Slums in India – Facts and Misconceptions

Anirudh Krishna

Slums in the modern cities are usually looked upon as places having lesser aesthetic value in urban planning. In reality, they are self-sustaining micro-cities within larger cities helping sustain the industries as well as households through the services they provide. Slums are further classified in terms of their social, economic and legal status. So, implementing a common slum policy does not represent a good use of resources. This article presents a series of facts and misconceptions which give a holistic picture calling for a multi-pronged approach to manage a heterogeneous and complex ecosystem called slums.

This article draws upon a database of over 10,000 household interviews from a diverse sample of 279 slums in three Indian cities – Bengaluru, Jaipur, and Patna. Six waves of original surveys were undertaken between 2010 and 2016; four waves in Bengaluru in 2010, 2012, 2013 and 2015 and the next two waves in Jaipur and Patna in 2016. We accumulated information using a variety of methods – comparing individual slums' satellite images over a 15-year period, compiling oral histories, interviewing community leaders and local property brokers, and surveying thousands of randomly selected households in diverse slums within each city. Several facts and some misconceptions were revealed in these examinations. I will focus here on three important facts and three frequent misconceptions.

FACT: Official lists under-identify slums and undercount slum populations.

Following a track taken by prior research, I conducted the first survey in 2010 by obtaining a list of slums from the Karnataka Slum Development Board (KSDB). I randomly selected 14 slums from this official list. Interviews with a random sample of 1,481 households showed that slums on the official list are home not so much to the poorest people as to a settled lower-middle class. Multi-storied permanent constructions prevail; electricity connections and clean drinking water are commonly available; most households have TVs, pressure cookers, and electric fans; poverty is lower than the average for the city (Krishna, 2013). However, there are many other 'slummier' settlements, not mentioned in the government list, where the conditions of living are very different.

Sixty six per cent people in slums have lived in the same home for three or more generations.

Dr. Anirudh Krishna is the Edgar T. Thompson Professor of Public Policy and Political Science at Duke University, USA. Email: ak30@duke.edu

The official record of slums is incomplete. Government agencies have only recently started to count the number of people who live in slums. Census 2001 first included slums but only in a small number of cities. Census 2011 was the first to look at this category of settlements in all urban centres.

The definition of slums and enumeration methodologies differ among official agencies, but commonly they underestimate the slum population. Adopting one definition of slums, the National Sample Survey Office counted 44 million slum dwellers in 2008, but adopting another (and also partial) definition, the Census of India counted 65 million slum dwellers in 2011. UN-Habitat (United Nations Human Settlements Programme), the international authority on slums, found that in 2014, India had as many as 104 million slum dwellers, and these numbers align more closely with what independent researchers have found in different cities.[1]

With the help of satellite image analysis, we found many slums, not mentioned on the official lists for the city, where living conditions are worse than in slums that have been officially recorded. One type of missed-out settlements are the "blue polygon" settlements, so termed because clusters of such homes – four poles surmounted by a blue plastic sheet – appear as blue rectangles in satellite images (Image i, Figure 2). Covered by blue tarps (or black or gray ones, or sometimes, as in Patna, by straw roofs), these crude settlements, representing the lowest type of urban slum, have become widely prevalent. Atypical abode is a 7'x7' tent shared by families of three to five individuals. Other slums with poor living conditions also do not find place in the official record.

By omitting these and other poorer settlements, the Census and other official records present a picture than is warranted about slum conditions but not always the case.[2] Many states report no slums at all, which is unrealistic.

With the help of satellite image analysis, we found many slums, not mentioned on the official lists for the city, where living conditions are worse than in slums that have been officially recorded. One type of missed-out settlements are the "blue polygon" settlements, so termed because clusters of such homes – four poles surmounted by a blue plastic sheet – appear as blue rectangles in satellite images.

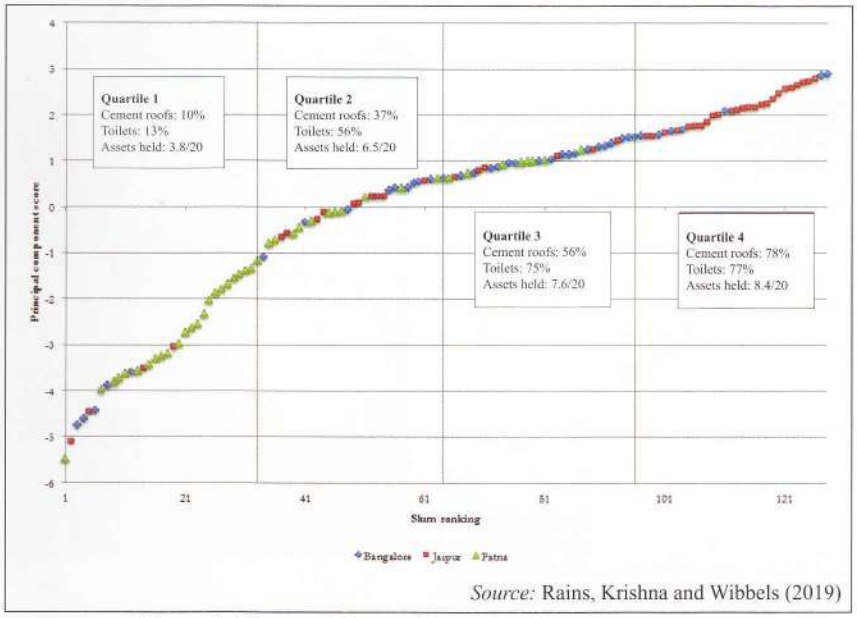
FACT: Slums in each city have a variety of living conditions that fall along a continuum. People's needs vary at different points of the continuum. Standardised slum policies are, therefore, not helpful.

The UN-Habitat employs five criteria to identify slums, each related to a living condition that households in slums usually lack: durable housing of a permanent nature; sufficient living space; easy access to safe water; access to adequate sanitation; and security of tenure. We operationalised these criteria using our household- and neighbourhood-level information, and combined the scores for each criterion to arrive at a consolidated score for each slum settlement. Figure 1 presents the results of this analysis. It divides the continuum of slums into four quartiles.

A range of slums exists within every city. Though Bengaluru and Jaipur slums cluster along the top half of the continuum, every city has slums with the most squalid living conditions. These are the ones that are usually missing from the official record.

Figure 2 shows pictures from individual slums that are located, respectively, toward the bottom, middle and top of the slum continuum in Bengaluru. All of these settlements are regarded as slums but they are visibly different from one another.

Living conditions vary considerably along the slum continuum. In the bottom quartile, households allocate an average of 59 per cent of all expenditures to food, which decreases to 47 per cent in the



Source: Rains, Krishna and Wibbels (2019)

Figure 1: Slum rankings and associated continuum score

Figure 2: Different conditions along the continuum of slums

top quartile. Occupations, incomes, and education levels are also different.

Residents of slums at different points have diverse needs and require different kinds of public support. For slums in the bottom quartile, the most pressing public needs are drinking water (27 per cent of reporting residents), housing (27 per cent), and toilets (25 per cent). Neighbourhoods in the top quartile have different concerns: waste management (30 per cent) followed by employment training (14 per cent).

Implementing a common slum policy does not represent a good use of resources. Knowing where along the continuum a slum is located helps make public expenditures more relevant and effective.

FACT: Traditional survey methods are inadequate to keep up with rapid changes. Satellite image analysis helps generate slum maps and sort slums into types.

Consider Figure 3. It shows rapid change over 10 years in one slum settlement of Bengaluru. Comparing satellite images of individual settlements over the period 2000-2015, revealed other instances of rapid change: new slums have been constituted; some older ones were disbanded or demolished; boundaries have changed as new homes were built on slums' peripheries; inner streets have been realigned and new landmarks added. Keeping up with such rapid changes occurring simultaneously in hundreds of slums across a city overwhelm the rudimentary surveying capacities at the hands of urban improvement boards and municipal bodies, one reason why the official record is partial and outdated.

Employing satellite image analysis can help remedy the situation. Coarser-grained images, useful for a number of purposes, including initial slum identification, are available free of charge on Google Earth and finer-grained images, available for purchase, cost only a tiny fraction of what a typical municipality spends, or should spend, on mapping its tax base accurately.

Our research, undertaken in a multi-disciplinary team, composed of computer scientists, urban geographers, and social scientists, demonstrated the utility of satellite image analysis for these purposes.[3] Through successive iterations between image analysis (overseen by the computer scientist and the urban geographer) and ground verifications (overseen by the social scientists), we developed protocols and algorithms for semi-automatic slum identification, demarcation of boundaries, and slum classification. We found this method much cheaper than what it would have cost to undertake the same exercise manually. It is also more accurate

2004–Empty land | **2007–Blue-tarpaulin structures** | **2014–A middle-category slum**

Figure 3: Tracking change over time - Ashrayanagar, Bengaluru

and less prone to human errors (of omission and commission). Other researchers have employed image analysis effectively for mapping and studying slums in South Africa, Brazil, and other countries.

Regularly and reliably updating the settlement record requires making use of image analysis. If it is serious about creating a reliable record of slums, the Government needs to invest in developing and utilising investigative capacities that make use of image analysis in combination with other methodologies.

MISCONCEPTION: Official notification is required for getting basic services and saleable property titles.

The law lays down that slum residents can only avail themselves of municipal services and property titles after their slum has been officially notified following a prescribed procedure. The process leading to slum notification in Bengaluru is laid out in the Slum Act. (Figure 4 represents the stages in this procedure).

As laid down in the law the process is straightforward. In practice, notification can be an ambiguous status.

Cities differ in this respect, but in Bengaluru, three lists of slums are maintained by three separate government agencies.[4] We took a random sample of 75 slums from our database, and we looked for these slums on each of the three official lists, also asking slum dwellers about their perceptions of their neighbourhood's notified status.

The mismatches vastly outnumbered the matches. There are only two slums out of the 75 we considered for which the three government lists are in agreement with one another. Each of the remaining 73 slums is classified as a notified slum in one of the lists and as a non-notified one in each of the others.

Overlapping jurisdictions and the multiplicity of agencies have led to this situation. The result is that what is, and what is not, a notified slum is difficult to verify with confidence. Residents' perceptions about the notified status of their slum matter more for their behaviours than what is stated in any government record.[5]

The slippage between legal provision and everyday practice does not end here. Eighteen different property documents have been given to the residents of the slums in Bengaluru by KSDB, by BBMP (the municipal corporation), and by erstwhile village panchayats. These papers were issued at different stages of the notification process (as shown in Figure 4).

Each of these papers is commonly perceived to be a property title, but these documents can be classified into three broad types that convey progressively greater property rights. Type 1 papers (including Biometric Card, Parichaya Patra, Gurutina Chitthi, and Thiluvalike Patra), issued before notification, convey a right of abode and a right of inheritance but no right to sell or otherwise alienate the property. Type 2 papers (issued after slum notification) convey not only the right of possession but also the right to get a saleable title 10 or 30 years later, after fulfilling some conditions. Examples include Hakku Patra, Possession Certificate, Lease deed, and Hanchike Patra. Type 3 papers (saleable titles) convey clear ownership rights, particularly when accompanied by proof of property tax payments. A fourth type, Type 0 – no papers, is found in slums at the lower end of the continuum, many of which are entirely undocumented. Among slum residents in our Bengaluru sample, 35 per cent have Type 3 papers, 40 per cent have Type 1 or Type 2 documents, and 26 per cent have no property documents (Type 0).

By law, notification is a pre-requisite for having a Type 2 or a Type 3 paper. In practice, the law is unevenly implemented. There are slums that had not been notified but where a significant share of residents has Type 2 or Type 3 papers. Conversely, there are slum which have not been notified (according to at least one of the government lists) but where residents still have only Type 1 papers.

Similarly, in theory, a city should provide municipal services – such as garbage pickup, piped drinking water, sewerage, internal roads, and street lighting – only after a slum has been notified. Public expenditures cannot be justifiably incurred for places that do not exist in the official record.

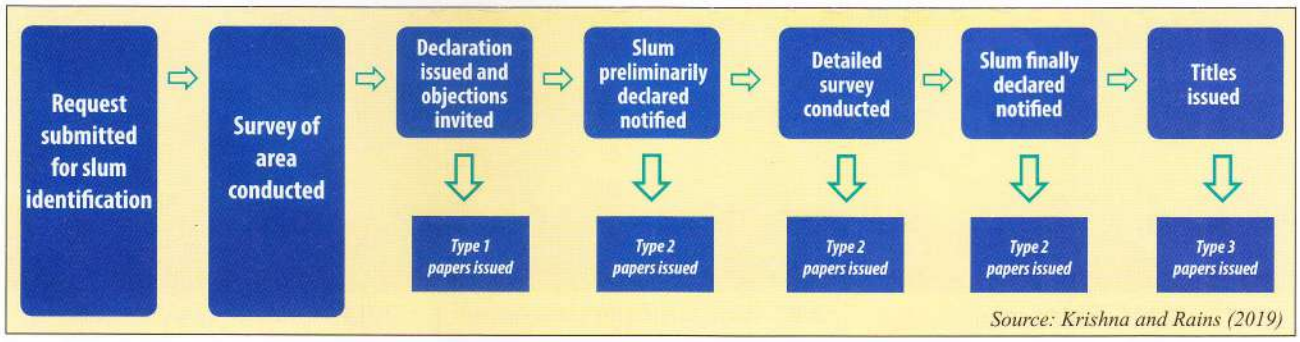


Figure 4: Official notification process (Bengaluru)

In practice, many non-notified slums are provided with services and infrastructure, while many notified slums are left uncovered. The scope of corrupt practices gets accelerated by such administrative indiscretions.

MISCONCEPTION: Lacking property titles, slum residents cannot sell or mortgage properties.

In theory, only properties with Type 3 papers should be saleable. Other paper types do not come with the right to alienate the property in question. In practice, slum properties with all types of papers are freely transacted. The usual vehicle in Bengaluru is a general power of attorney executed between the seller and buyer, to which other documents are annexed in which the seller transfers all future rights to the buyer and promises to help the seller with any related transactions in the future. Every family member signs these documents, their photos and IDs are attached, there are witnesses, and always, there are lawyers. An active informal market exists that produces official-looking documents and helps buyers and sellers transact informal properties, overcoming the limitations of their property papers. Properties are sold all across the slum continuum, though less often in blue-polygon settlements and areas under litigation.

Lack of movement more accurately characterises slum conditions. On average, slum dwellers have lived in their current homes for 21 years. The majority (66 per cent) have lived in the same home for three or more generations. Across the three cities and the continuum of slums, only 27 per cent are first-generation migrants and only about half of them have come from rural areas.

On average, two per cent of slum properties are bought and sold in this manner in any given year. No taxes are paid on these transactions, leading to a loss of potential municipal revenue.

MISCONCEPTION: Slums are temporary halting points that work as conveyor belts leading rural migrants into the urban middle class.

Lack of movement more accurately characterises slum conditions. On average, slum dwellers have lived in their current homes for 21 years. The majority (66 per cent) have lived in the same home for three or more generations. Across the three cities and the continuum of slums, only 27 per cent are first-generation migrants and only about half of them have come from rural areas.

Nearly all slum residents find employment in the informal sector.

Intergenerational advances in terms of occupational status are minimal. We compared father's and son's occupations using a six-class occupational classification adapted for urban India. Most commonly, individuals work in the same occupational class as their fathers, both in Class 1 positions (construction, daily wage labour or factory work, and garbage collection). Some in the next generation have experienced upward mobility (29 per cent) but the most common upward trend was from a Class 1 father to a Class 2 son, positive but limited upward mobility. Conversely, in 14 per cent of cases, the trend was downward, from a Class 2 father to a Class 1 son.

Overall, a situation of stasis – stuck-in-placidness – is characteristic of slums, whether examined at the household or at the neighbourhood level. Satellite images examined over a 15-year period show that few neighbourhoods develop from slum to non-slum areas in terms of physical characteristics. As illustrated in Figure 3, some neighbourhoods experience positive physical changes over time, most commonly in roof material. Very few neighbourhoods (1%) exhibit positive changes in more than one visible feature. Many neighbourhoods have experienced deterioration.

Nearly all slum residents, even in the best-off slums, find employment in the informal sector. Fewer than 5% of respondents have jobs that come together with tenure security, healthcare, and retirement benefits. Improving their prospects for upward mobility requires progressively reducing the risk and vulnerability that are induced by living and work in informal conditions. ❑

Previous works drawn on for this article

Krishna, Anirudh. (2013). "Stuck in Place: Investigating Social Mobility in 14 Bangalore Slums." *Journal of Development Studies*, 49 (7): 1010-28.

Wibbels, Erik, Anirudh Krishna, and M.S. Sriram. (2018). "Satellites, Slums, and Social Networks: Evidence on the Origins and Consequences of Property Rights from 157 Slums in Bengaluru." Working paper, Department of Political Science, Duke University.

Rains, Emily, Anirudh Krishna, and Erik Wibbels. (2019). "Combining Satellite and Survey Data to Study Indian Slums: Evidence on the Range of Conditions and Implications for Urban Policy." *Environment and Urbanization*, 31 (1): 267-92.

Krishna, Anirudh and Emily Rains. (2019) "Between Zero and One: a continuum of property rights in slums of Bangalore." Working paper, Sanford School of Public Policy, Duke University.

Endnotes:

1. A government report forthrightly acknowledges these and other lacunae in the official record. See GOI. (2010). Report of the Committee on Slum Statistics/Census. New Delhi: Government of India, Ministry of Housing and Urban Poverty Alleviation. Available at http://mhupa.gov.in/W_new/Slum_Report_NBO.pdf; http://unhabitat.org/wp-content/uploads/2014/07/WHD-2014-Background-Paper.pdf.
2. Census 2011 reports, for instance, that 94 per cent of slum dwellers live in sturdy or semi-sturdy households, but only 72 per cent of our sample live in houses made of bricks, wood, or cement, and the rest live under tarp or in mud or tin huts. The census also estimates that 53 per cent of homes store money in banks, but our sample reports approximately half that number.
3. This research team was led by Raju Vatsavai (computer science, North Carolina State University), Nikhil Kaza (urban geographer, University of North Carolina, Chapel Hill) and Erik Wibbels and I (social scientists, Duke University). We are grateful for the grants we received for different parts of this research from Duke University, International Growth Center, and Omidyar Foundation, and DigitalGlobe, for their grant of satellite images.
4. Respectively, KSDB (the slum board), BBMP (the municipal corporation), and Aasha Kiran Mahiti (the State Government's department of municipal administration).
5. This point is developed by Wibbels, Krishna and Sriram (2018). ▪