazards, but it may also mean lessening vulnerabilities to those hazards, especially since some may not always be manageable. A person's coping capacity can help offset these compounding effects, yet is frequently understudied.⁴ The UN International Strategy for Disaster Reduction defines coping capacity as "the ability of people, organizations, and systems, using available skills and resources, to face and manage adverse conditions,

emergencies, or disasters."⁵ It is here where social networks, community capacity, and support mechanisms intersect with the design of shared space and infrastructure.

Furthermore, so-called "simple" risks should be differentiated from "systemic" risks, which comprise multiple components and have the potential to paralyze an entire system. Systemic risk is essentially structural, inherent to the way a society is organized and is not necessarily reduced or mitigated by short-term measures.⁶ In the case of Lima, the situation on the city's outskirts is aggravated by the overlapping factors of poverty, the lack of access by the poor to the formal housing market that drives ad hoc settlement construction, not to mention a lack of available flat land. An earthquake in Lima would cause significantly more damage than in a region with similar topography but with a different type of urban development due to the extent in which multiple hazards and vulnerabilities are intertwined here.

What exacerbates the vulnerabilities of the population living on the slopes and further complicates the methods to address these conditions can be partially attributed to the common characterization of where the "formal city" ends and the "informal settlements" begin. The common oversimplification and often depoliticized understanding of terms such as "formal" and "informal" have given rise to alternative, counter urban theories of "subaltern" urbanism.⁷ Such theories re-politicize this distinction by acknowledging the role of the state

in creating, regulating, or perpetuating conditions of informality. Poverty scholar Ananya Roy has written about informality as a phenomenon that arises from calculated systems of deregulation, in which the state creates its own exceptions to planning rules.⁸ Informal city dwellers, in this view, live within what political geographer Oren Yiftachel has called the "grey zones" that exist between the formal and informal.⁹ Informality is not a result of a lack of government per se; it is a direct outcome of the power of the state to enact "states of exception." This predicament, again, is not unique to Lima, yet the unimpeded urban growth along its slopes quintessentially embodies the complexity of systemic risks within a landscape of fluctuating and politically charged interventions.

Lima: Non-Binary Urban Growth

Lima provides a telling case study of how conditions can emerge from a shifting and non-binary set of relationships between a people and the state. The city's *barriadas* (as they were referred to in the 1950s) and *pueblos jóvenes* (as they were referred to in the 1960s and 1970s) are far from manifesting a homogenous mass of unregulated shantytowns and actually offer a prime example of what can be accomplished when various levels of government interact in the pursuit of more inclusive social and spatial policies.

In response to the rapid informal growth of the city during the 1950s, Lima passed a law in 1961 (the Law

of Marginal Settlements and Popular Neighborhoods, or *Barriadas Law*) that recognized the legal status of the *barriadas*, while comprehensively integrating them into the city through physical upgrades.¹⁰ Although prohibiting the construction of future *barriadas*, it created "popular neighborhoods," setting aside relatively flat plots of land to be settled in a coordinated manner. Throughout the 1960s and early 1970s, these plots were progressively filled by well-organized resident groups. Syndicalism shaped the structure of the *barriadas* as they grew, leading to neighborhoods based on the tradition of communal work. In the 1970s, SINAMOS was formed, an organization dedicated to the study of the *barriadas*, which led to the construction of the innovative PREVI low-cost housing projects (*Proyecto Experimental de Vivienda*) by renowned international and Peruvian architects.

With all due respect to such efforts, the availability of flat land has dwindled since the late 1970s and the state has withdrawn its support for upgrading and planning in accordance with neoliberal economic restructuring of the country.¹¹ While the state greatly reduced its direct involvement in social housing, it nonetheless distributed large amounts of property titles through the Commission for the Official Registration of Informal Property in an attempt to develop a citywide real estate market and improve access to credit for low-income homeowners; the latter, however, with little success.¹² The

lack of building and planning resources for the poor has resulted in the uncontrolled growth of low-density settlements in areas that were previously deemed undevelopable due to their unfavorable topography.

Toward Integration

The complexity of Lima's situation—related to poverty, political dysfunction, and environmental risk—points to possible solutions that are adaptive and integrative to specific social and contextual challenges. To gain traction, such solutions must engage the state as the entity capable of dealing with large-scale risks. But to date, there is little incentive for the government to include the most vulnerable segments of the population, insofar as they remain disenfranchised and can thus be conveniently ignored, if not exploited outright. Metropolitan Lima contains 49 districts with no overriding mechanism of coordination for municipal planning, creating a disjunction between planning jurisdictions and actual neighborhoods that has led to a situation in which the poor are politically unrepresented.¹³

The varied urban fabric of Lima is directly tied to residents' access to state resources pertaining to planning, the provision of services, and technical advice. The mid-twentieth century saw the growth of *barriadas* that existed within the “gray zone” of informality: self-built, but recognized by the state, and sometimes granted legal property titles (in comparison to the illegal market of property titles).

The outer fringes of the city, however, have received little planning attention or support for construction; they exist in their current form primarily because the government has chosen to uphold a “calculated system of deregulation” that, in effect, amounts to a retrenchment of the state, and this in spite of the extreme risks posed by unfavorable site conditions for building in the hills, chronic housing shortage, persistent poverty, and the always looming possibility of earthquakes.



Fig. 3: Access and evacuation stairs in the Ate District.

In response to this dilemma, Lima's Barrio Mío program was initiated in 2012 in order to implement “Integrated Urban Projects” (PUIs) in Lima's most marginalized neighborhoods. Prioritizing health, recreation, urban development, and culture, the program aimed to combine physical improvements with social and cultural capacity-building measures. Based on a study carried out between 2011 and 2012 by geographer Jose Barreda, parts of Lima were divided into

nineteen zones that corresponded to existing urban subdivisions within its poorest areas. In the end, a total of forty zones were established for the city as a whole, with an estimated 2.8 million people living in those forty priority areas situated in the steepest zones on the city's periphery.¹⁴

Within each zone, a PUI was to be developed via the collaboration between neighborhood residents and professional planners, engineers, and architects, all of whom aimed to upgrade physical infrastructure and implement risk mitigation strategies, while also providing social services and urban design workshops.¹⁵ The PUIs aimed to bring together disenfranchised areas of the city by creating new administrative zones that more closely align with residents' self-determined neighborhood boundaries, giving citizens new tools for political participation and allowing them to assert themselves in a more democratic and inclusive civic process.

The Barrio Mío program focused initially on specific physical improvements, the objective being to save lives in the likelihood of an earthquake or similar disaster. The first phase of the project, carried out by geotechnical experts, included identifying those parts of the built fabric most prone to seismic failure. Teams were then brought in to plan the construction of approximately 700 access and evacuation stairways and more than a 1,000 retaining walls in unsafe neighborhoods.¹⁶ Such interventions were meant to stabilize slopes, with the stairs also providing a more expedient

escape route should an earthquake or other emergency occur.

With the slopes so stabilized, neighborhoods have been incrementally outfitted with potable water systems as well as schools and community facilities. The stairs themselves were also designed to connect communities and link with existing paths and roads, containing multiple elements such as landings with integrated benches and intermediate rest areas. Although the primary motivation for the construction of these elements has always been safety, they were also presented as anchors for current and future development, including housing and commercial spaces. In the San Juan de Lurigancho district, for example, the seven large stairways constructed included a numbering system that allows residents easier access to social services, with this small coding system also functioning as a type of address, a stipulated requirement for receiving micro-credit.

When conducting fieldwork in these sites, it became apparent that this system of decentralized risk-reduction infrastructure, as innovative as it is, constitutes still only a small remedy for much larger systemic shortfalls. Part of the problem is that the migration to the city has continued and dwellings are still being built at an alarming rate at ever-higher altitudes. Another issue is that the upgrade program, which was initially implemented to allow for collective political representation, is now being used for political gain by candidates running for office in municipal elections. A



Fig. 4: Stairway routes ascending the slopes in the San Juan de Miraflores District in Lima Province.

representative color for the stairwells is chosen by officials, the aim being to associate the project with their particular campaign and thereby gain clout by showing presence, albeit symbolic, in local communities. It is in such cases where infrastructure becomes politicized in a very literal sense. The stairs are painted over again and again in each election cycle as a ploy to win votes and put in office an official who will supposedly serve as the people's political representative.

The irony of such tendencies notwithstanding, the social programs, tools for political organization, methods for integrated spatial design, and infrastructure for risk reduction initiated by the PUIs should nevertheless be considered as a viable model for future projects within Lima and

other rapidly urbanizing fringes of cities as well. The decentralized system of physical infrastructure made up of communal stairwells and retaining walls is a relevant example to keep in mind when considering alternatives to large-scale and costly infrastructure projects. While far from perfect, these micro-engineered interventions could—and should—become part of the common repertoire of planning and design approaches to minimizing risk, specifically those risks associated with vulnerable urban settlements.

Lima's housing situation has currently reached crisis levels, as the very poor continue to build on unsafe terrain. But the solution cannot be limited to simple depoliticized technical or economic "fixes." More pertinent questions would be: Which

framework would allow citizens and planners alike to question perceived binaries in the first place and enable citizens to access the resources they need to live dignified lives? How can measures be implemented to support lasting citizen governance? How can infrastructure ultimately contribute to creating places that foster greater coping capacity amongst residents? Aiming to address such questions, the concept of risk governance acknowledges the reality of complex factors that interrelate in unexpected ways to produce volatile situations like those in Lima, the solutions to which require the input of multiple actors engaging as stakeholders in a common project. But before such a concept can ever be translated into practice, we ourselves must take the risk to scrutinize those essentializing narratives of poverty that, by underwriting the distinctions between formal and informal worlds, constitute the real hazard to any inclusive civic vision.

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