

Housing Supply System in Unauthorized Settlements in Delhi: Process and Outcomes

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1. Introduction

Unauthorized colonies and slum growth are integral part of the emerging economies as the cities attract more immigrants that require spatial expansion. The conventional spatial planning system adopted by most of the colonial regime earlier were continued to be followed that released the land at slow pace as compared to the demand. This has given rise to a series of land market subsystem, which caters to different income groups in a city. This is absolutely true for Delhi where more than half of population lives in informal settlements. About 14% of Delhi's population was living in unauthorized colonies¹ (UCs) by 2011. Notably, estimated annual population growth rate in UCs (3.1%) was more than total urban population growth rate (2.45%) in Delhi during last decade (NCTD 2006; Census of India 2011). The UCs mostly have been developed in agricultural land in peripheral areas of Delhi, perhaps due to low price of land (Lemanski and Tawa Lama Rewal 2012). In addition, all the resettlement and rehabilitation of slums occurred in the periphery mostly after acquiring agricultural land. However, over time peripheral Delhi became integral part of Delhi and land price have exponentially increased due to better accessibility. Such increase in land price leads to increase in housing price in UCs which ultimately led to optimum utilization of land and somehow over utilization. This is mainly due to non-recognition of unauthorized colonies by the planning authorities as a form of housing supply system, though it was considered as a prominent mode of supply in the early years prior to the plan period. The exploitation of land further exacerbated due to lack of planning interventions and implementations deficit in UCs. Such phenomenon results degradation of socio-economic characteristics in general and environmental conditions in particular. These degradations are uneven. Environmental conditions are deteriorated faster than social and economic conditions as shown in fig. 1. Kundu (2004) reiterated this degradation as a degenerative periphery. The reason for uneven degradation is perhaps overutilization of land/housing in UCs. Earlier, people were moved to UCs due to affordable housing but as land price increased then the affordability is achieved through densification both horizontally and vertically which led to faster deterioration of environmental conditions as these UCs are not provided with any kind of infrastructure by the local government or through planning process.

In this context, UCs became important and urgent issue and need integration through planning interventions. However, such interventions need to look on UCs with a fresh perspective. In order to do so, this study aims to document housing supply system in UCs. Followed by documentation, we evaluate impacts of such development on socio-economic and environmental outcomes and provide policy prescriptions for corrective measures especially focusing on inclusive development.

Using the Case study method, and stratified sampling based on density, we selected a few UCs in South Delhi District in the Defense Colony area as shown in fig. 2.

Next section discusses housing composition in Delhi including housing supply system in UCs and regularization process. Section 3 reports outcomes of such development in terms of monetary costs associated with UCs and other socio-economic and environmental outcomes. Final section concludes with policy prescriptions and provides direction to further research.

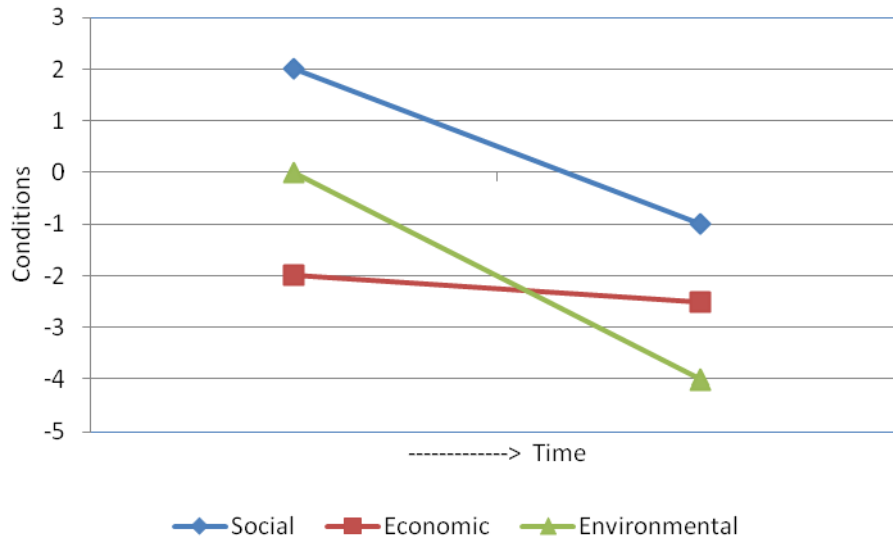


Figure 1: Trend of social, economical and environmental conditions in UCs in Delhi

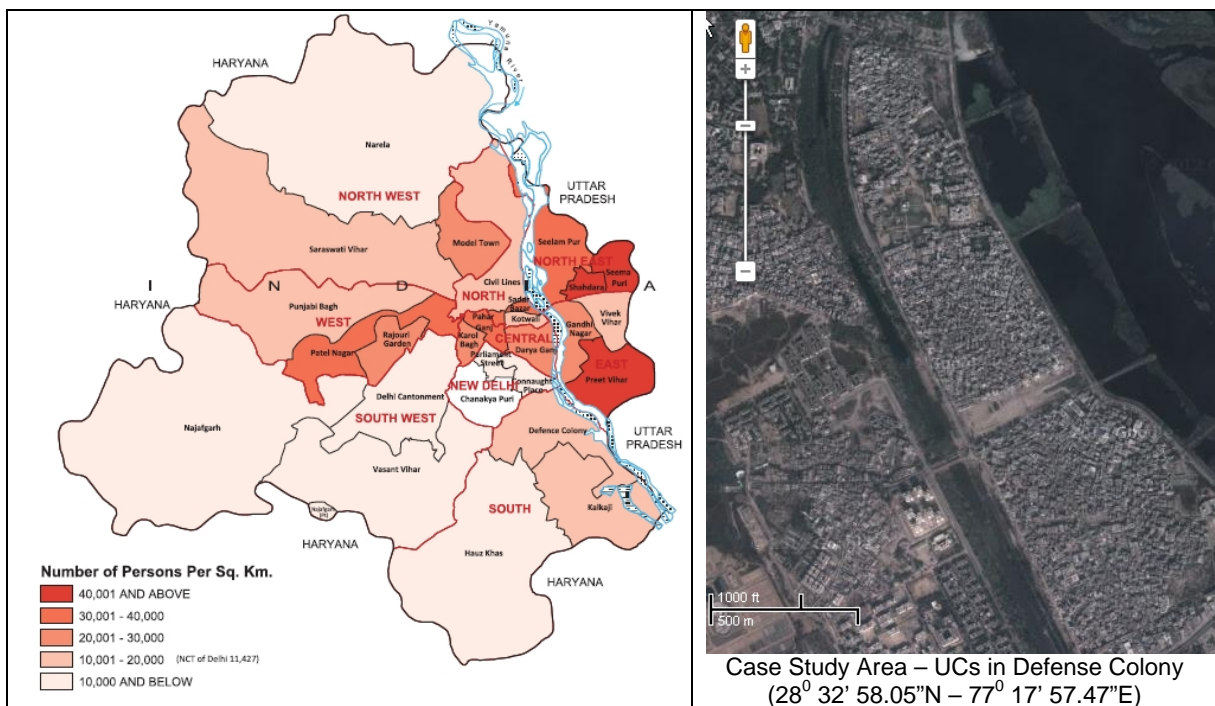


Figure 2: NCT of Delhi - Density of Population 2011 and Case Study Areas
Source: Census of India 2011(left) and Map data © 2012 Google (right)

2. Housing Composition in Delhi

Significant proportion of Delhi’s residents lives in informal settlements (over 50 %). Such situation arises when housing demand is decoupled with formal housing supply. Prior to understanding of housing composition in Delhi, population growth should be reviewed. Table 1 shows Delhi’s population growth for last 6 decades and reveals that urban population growth has been stabilized over time. Census data reveals Delhi’s decadal urban growth rate was only 21 percent in 2001-11 – the lowest in last six decades. However, it should be read in context of growth rate in nearby towns/cities. During the same period, decadal growth rate in nearby towns/cities e.g., Gurgaon, Faridabad, Noida and Ghaziabad were 74, 31.75, 54

and 40.66 % respectively (Hindu 2012). Delhi's population growth is accounted by natural growth and net in-migration with almost equal share (NCTD 2006). Similar to any metropolitan cities, core areas are highly dense in comparison to peripheral areas (figure 2 left). The decadal growth rate of population in all nine districts of Delhi reveals that core districts growth rate was negative and peripheral districts had increasingly high growth rate during 2001-2011: North West (18.91), North (27.63), North East (26.73), East(16.68), *New Delhi(-25.35)*, *Central(-10.48)*, West, South West(30.62) and South (20.59). In sum, Delhi has been heavily urbanized over 97.5% and urban population growth has been stabilized particularly in the context of population growth in the National Capital Region (NCR).

Fig. 3 shows housing composition in Delhi by settlement types. Over one-third of population lives in slums – JJ Clusters and Slum Designated Areas. JJ stands for Hindi words *jhuggi jhopdi*, a colloquial term for a hut built by the poor. The tenure security of JJ Clusters is low but medium level for Slum Designated Areas (see notes of figure 3). Resettlement Colonies accommodates 13% of the total population in Delhi. The Resettlement Colonies developed in result of resettling slums from core Delhi to peripheral areas. Only one-quarter of total population of Delhi live in planned settlements. Urban and Rural Villages accommodate about 10% of households. About 14 % population was living in UCs which is case of inquiry for our study. Overall picture is not rosy.

Since the inception of the DDA in 1957, modest planning interventions have been made but results are not encouraging (Priya 2006; Pugh 1991). Previous analyses of housing market indicate that there was a serious constraint of urban land supply, particularly to low income households, due to monopoly of public agencies on land (Sivam 2002; Sivam 2003; Ahmad 2011). In fact during land acquisition, it was stated that public purpose was to provide 60% of the acquired land for the economically weaker section of the society (EWS) but promise are not respected in practice (Kundu 2004).

Years	Total population	Total urban population	Urban population %	Decennial urban growth %	Annual urban growth %	Density per sq.km.
1951	1,744,072	1,437,134	82.40	-	-	1,176
1961	2,658,612	2,359,408	88.75	64.17	5.08	1,793
1971	4,065,698	3,647,023	89.70	54.57	4.45	2,742
1981	6,220,406	5,768,200	92.73	58.16	4.69	4,194
1991	9,420,644	8,471,625	89.93	46.87	3.92	6,352
2001	13,782,976	12,819,761	93.01	51.33	4.23	9,340
2011*	16,752,235	16,333,915	97.50	20.96	2.45	11,297

Notes: * represents provisional data. Source: Data from various censuses of India

Table 1: Population Growth of Delhi, 1951-2011.

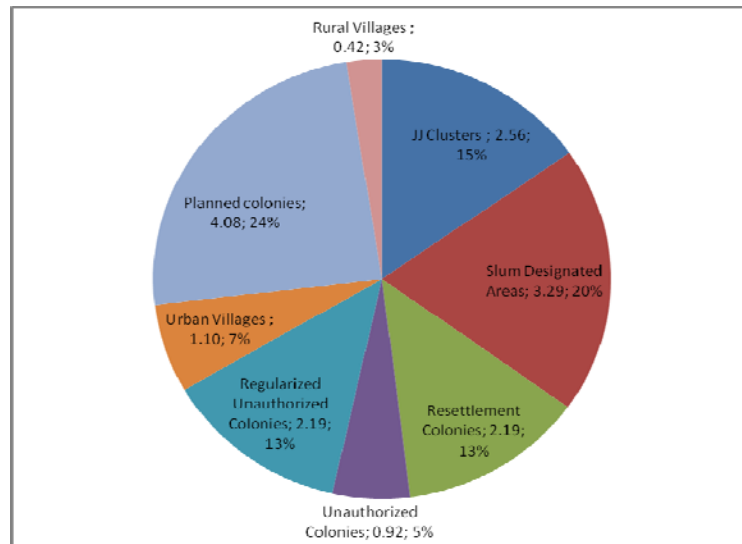


Fig. 3: Estimated composition of population by settlement types in Delhi, 2011

Notes:

JJ Clusters and Slum Designated Areas are slums and rests are non-slums.

JJ Clusters and Unauthorized Colonies possess low tenure security; Slum Designated Areas, Regularized Unauthorized Colonies, Urban Villages and Rural Villages possess medium tenure security and rests – Resettlement Colonies and Planned Colonies possess high level of tenure security.

Data labels show type of settlements, population in million and percentage of total population in Delhi.

Source: Modified in light of recent census data from the earlier estimate of Delhi Water Supply and Sewerage Project Preparation Study Report (as cited in NCTD, 2006).

2.1 Housing Supply System in UCs

Government of National Capital Territory of Delhi classified unauthorized colonies into unauthorized colonies (fresh ones), unauthorized colonies that came up outside of existing urban villages as extensions (148 in number), Extension to already regularized unauthorized colonies (567), and Affluent unauthorized colonies (5) such as Sainik farm, Atmaram dairy (in RK Puram), etc. (NCTD 2011). Housing supply system in unauthorized colonies can be broadly classified into four types: owner as a builder, developer as a builder, collaborative development between land's owner and builder and rental housing system. Micro details of supply systems reveal that housing supply in unauthorized colonies are quite resemble to low scale formal housing supply system.

Owner as a builder: Mostly dwellings (over 80 %) in unauthorized colonies are constructed with active role of owner as a builder. In this case, owner of dwelling play very active role in day to day management of housing construction solely on their own supervision. This kind of housing also utilizes incremental approach of housing development; mean adding part of dwelling unit, particularly vertical from time to time based on available finance and need. The quality (or investment) in housing depends upon tenure security. In a secure tenure, owner can invest sufficiently and possess better quality of housing.

Developer as a builder: In some cases local developers, mostly non-registered, buy land or dilapidated housing and build/redevelop dwelling units. Such developments are done mostly for profit motives and not for consumption motives. Our field visit reveals that such cases are less but exists. Such developments even cannot be affordable to middle class households among UCs residents; however such housings are purchased by rich immigrants, mostly Gulf returnees.

Collaborative development between land's owner and builder: Another form of housing supply is collaborative development based on barter system, where dwelling units or un-built

land is exchanged with builder for constructing dwelling units. For instance, a building “X” is developed with G+4 floors in which two floors are taken by land’s owner and remaining two floors are sold by developers to accrue cost of development and profits, depends upon the negotiation between land’s owner and builder based on many factors.

Rental housing system: This kind of housing provided by the land owners after modifications within the existing plot by increasing the height. Normally, these expansions are done without provision of urban infrastructure as per the norm which results in poor quality of life. Case studies based on UCs show that about 36–42% of dwellers are rental (Dupont 2004; Ahmad and Choi 2011).

2.2 Mobility from Unauthorized to Regularized

Once Unauthorized Colonies came into existence, efforts for regularization started. Regularization means formally acknowledging existence of settlements that also lead to provision of infrastructure and other facilities. The regularization process further accelerated on given electoral politics in Delhi. It is only in 2006 Supreme Court barred from regularization without provision of services. This decision seems to be obstacle in politically motivated regularizations (Dupont 2004). Previously, 1961, 1969 and 1977 about 110, 101 and 567 Unauthorized Colonies were regularized (Mathur 2006). Currently, there is mounting pressure of regularization of UCs. In this regard, application was invited and about 1639 applications received. These candidates UCs are under consideration for regularization.

In sum, housing supply system in UCs resembles with small scale housing supply system in formal settlements. In fact, the prevailed housing supply system is second stage of development followed by land supply system in unauthorized colonies. The regularization process is politically motivated for electoral gains rather than true need of citizens. This can be understood by Audit report which has mentioned significant deficiencies in development works in UCs undertaken by Delhi Jal Board (DJB) and Municipal Corporation of Delhi (MCD) including unable to spend allocated fund for infrastructure development (See Box 1 for detail).

Box 1: Development works in regularized unauthorised colonies undertaken by the DJB and MCD

DJB was unable to spend the allotted funds and there were savings upto 38 per cent in the water sector and 60 per cent in the sewerage sector. MCD diverted an amount of Rs. 24.40 crore as supervision and establishment charges, whereas DJB diverted funds to the tune of Rs. 2.40 crore meant for works in the R-U colonies to other colonies. DJB had dues outstanding from customers upto Rs. 4.38 crore in the form of development charges and dishonored cheques. As DJB had not notified as of July 2009 sewer lines led during 2007 to 2009, connections were not given to the residents and lines remained non-functional. Similarly MCD did not fix any time frame for the award of works after opening of tenders, work orders were issues with significant delays ranging from 46 days to 340 days. MCD was also not carrying out quality checks of works to the desired extent as 70 per cent of works had not been inspected.

Source: Comptroller and Auditor General of India, 2009, p. 5

Note: 1 crore = 10 millions

3. Outcomes of UCs in Delhi

3.1 Monetary Costs of UCs to Residents and Governments

The cost of dwelling unit increases in account of prevailed price of illegitimate permission and procurement of construction materials in UCs. However, such development also costs

heavily to government agencies. Interviews with the owner of newly constructed dwelling reveals illegitimate housing permission in UCs costs INR 10,000 per dwelling unit² as a bribe to police. In addition, there is a fixed rate of bribe for procurement of building materials in such settlements. These two basic components increase the cost of dwellings in UCs anyway between 3 ~ 5 %. In a rough estimate, total bribe paid on building materials procurement is not less than INR 10,000 – 15,000 per dwelling unit. In sum, about INR 20,000 – 25,000 per dwelling unit is paid by the residents to police authority, as a bribe.

The annual population growth rate is 3.1 percent in unauthorized colonies³, it means about 86,000 population join UCs every year that is roughly 17,200 households. This means approximately bribe paid is roughly INR 400 million to police. This estimate is only for illegitimate building permissions and on procurement of building materials. We are sure there could be a few additional such expenses but not considered in our calculation. For example, research in SPA (by Master's students) show that the unauthorized colony dwellers have to pay extra for electricity, water connection. However, the over cost of these infrastructure increases compared to formal colonies, as the regular bribes are more than payment through formal mechanism. Moreover, these costs never reach the Municipal Corporation, thereby making the local institution poorer by this amount due to lack of land regularization. In addition to such loses to government agencies, building permission fees and property taxes could be collected if planning permission would be given in legitimate way. In present situation, local governments do not get any property taxes from dwellings of UCs.

3.2 Socio-economic and Environmental Degradation in UCs

In addition to monetary loss, residents of UCs face socio-economic and environmental degradation. The socio-economic and environmental conditions in UCs are better than slum settlements but quite poor in comparison to planned settlements. Here, we would like to document stylized facts regarding UCs in Delhi.

- i. In UCs hardly any space are allocated for social and physical infrastructures at community level due to overexploitation of lands for profit motives by land developers. However, certain urban amenities such as drainage, water supply and lighting etc. has been done through development fund of individual political representatives for example, councilors, MLAs and MPs only in the regularized unauthorized colonies. In addition some provisions have been made through development fund but inadequate.
- ii. Present form of development lead to greater extent of environmental degradation due to absence of planning interventions. For instance, most of the dwelling units are developed in the form of apartment and mostly without provision of septic tanks. As a result, sewage is directed through drainage. This has led to adverse environmental condition including water contamination.
- iii. As said earlier, overexploitation of land in UCs form highly dense settlements that can also be observed in fig. 2. This densification both in terms of population density as well as built up area density results in 'heat island' which further exacerbates in the context of global warming which led to adverse effect on health particularly to children and women. These settlements hardly have green spaces or other social infrastructure.
- iv. The UCs residents denied access to formal loan and mortgage due to absence of legal status of their residence. Hernando de Soto has rightly pointed dead capital for such settlements. This has led to citizenship issues, that is whether they are citizens of the city or outsiders without any kind of empowerment of residents and of course it led to discrimination of job access.
- v. As housing is developed without any building regulations, they are highly prone to natural calamities e.g., earthquake and floods.

4. Conclusion

The objective of this paper was to document housing supply system in Unauthorized Colonies (UCs) in Delhi, evaluate their impact and provide policy prescriptions. We conducted case study of UCs in Defense Colony division of South Delhi to address objectives of this study. Case study reveals that the proliferations of UCs are mainly due to mismatch between formal housing supply and demand of housing. The UCs contributes around 14% of housing stock in Delhi, indeed a great contribution. However, such development in absence of planning interventions and huge implementation deficit led to significantly worst outcomes in the form of socio-economic and environmental conditions as well as swell the price of housing. This study argues that these challenges can be overcome by available opportunities in hand. Table 2 summarizes possible challenges and opportunities for UCs.

Sector	Challenge	Opportunity	Key Outcome
Physical planning	Without acquisition of land from UCs dwellers	Manipulation of Floor Area Ratio (FAR) and Transfer Development Right (TDR), Town Planning Scheme (TPS)	Provision of physical spaces for infrastructure like greening of space, provision of social infrastructure etc.
Economic prosperity	Informal economy, income disparity and poverty	Regularization of UCs and exploitation of green economies, providing common spaces for commercial activity	Enhanced economic prosperity. Inclusive development in economic and social sectors
Environmental up gradation	Water pollution, congestion	Awareness drive and enforcement of regulations	Environmental friendly development
Socio-cultural issues	Community conflicts (between migrants & locals)	Social diversity & unity to reach a higher QOL	Higher QOL through community participation process.

Table 2: Challenge, opportunity and key outcome in UCs in Delhi

We suggest a few interventions in UCs as listed in table 2. First, there is need for physical planning interventions, given lack of physical/social infrastructures in UCs. Such interventions will have overarching effects. However, for most of the households land is only asset with them. Therefore, in our understanding, it is a major challenge to intervene physical planning without acquiring land from UCs dwellers. This could be materialized by available planning tools e.g., controlling floor area ratio (FAR), exploiting transfer of development rights (TDR) and town planning schemes (TPS). UCs have locational advantages, which can be captured through land regularization/marketisation process through development levy, etc. and provision of higher levels of infrastructure through community contribution. Educating the local community about land price increase through provision of infrastructure will ensure returns to the local authority as well.

Another issue is economic prosperity of UCs dwellers. In fact economic prosperity can lead to better development of human dimension. Most of the UCs dwellers are involved in informal economy. In UCs income disparity and income poverty are also widely spread. Two kinds of interventions – regularization of UCs and exploitation of green economy will be very helpful to overcome exclusive growth and income disparity in certain extent (Puppim de Oliveira et al. 2012).

Third interventions, environmental up-gradation, will be addressed through implementations of earlier suggested interventions. In addition, two simple suggestions are made – environmental awareness drive and strict enforcement of environmental regulations. Most important aspect of this is community participation. This can be done through already existing mechanism of Resident Welfare Association (RWAs) which operates through Delhi Government's Bhagidari Scheme that provides infrastructure to formal colonies but not for

UCs and Slums. Suggested interventions can only be effective when there will be strong political willingness and organizational capacity at the municipal governments' level that would led to an integrated sustainable urban development in Delhi.

Endnotes

¹ This paper uses UCs for both regularized and un-regularized unauthorized colonies unless specified.

² A dwelling unit of 80 square meter.

³ Authors calculation based on NCTD (2006) settlement-wise projected population up to the year 2021.

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