

Plot Level Housing Redevelopment: A Comparative Study of Three different Categories of Planned Colonies of Delhi

Amrita Kaur Gulati

MBS School of Planning and Architecture

E-mail: amrita.arch@gmail.com

Abstract—In Delhi, like all other metropolitan City the conversion of existing buildings with or without modification to new uses and redevelopment, i.e. their demolition and replacement, are both part of the same process of internal recognition –a process which has emerged largely in the form of construction of apartments in existing plots ranging from the large Bungalow plots to the much smaller plots. The process of Plot-Level Housing Redevelopment is a dynamic process. Both planned and unplanned areas in Delhi are undergoing legal and illegal intensification respectively, beyond the carrying capacities of the area and without augmentation of infrastructure which cause problems. With time the increasing Ground Coverage and FAR give rise to population density, dwelling unit density and so population density, which create stress on infrastructure generating poor environmental quality and living conditions for the residents. In this paper, an attempt has been made to quantify the implications of Plot Level Housing Redevelopment in various planned Plotted - Housing colonies of Delhi. The present paper also reveals various issues, problems as well as potentials involved in Plot-Level Housing Redevelopment activity at city level, settlement level and plot level.

1. INTRODUCTION

The concept of Plot Level Housing process is demolition of old building and the creation of new building on the same plot by appointing a developer/builder, it is to make profit by utilizing balance plot potential in terms of permissible FAR by constructing additional flats.

Plots from all parts of Delhi –East, West, North & South and of all sizes ranging from 75 sq yards to 1,500 sq yards, are fast getting converted from single-family houses into multi-family dwelling units with a minimum four dwelling units per plot (one unit per floor). The various stakeholders involved in this activity are Owner, Builder, Buyer and Competent Authority.

1.1 Factors promoting the activity

People's Desire- This activity has born out of the people's desire to make optimum use of their land and earn profit out of it.

Increasing Land value- Over the years, increasing land values is one of main factor of causing apartment activity on plots

because majority of people cannot afford to look forward to own a Plot.

Increasing Population of High Economic Profile- With the limited high status land and increasing population of high economic profile, the trend of independent floor in high status area, bound to be on rise.

Lack of other options in Delhi- For buyers except builder's floor only CGHS Flats and DDA Flats are the housing options and that too of poor Quality.

2. CASE STUDIES

Planning Division F out of 8 urban Planning divisions is considered suitable for re-densification for case study because this largest division has a variety of housing typologies / housing subsystem and is unique in terms of large green areas and open spaces. This division F shows a high rate of densification in last few decades due to its low density and high land value and as per MPD -2021, holding capacity of this Planning division is 19.75 lacs in contrast to its existing population is 18.30 lacs (as per census 2011) hence, there is still scope of Re -densification

Three different categories of planned plotted developments- First, Malviya Nagar, Rehabilitation colony lies in category C (as per circle rate), Second, Hauz Khas, Private DLF colony lies in category B (as per circle rate) and third, West End, Cooperative colony lies in category A (as per circle rate) are considered for the study based on the various other criteria's like time of Establishment to know the condition of original structures, varying plot sizes for comparing impacts, income group to known willingness to sell / social status of area and extent of apartment activity in area.

2.1 Case study 1- Malviya Nagar

Malviya Nagar was established by L&D.O. in the 1950's to habilitate refugees from Pakistan, after partition of India. It is located on south Delhi and well connected to other parts of city by roads and metro line.

Table 1: Change in Land Use- Malviya Nagar

LAND USE	PLANNED 1950 (HA.)		EXISTING 2014 (Ha.)	
RESI.	24.4	42%	18	31%
MIX USE			5.2	9%
COM.	1.7	3%	2.9	5%
GREEN	8.7	15%	5.2	9%
PARKING			3.5	6%
CIRC.	18	31%	18	31%
P S P	5.2	9%	5.2	9%
Total	58		58	

Over the years, land use planned for Malviya nagar from 1950's, got drastically changed as lots of residential area got converted to commercial / mix use and the increasing parking requirement eaten up the green areas also.

Existing Scenario: Apartment building activity originated in Malviya Nagar in 1980's. This activity gradually gained momentum and currently about to reach its saturation point. Total Plots converted into Apartment = 1424 plots i.e. 81%. out of which 94% are completed and 6 % are under construction.

Table 2: Existing Scenario of Plot Level Redevelopment

Plot Size (sqyds)	Total No's Of Plot	Total Plots Converted into Apartment	
75-125	1115	906	81%
200	515	422	82%
300	136	96	71%
Total	1766	1424	81%



Impact - Increase in Population and Density. The existing population of Malviya Nagar area is approx 38,000 which is around three times of the population the area was designed.

If future Population is estimated, assuming the saturation level, that the remaining plots which are not yet redeveloped into apartment that is 342 plots undergo this apartment activity

@ 4 Du per plot & 5 HH per DU, an additional population of 6840 will come into an area.

The previous Master Plan (2001) had proposed a gross residential density of 350 to 400 pph and the new one (MPD-2021) - 600 pph. The present density is 655 pph, while the future density is estimated about 773 pph. Thus, the population density is out of the permissible limit.

Table 3: Impact- Increase in Popn. and Density beyond Permissible limit

Aspects	As per MPD 2021	In 1950 Design For	Existing yr. 2014	Assumed if saturated
No. of Plots		1766	do	do
Plot Density		30 plots/ha.	do	do
No. of Plot Converted			81% 1424 No's	100% 1766 No's
No. of Du's		2649	7600	8968
DU Density		46 / ha.	120 / ha.	144 / ha
Popn		13245	38000	44840
Total Area (ha)		58 ha.	do	do
Gross Res. Density	600 pph max	228 pph	655 pph	773 pph
Residenti-al Area (ha.)		24 ha.	18 ha.	do
Net Res. Density	1200 pph	551 pph	1945 pph	2490 pph

Source: Author (Primary survey)

2.2 Case study 2- Hauz Khas

Hauz Khas was developed by DLF in 1953 -59 subsequent to a government declaration allowing private developers to develop land. Hence, comes under category of planned plotted private colony. The area is one of the few freehold areas in Delhi. It is centrally located in south Delhi, well connected by the major transport corridors and metro line and bounded by affluent residential neighborhood such as Green park, Asian Games Village and Niti Bagh.

Table 4: Change in Land Use - Hauz Khas

LAND USE	PLANNED 1950 (Hac.)		EXISTING 2013 (Hac.)	
RESI.	25	60%	22.2	53%
MIX USE			2.8	7%
COM.	1.5	4%	1.5	4%
GREEN	5.5	13%	3.2	8%
PARKING			2.3	5%
CIRC.	8.3	20%	8.3	20%
P S P	1.7	4%	1.7	4%
Total	42	100%	42	100%

With due time, land use planned for Hauz Khas in 1950's, got changed as some of residential area got converted to commercial / mix use and the increasing parking requirement eaten up the Green areas also.

Existing Scenario: Apartment building activity originated in Hauz Khas in 1980's. This activity gradually gained momentum and currently at its peak especially in small size plots and medium size of plots. House converted into apartment are 173 plots i.e. 28% out of 611 plots. Out of which 84 % are completed and 16 % are under construction. Maximum no. of conversion are under small plots category than medium size plots followed by large size plots.

Table 5: Existing Scenario of Plot Level Redevelopment

Plot Size (sqyd)	Total No. of plots	Plot Converted to apartment	
100-300	430	135	31%
300-600	106	29	27%
600-800	50	7	14%
800-2000	25	2	8%
Total	611	173	28%

Impact - Increase in Population and Density: The existing population of Hauz Khas area is approx 12,000 which is around twice of the population the area was designed. If future population is estimated, assuming the saturation level, that the remaining plots which are not yet redeveloped into apartment that is 440 plots , undergo this apartment activity @ 4 Du per plot & 5 HH per DU, an additional population of 8800 will come into an area .The Previous Master Plan(2001) had proposed a gross residential density of 350 to 400 pph and the new one (MPD-2021) - 600 pph. The present density is 286 pph , while the future density is estimated about 496 pph. Thus the population density is likely to remain within the permissible limit.



Fig. 1: Plot level Redevelopment in Hauz Khas

Table 6: Impact- Increase in Popn. and Density

Aspects	As per MPD 2021	In 1950 Design For	Existing yr. 2014	Assumed if saturated
No. of Plots		611	do	do
Plot Density		15 plots/ha.	do	do
Plot Convert-ed			28 % 171 No's	100% 611 No's
No. of Du's		1222	2406	4166
DU Density		29/ ha.	57/ ha.	99/ ha
Popn		6110	12030	20830
Total Area (ha)		42 ha.	do	do
Gross Res. Density	600 pph max	145 pph	286 pph	496 pph
Res. Area (ha.)		25 ha.	22 ha.	do
Net Res. Density	1200 pph	244 pph	546 pph	946 pph

Source: Author (Primary survey)

2.3 Case study 3- West End

West End was established in the 1965. It is a cooperative society formed by defense personnel. Hence, comes under the category of planned plotted cooperative colony. The unique aspect of this colony is that the back side of all the houses face public park and known as one of the top most posh colony of Delhi.

Table 7: Land Use –West End

LAND USE	Planned 1965 / Existing 2015 (ha. %)	
Residential	7.1	60%
Mix Use	-	-
Commercial	0.1	1%
Green	3.0	25%
Circulation	1.4	12%
Parking	-	-
P S P	0.3	3%
TOTAL	12	100%

With due time, land use plan of West End in 1960's, not got any changed, the land use distribution is still the same due to its large plot size with wide streets have more holding capacity as compared to other colonies with small sizes of plot and bad infrastructure.

Existing Scenario: In West End trend of apartment building activity at plot level originated from 2000. After authority has given opportunity to convert plot leasehold to freehold, after that it becomes easy and legal for owner to convert single story house or redevelop into apartments and sell.

Houses converted into Apartment are 13 plots i.e. 12% out of 111 total plots. Maximum conversion took place in 500 sqyd, followed by 800 sqyd and then 1200 sqyd.

Table 8: Existing Scenario of Plot Level Redevelopment

Plot size (sqyd)	Total No's of Plot	Total Plots Converted into Apartment	
		No's	%
1200 sqyd	32	2	6%
800 sqyd	33	5	15%
500 sqyd	40	6	15%
300 sqyd	6	0	
Total	111	13	12%

Impact - Increase in Population and Density: The existing population of West End area is approx. 1370. If future Population is estimated, assuming the saturation level within the same boundaries, that the remaining plots which are not yet redeveloped into apartment that is 98 plots, undergo this apartment activity @ 4 Du per plot & 5 HH per DU, an additional population of 1980 will come into an area.



Fig. 2: Plot Level Redevelopment in West End

The Previous Master Plan (2001) had proposed a gross residential density of 350 to 400 pph and the new one (MPD-2021) - 600 pph. The present density is 114 pph, while the future density is estimated about 278 pph. Thus the population density is likely to remain within the permissible limit.

Table 9: Impact- Increase in Population and Density

Aspects	As per MPD 2021	In 1950 Design For	Existing yr. 2014	Assumed if saturated
No. of Plots		111	do	do
Plot Density		9 plots/ha.	do	do
Plot Converted			12 % 13 No's	100% 111 No's
No. of Du's		222	274	670
DU Density		18.5 / ha.	22.5 / ha.	55.5 / ha
Populati-on		1110	1370	3350
Total Area (ha)		12 ha.	do	do

Gross Res. Density	600 pph max	93 pph	114 pph	279 pph
Res. Area (ha.)		7.1 ha.	do	do
Net Res. Density	1200 pph	156 pph	192 pph	471 pph

Source: Author (Primary survey)

3. ISSUES AND PROBLEMS

3.1 At City Level

Un standardized Rise or Fall in Land and Property prices in Delhi - Property rates in Delhi had started climbing a few years ago after the government allowed house owners to build a third floor. While this led to a glut of new residential properties in south Delhi, and the growth in demand petered out, especially in the last 1 year, because of weak economic sentiment and high interest rates results in property prices goes down.

Unaffordable to large segment of people - Builder floor only caters to high end users, due to its high property rates as it involves propo eehold ownership of the plot, emerging trend and parking facilities within the premises and in ave large amount of stamp duty, there is very large component of black money involved.

3.2 At Settlement Level

Uneven growth of densities - Use of land and infrastructure in case of large plot sizes is under utilization and small plot sizes is over utilization. Low density leading to urban sprawl in case of large plot sizes and give over all of uneven built form.

Change in land use / built up use- Changing pattern of area, demand for particular other uses which leads to high rate of properties conversion to commercial, public semi-public and mix use. Due to which zoning regulations are frequently changed to compromise with existing land use, which is not followed according to proposed land use.

No Transparency / Account of various Charges paid to Authorities for Sanctioning- It is leading to re densification but no consideration is given towards the additional pressure on infrastructural facilities like water supply, open areas etc. at settlement level.

Infrastructure is Highly Impacted in areas having density beyond their holding capacity like water supply in Malviya Nagar and Huaz Khas is affected, as existing it is 2.5% less than standard and frequency of distribution is not even for the area even parking requirement on the streets in the neighborhood level is increased, similarly street parking in front of commercial and P.S.P use creates traffic problems and out of 38% to 40% Green space converted to parking due to which Children can't access open areas.

3.3 At Plot Level

Small Plots which have low holding capacity has very high rate of conversion to apartment as compared to large size of plots.

As small size plot (say < 300 sqyd / 250 sqm) have high FAR (350 / 300), high profitability and high demand leads to very high percentage (80 to 90 %) of conversion to apartment. And in medium size plot (say 300 to 800 sqyd) have moderate FAR (225), high profitability and moderate demand leads to moderate percentage (30 to 40%) of conversion to apartment. While in large size plot (say > 800 sqyd / 750 sqm) have less FAR (150 / 120), less profitability and moderate demand leads to less percentage (<10%) of conversion to apartment.

Small plot are not suitable for apartment activity. Due to small size of plot, full parking requirement cannot able to accommodate within the premises which cause spill over the streets and further reducing the carriage way width.

Small plots generally have less road width like in Malviya Nagar its 6 to 9 meters and their conversion to apartment of Stilt + 4 floors cause total imbalance between street width and building height cause light and ventilation problem.

3.4 At Stakeholder Level

Problems Faced By Owner – Major Problem faced by owner is malpractice and builder's prowess like In 75% cases, builder promises were not kept regarding specification of materials to be used in finishes, furnishing etc. In case, Builder does not follow any clause of agreement signed b/w Owner and Builder, Owner does not file case against builder, as they are more powerful in terms of finance and contacts. Even though the owner is financially strong to erect apartment on his own plot, yet they prefer collaboration because builders with their experience have good network of contacts with authority people to handle any kind of obstacle.

The other major problem face by owner is absence of reputed developers because most developers of builder floors are individuals or small companies. In case of Redevelopment on small size of plot (< 300 sqyd), 90 % of builders were earlier property dealers as branded construction firm are not interested in plot level small scale projects.

Problems Faced By Builder- If land is owned by multiple partners resolving conflicts on small decisions in mid of construction is one of the major problem for builder. And the other problems builder faces from the landowner are maximum demand for potential sellable space and frequent changes in the design and specification also create problems. Very high and different demands of individuals for specification and finishes creates problem of finances and management and irregular payment results to non completion of work on the time.

High corruption in the authorities, enforce developer to pay huge amount of bribe (per slab cast) to various departments

from Municipal corporation to Police department to RWA to Safai Karmchari of the concerned area, so that they do not complain against the construction work and avoid delays in sanctioning from various competent authority.

Problems Faced By Authority- Because of low compounding rates people don't hesitate to violate and pay penalties. Lesser amount is quoted while registration to escape from income tax, stamp duty, sales tax etc which leads to generation of black money.

Stilt 2.4 m Ht (Not Counted in FAR) is allowed to use only for parking. But in small to large plot size practicing use are half for parking and part for residential /servant Quarters.

Basement (not Counted in FAR) is allowed to use only for Storage, but in small to large size of plots practicing use are professional activities like Offices, Parlours, Gymnasium, Spa, etc.

Especially in small sizes of plot, various services are violated like parking provision, staircase width, service duct etc. that are not provided as per standards

4. POTENTIALS

Apart from various implications of plot level housing redevelopment, this apartment activity also have potentials at city, settlement as well as plot level which cannot be ignored.

4.1 At City Level

This apartment activity not only adds to the housing stock but also totally legal housing supply system with secure tenure ship, supported with act and Bye laws.

It is the best tool to achieve objective of re-densification proposed in Development Plan (2021).

It is potential subsystem, which is providing housing by maximum private cooperation with minimum govt. intervention.

4.2 At Settlement Level

This apartment activity helps to replace old housing stock of old settled areas with new one.

Unlike public housing supply there is no complicated process is involved and amenities/ finishes provided are inferior and much better than other type of housing supply by government like DDA / CGHS Flats.

It has flexibility in finance options like collaboration or outright sale and the whole process of construction including possession is fast.

4.3 At Plot Level

As compared to individual house, individual floor is affordable and economically alternative because factors like

land price, cost of construction and maintenance is shared by group of people and not by individual.

People can afford to stay in good neighborhood and localities having very good access to city nodes, where they can't afford individual house.

Apartment Activity at plot level results in profitability to all actor's (Owner, Builder and Buyer)

Mandatory provision of parking within the plot area through stilt floor solves the parking problem in large plot area and to some extent in small plot area.

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