

Executive Summary of the Report on the Pilot Studies

1. Background

Urban Land market and housing reforms is the part of the core agenda of the Mumbai Transformation process. These reforms are needed in order to create a positive impact on the quality of life for all sections of the population. The reforms are also critical for fostering an accommodation a robfor economic growth in the `MMR as well as generating a stream of revenue that could be ploughed back into infrastructure improvement. Among the key issues to be addressed under these reforms, is the rehabilitation of slum dwellings and neighbourhoods and upgrading the living conditions of families living and promoting transit oriented development in the old buildings.

Facilitating affordable and low-income housing as a sustainable housing strategy is the biggest challenge and objective for the policy reform process in general.

It is estimated that around 10 lakh households in Mumbai live in slums and about 4 lakh live in buildings that are in various stages of dilapidation. Several proactive schemes were introduced in the 1990s to infuse a pace of change in addressing these issues. However the operations of these schemes gave rise to innumerable demand side and supply side complexities. The demand side dimensions include matters of property rights in land and housing, housing finance and housing subsidies. The supply side dimensions include issues of residential infrastructure and regulations of land and housing development and the institutional capacity to handle change at the scale of the problem.

The first report of the Chief Minsiter's Task Force listed housing as a major issue in the transformation process with an objective to sart reating islands of excellence in world class housing as well as upgrading its housing stock.

2. Objective of the Pilot Studies

The pilot studies were commissioned to help evolve and propagate a Sustainable Urban Renewal policy with the objective of improving the quality and quantity of housing stock. An ancillary objective of the pilot studies was to identify mechanisms to generate affordable housing, particularly in the background of the Draft Housing Policy announced by the

Government of Maharashtra on 1st November 2006. Since the draft policy has set the objective of affordable Housing for the Economically Weaker Sections (EWS), Low Income Group (LIG) and Middle Income Group (MIG), evolving the mechanism to approach the objective was critical. The pilot studies were designed to determine optimal physical changes required for renewal of various parts of the city, and whether such renewal calls for repairs or reconstruction. How such changes are to be best effected will depend on the policy environment, in particular whether the Rent Act continues in its present form or gives way to a new regime in which currently cessed buildings, with their tenants and landlords, become instead co-operative societies, or become condominiums of multiple owners.

The studies sought to

- Identify new Precinct based urban renewal – redevelopment of Cessed and non-cessed buildings
- Develop new Tenure participation models of slum redevelopment that provide alternatives to the existing policy
- Explore the potential of applying Transit Oriented Development policies to areas around mass transit facilities
- Explore new mechanisms for providing low income ownership and rental housing
- Examine the scope for increasing FSIs and modify DCRs to promote more efficient and sustainable urban development.
- Identify legal and institutional capacity constraints pertaining urban renewal and redevelopment processes
- Develop more Inclusive transparent and accountable planning tools
- To promote accessible and sustainable development

The four sets of pilot studies aim at encouraging city renewal, demonstrate the strength of sound urban planning and design principles as the basis of sustainable urban renewal. They also sought to test the assumption that a precinct approach to redevelopment could improve the quality of life of the residents. Towards facilitating and mandating this approach, the studies focused on different options of physical planning of the neighbourhood, with an attempt to provide a framework for redevelopment and improvement of infrastructure and addition of amenities and community spaces.

The studies have made a preliminary assessment of the requisite changes required to be made to capacitate the institutional, legal and financial framework. However more in-depth assessments are essential, so as to crystallize the outcome into policy.

3. Study Teams and Monitory Mechanism

The Pilot Studies were coordinated and supervised by the Mumbai Transformation Support Unit (MTSU) at the All India Institute of Local Self-Government, with the support of Prof. David Dowall, Consultant World Bank. A process of periodic review and consultation at the level of the MTSU and High Level Committee under the Principal Secretary Housing facilitated discussions at different stages of the study and steered the course of the studies. The studies were financially supported by MHADA, SRA, TMC, MMRDA and MTSU itself, which ensured the participation, and commitment of these key governmental agencies to take the recommendations of the study forward. The composition of the Monitoring and High level committees was as follows:

Table – 1
Details of High level and Monitoring Committee

High-level Committee	Monitoring Committee
Principal Secretary Housing Principal Secretary Urban Development Principal Secretary Finance Municipal Commissioner MCGM Principal Secretary to the CM Commissioner MMRDA CEO MHADA CEO SRA Secretary Special Project Project Manager MTSU NGOs	Representatives of MHADA, MCGM, MMRDA, MCHI, Property Redevelopers' Association, local Corporators, Ward Committee Chairmen, ALMs or Residents Welfare Associations or Chawl Committees under the Chairmanship of an experienced and eminent administrator with experience in urban affairs (e.g. D M Sukhthankar or D T Joseph).

The following Pilot Studies were carried out by a consortium of researchers and designers

Table – 2
Study Team of Pilot Studies

No.	Type of Study	Study area	Agency undertaking the study	Study Funded by
1	Cessed Building	i Bora Bazaar	KRVIA	MHADA
		ii Null Bazaar	KRVIA	MHADA
		iii Dadar Parsee Colony	KRVIA	MHADA
		iv Girgaon Precinct	KRVIA	MHADA
2	Slum Redevelopment	i Korba Mithagar near Wadala	SRS + CRIT	SRA
		ii Dnyaneshwar Nagar Slum in, Vartak Nagar Thane	Shelter Associates, Pune	TMC +MTSU
3	Transit Oriented Development	i Proposed new Station on the Charkop Mankhurd Metro Rail in Bandra Kurla Complex near ICICI Bank	Rachana Sansad (Academy of Architecture)	MMRDA
4	MHADA owned Properties	i Sahakar Nagar, Chembur	CRIT	MTSU

1. CRIT – Collective Research Initiatives Trust
2. KRVIA – Kamla Raheja Vidyanidhi Institute of Architecture, Mumbai
3. MCGM – Municipal Corporation of Greater Mumbai
4. MHADA – Maharashtra Housing and Area Development Authority
5. MMRDA – Mumbai Metropolitan Region Development Authority
6. MTSU – Mumbai Transformation Support Unit
7. SRA – Slum Rehabilitation Authority
8. SRS – Slum Rehabilitation Society

4. Approach

Each study proceeded in six stages:

- A. Physical and social-economic assessment of current conditions.
- B. Determining the market value of the land based on the area’s highest and best use, given location, site characteristics and market demand (Ready Reckoner rates were used in addition to local enquires).
- C. Identification of alternative physical models for transformation including various levels of plot aggregation and increases or adjustments of FSI, and targeting better amenities in the precinct, based on financial viability factors and additional investments in infrastructure and service levels.

- D. Identification of alternative institutional models for revitalization, for example: i) owner-developer led approaches, ii) tenants/slum dwellers driven models that reflect the community and NGO participation, and iii) government-led models. The option of co-operative society approaches has not been separately examined, but may be considered similar to (ii) above.
- E. Evaluation of the impacts of the above alternatives on various key stakeholders - tenants, slum dwellers, landlords, developers and government bodies.

Part A - Slums

5. Extent of the problem

Of the 12 million population (2001 census) of Greater Mumbai, 54% live in slums that are located on both public and private lands. Several initiatives in the past to upgrade or redevelop slums have met with only limited success. Though the SRA policy of 1995-96 aimed to construct 1 million tenements for the slum families within 5 years, the actual number of tenements completed is about 50,000 only (*which is a substantial number though*). In addition about 50,000 while this number is substantive, it only comprises 5 percent of the policy target. In addition about 50,000 tenements have been constructed during last 5 years by the MMRDA for rehabilitating slum dwellers along the MUTP / MUIP corridors. The current SRA policy for Mumbai protects families staying as on 01.01.1995 and entitles them to a free tenement in a redevelopment scheme. The slum policy for the rest of the MMR is similar, but requires a beneficiary contribution of 10% cost of construction. The SRA policy does not address the rehabilitation of slum dwelling families post 1.1.95, nor strategise low income affordable housing in general.

6. Existing Policy and Legal Framework

The Afzalpurkar Committee appointed in 1995 recommended a slum rehabilitation policy, which was enshrined in rule 33(10) of the Development Control Regulations 1991 (Amended).

Development under Section 33(10) of the DCR for Mumbai

Section 33(10) provides tenements of carpet area of 225 sq. ft. free of cost to the slum dwellers, who according to the State Policy are registered on the cut off date of 01/01/1995. The redevelopment model is supposed to work on the incentive FSI/ TDR. basis For every square foot of rehab component, an incentive of 0.75 FSI in the island city area and 1.0 FSI in the suburbs is permitted for the free sale to cross and subsidize rehabilitation. In very highly dense slums called 'difficult areas' the incentive FSI is 1.33 (any definition of difficult?*) The redevelopment can be initiated by societies of the slum dwellers or land owners (in case of slums on the private lands) or by real estate developers after getting the consent of not less

than 70% of the slum households. At the end of the redevelopment process, the slum dwellers' co-operative society is given collective lease rights of the land on restricted tenure.

STET

The slums located on land needed for vital public purpose or on the Right of Way can be relocated under 3.11 of Appendix IV of the DCR 33 (10) whereby a land owner or a developer offering relocation of such slum dwellers on his unencumbered land free of cost gets the incentive FSI equal to land thus vacated and also the FSI of the area constructed for rehabilitation. The incentive FSI is transferable through TDR

Permanent Transit Tenement Scheme under the provisions of DCR 33(14)

In this scheme, the landowner is allowed to develop upto a FSI of 2.5 for suburbs, 2.99 for difficult areas & 2.33 for city (only for govt or public sector plots). The additional permitted FSI is used for construction of Transit Tenements for slum rehabilitation scheme for 10 years on rent to be fixed by CEO, SRA. After the period of 10 years the owner may use the tenements for any purpose.

Alternatively the additional FSI can be consumed as follows:

Table – 3

F.S.I.Consumption permitted under Section 33(14)

No.	Location	Add . FSI	FSI for SRA Tenements	FSI for free sale component	Maximum
1	Suburbs and extended suburbs	1.5	0.75	0.75	3.0
2	Difficult areas	1.66	0.7	0.95	4.0
3	Island City (Govt. or Public sector plots only)	1.00	0.57	0.43	4.0

7. Inadequacy of the Policy

The SRA policy assumes that by selling the extra floor space in the open market, the tenements for slum dwellers would be cross subsidized. While sound in theory, It has worked only in a few high demand localities and not across the MMR. Additions to the sale component was tagged to the rehab area. The policy has encouraged developers

*Reference to Guidelines for the implementation of Slum Rehabilitation Scheme in Greater Mumbai, 1997 (Appendix – IV 3.J)

inflating the number of slum dwellers to get higher incentive FSI square footage. Furthermore, the TDR generated by the schemes has been loaded on the areas without strengthening the local infrastructure, thereby flouting the principles of town planning.

Unfortunately, the SRA policy has been captured by real estate developers, and took decision-making out of the hands of the dwellers and left them with limited choices. Finally, the financial viability of the project depends upon the prices of FSI/TDR, which has seen significant variations in last 10 years.

8. Objectives and Methodology of the Slum Study

The studies aim at providing policy inputs based on sound urban planning and design principles and the socio-economic parameters. A key aspect of the slum studies was the socio-economic surveys conducted to profile the characteristics of the slum dwellers. Interviews were structured to cover quantitative data related to residential and commercial structures and household profile such as the place of origin, family size, type of structures, employment and income profile, education and health related information, and preferences of development. Alongside the socio-economic survey, a land use, infrastructure and physical survey were also undertaken. This data formed the basis for evolving various redevelopment options. Another key denominator of the study was the consultation process involving the diverse stakeholders at various stages of the study.

9. Area Profile

Two slum areas included in the pilot study were Korba Mithagar near Wadala in Mumbai City and Dnyaneshwar Nagar in Vartak Nagar area of Thane city. About 3,000 households live in each of the slums and were surveyed for baseline socio economic data and physical infrastructure status. The study areas were chosen in consultation with the Slum Rehabilitation Authority for Mumbai and the Thane Municipal Corporation in Thane.

The Korba Mithagar slum is located on the Collector's land (Government land) and the Dnyaneshwar Nagar slum is located on MIDC land.

Table – 4

Demographic Features of slums

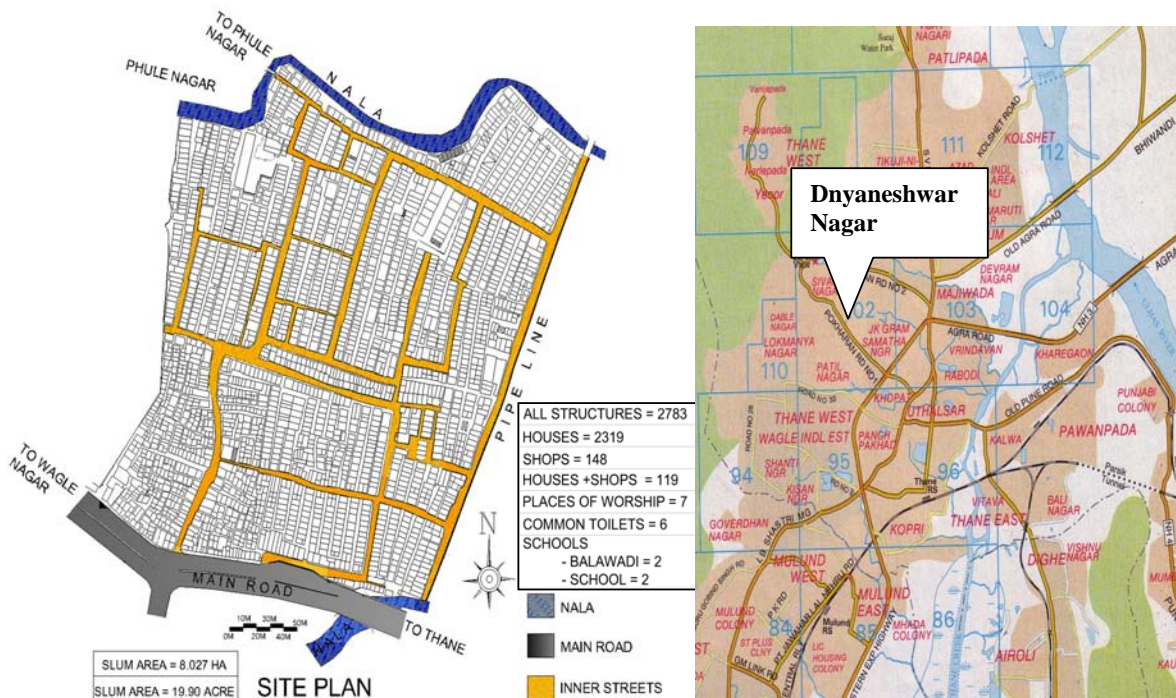
	Dnyaneshwar Nagar	Korba Mithagar
Total Population	10250 Persons	15609 Persons
Caste	6 % SC	48 % SC
Religion	95 % Hindu	50% Hindu & (31% Buddhists)
Household Size	4.1	4.58
Origin	78% within Maharashtra	61% within Maharashtra
Age of settlement	30 years	30 years
Period of stay in slum	Pre 1995 – 79.44 % (Approx) Post 1995 – 20 .56 % (Approx)	Pre 1995 – 74 % (Approx) Post 1995 – 26% (Approx)

Table – 5

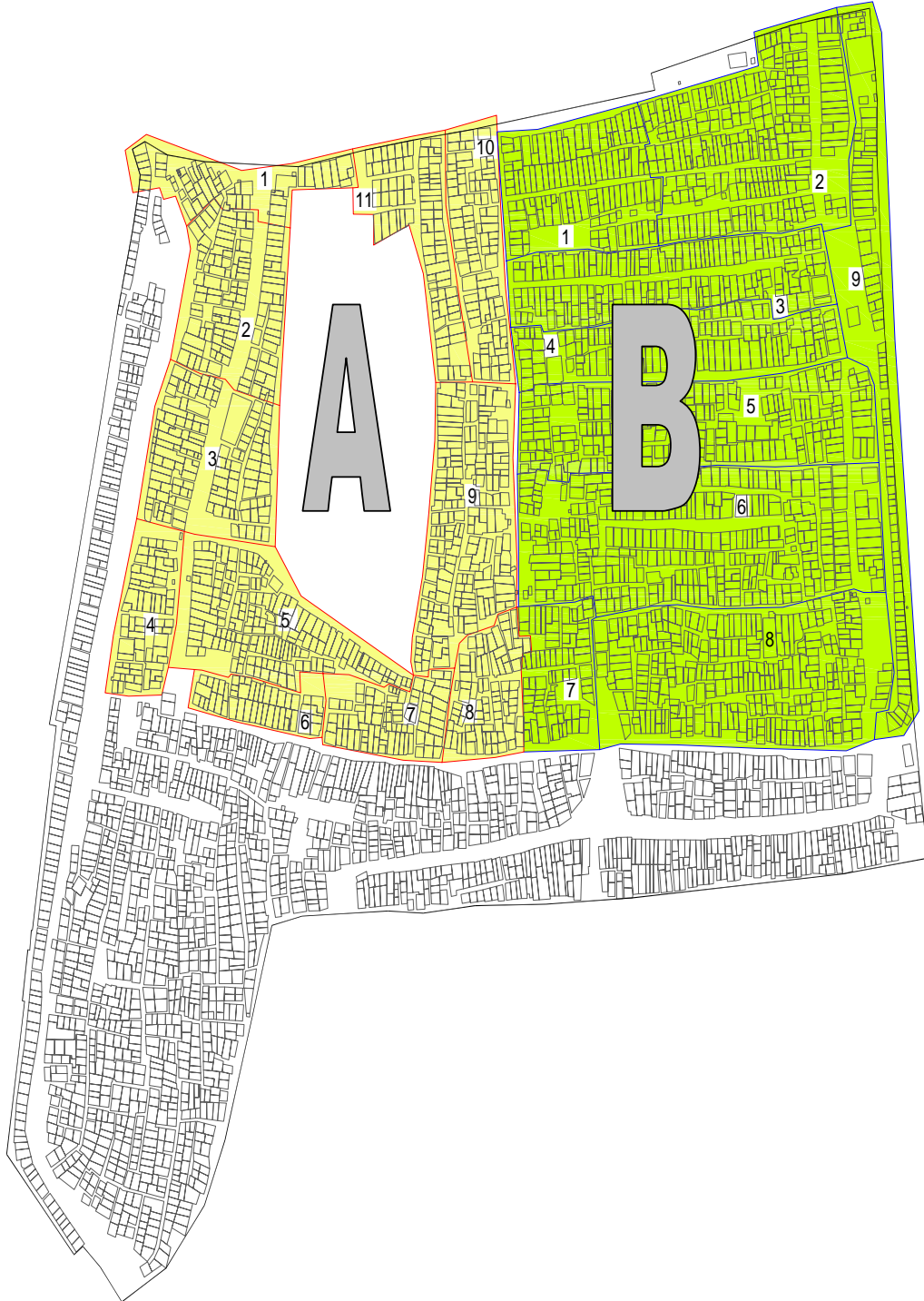
Socio-Economic Features

	Dnyaneshwar Nagar	Korba Mithagar
Average Monthly Household Income	Rs. 4916	Rs. 5094
School going population	99.7 %	51.2%
Nature of employment	62 % Formal sector	58 % Formal sector
Consumer durables	LPG – 92%, Fridge – 31% TV – 87%	LPG – 51.7%, Fridge – 20.9% TV – 66.4%
Improvement Aspirations	Pucca tenement – 50% Provision of sanitation – 35% Health & education – 15 %	Pucca tenement – 70% Provision of sanitation – 10% Health & education – 20 %

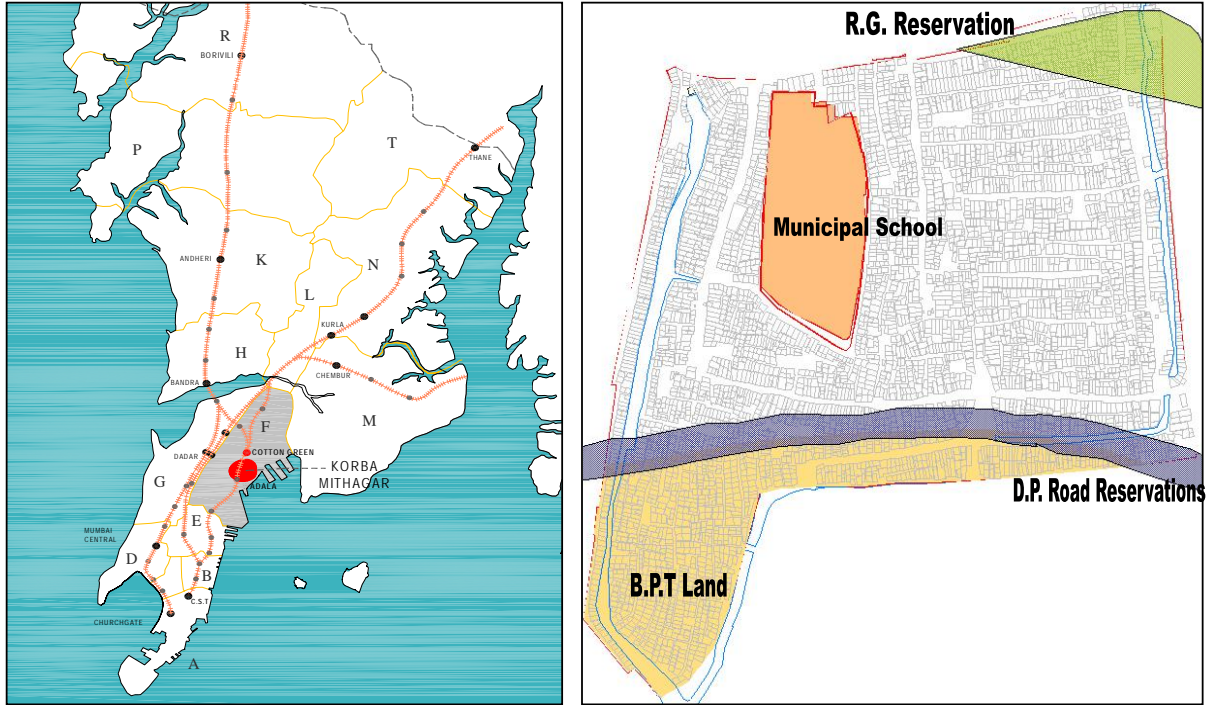
Location Map of Dnyaneshwar Nagar



Location Map of Korba Mithagar



Map showing location of societies in Korba Mithagar



In Korba Mithagar the residents have organized themselves into informal co-operative housing societies. These have been formed along shared streets resulting in narrow linear formations. However there is no physical demarcation of the boundaries on site. There are two such clusters of societies one having 11 societies and the other having 9 societies.

Table – 6

Details of Societies in Korba Mithagar

A	B
1. Parivartem coop soc – 61 units	1. Laxmanwadi- 161 units
2. Ramamata a- 120units	2. Addarsh coop.society-118units
3. Ramamata b-110units	3. Manurwadi-287 units
4. Sagar –63units	4. Nanabhiwadi-280 units
5. Pradnya- 150 units	5. Siddhart nagar- 118 units
6. Society n4 – 44units	6. Karimwadi-227 units
7. Society n 4-80 units	7. Mahatma phulewadi- 264 units
8. Society n 6- 173units	8. Ambikawadi- 102 units
9. Swapnaspurti- 138 units	9. Dhamaliewadi- 81 units
10. Alankar- 92 units	
11. Amarapali- 81units	

Physical Features

Table – 7

Physical features of the Slums

	Dnyaneshwar Nagar	Korba Mithagar
Area of the settlement	8.05 Ha	7.38 Ha
Tenement density	349 Tenements/ Ha	469 Tenements/ Ha
Population density	1,273 persons/Ha	2113 persons/Ha
Size of units	150 – 220 sq. ft.	150 – 220 sq.ft.
Occupancy patterns	75 % self occupied	81% self occupied
Amenities available	School Health Centre Electricity Water supply & Sewerage	Municipal School, 4 Balwadis Health Centre/ Dispensaries Water supply & Sewerage
Development Plan implications	Reservation for DP Road	DP road reservation – 7,437 Sq. M. RG Reservation – 3848 Sq. M.

10. Findings of the slum studies – (Options for redevelopment)

Dnyaneshwar Nagar

The Dnyaneshwar Nagar study has considered 6 options ranging from just infrastructure upgradation to complete redevelopment through a Master Plan approach. The various options for redevelopment are described below. In all the options the building height is restricted to G+ 5 i.e. walk up apartments. The options also consider different footprint areas for placing varying number of units on a floor.

Table - 8

Area Statement – Dnyaneshwar Nagar	
Total Plot area	80,500 sq. m.
Total No. of Households	2,438
Existing Density	1,273 persons/Ha
Development Plan Reservation	
Area reserved for D.P. Road	7,431 sq. m.
Area available for Development	73,069 Sq. m.
Land on which FSI can be computed	80,500 sq. m.

Options	Description	Area of Devp (Area of plot) Sq. m.	Area Avlbl for Rehab (Sq. m.)	Area Avlbl for Free Sale (Sq. m.)	Open spaces & amenities (Sq. m.)	Cost of the scheme in Rs. Crores				Revenue from free sale in Rs. Crores				Net profit in Rs. Crores			
						FSI Options				FSI Options				FSI Options			
						1.0	1.5	2.0	2.5	1.0	1.5	2.0	2.5	1.0	1.5	2.0	2.5
Option 1	Infrastructure upgradation	80,500	-	-	-	Estimated cost of infrastructure upgradation is approximately Rs. 1 crore				-	-	-	-	-	-	-	-
Option 2	(Partial Redevp Scheme G+3 Clusters of 8, 6 & 4 Units per Floor)	34,973	21,640 63%	12,546 37%	1,870 6%	53	86	118	151	4.9	71.4	137.8	204	-48	-14	20 (15%)	54 (27%)
Option 3	(Complete Redevp Scheme of G+5, Clusters of 4 Units per Floor)	80,500	40,984 50%	39,516 50%	4,305 5%	124	199	273	348	29.6	180	336	488.4	-94	-16	62 (18%)	140 (29%)
Option 4	(Complete Redvvp Scheme G+3 Clusters of 6 Units per Floor)	80,500	62,739 78%	17,761 22%	10,634 13%	125	200	274	349	29.6	180	336	488.5	-95	- 168	61.3 (18%)	140 (28%)

Options	Description	Area of Devp (Area of plot) Sq. m.	Area Avlbl for Rehab (Sq. m.)	Area Avlbl for Free Sale (Sq. m.)	Open spaces & amenities (Sq. m.)	Cost of the scheme in Rs. Crores				Revenue from free sale in Rs. Crores				Net profit in Rs. Crores			
						FSI Options				FSI Options				FSI Options			
						1.0	1.5	2.0	2.5	1.0	1.5	2.0	2.5	1.0	1.5	2.0	2.5
Option 5	(Complete Redevp Scheme G+3, G+5 G+8 with Clusters of 6 and 4 Units per Floor)	80,500	59,740 75%	20,670 25%	5,386 6%	116	187	261	336	20	165	318	470	-96	-22	56 (18%)	134 (28%)
Option 6	(Complete Redevp Scheme Incorporating D.P. Masterplan G+5 with Clusters of 6 Units per Floor)	73,069	37,904 52%	35,168 48%	5,274 7%	105	173	241	309	1.4	140	279	418	-104	-33	38 (13%)	109 (26%)

** Analysis of options that indicate negative returns reveal the necessity for financial participation of the slum dwellers. However, due to inappropriate income level, judicious implementation of planning tools is imperative.

One crore = 10 million

Korba Mithagar

The Korba Mithagar Study has considered four different alternatives ranging from stand alone development of each plot to total amalgamation and master planning of the area. These options offer a variety of layouts that could be developed at site. The cost economics of each of the options has been analysed at length and is summarized in the statements below.

Table - 10		
Area Statement – Korba Mithagar		
1	Total Plot area	73,860 sq.m.
2	Land under MCGM School	8,142 sq. m.
3	Total No. of units	3408
	Development Plan Reservation	
4	Area reserved for R.G.	3,848 Sq. m.
5	Area reserved for D.P. Road	7,437 Sq. m.
6	Units under Reserved R.G.	169
7	Units under Reserved D.P. Road	358
8	Total Area under reservation	11286 Sq. m.
9	Total units under reservations	527
10	Land on which FSI can be computed (2 –6) {FSI of DP road is admissible for loading on the plot}	70,012 sq.m. (7,49,829 m ²)

Remarks

Option 1

The model depends on external finances. It requires contribution from the people but due to absence of loan facilities for this section of society, the feasibility is doubtful. This model restricts optimum utilization of land, does not provide open spaces and amenities.

Option 2

- The cooperative societies being already formed, this is an immediate possibility with a relatively easy mobilisation processes. However the sale area generated is fragmented and therefore may fetch lower prices and be difficult to market.. Quality of rehabilitation in

terms of useable open spaces is poor, as about 70% of the open spaces within each plot is lost in setbacks.

Korba Mithagar Redevelopment Options:

Table – 11

Summary of Options for Korba Mithagar

Options	Define options	Area of Devp	Area avlb for Rehab	Area avlb for Free Sale	Open spaces & amenities	Cost of scheme	Free sale Revenue	Net Profit
OPTION 1	Individual Self-Devp. F.S.I. - 1.33	749828	461144.2	0	288683.78	Rs. 48.9 crores	0	(-48.9 crores)
OPTION 2	Society Wise Development F.S.I.- 2.5 as per the SRA Model	749828	397408.8	29993.12	322426.04	Rs. 279 crores	Rs. 386 crores	Rs. 107 crores
OPTION 3	Partial Amalgamation & Cluster Wise Development F.S.I.- 2.5 as per the SRA Model	749828	342671.4	47239.16	359917.44	Rs. 281 crores	Rs. 430 crores	Rs. 149 crores
OPTION 4	Total Amalgamation & Complete Redevelopment (Without MbPT Land but including the school plot) F.S.I.- 2.5 as per the SRA Model	837029	337422.6	59986.24	352419.16	Rs. 328 crores	Rs.516 crores	Rs. 188 crores

(Areas are in Square feet; Cost and Revenue are in Rs. Crore)

Option 3 (G+7 Rehab)

- This option attempts to respond to community dynamics and conflicts with partial amalgamation of societies that are willing to come together and redevelop.

- The sale plots in this model are larger and consolidated, increasing financial viability, as they fetch high prices. However overall redevelopment may not take place unless all the societies decide to redevelop.

Option 4(G+7 and G+10 Rehab)

- This option calls for amalgamation and redevelopment of the plot. It maximises infrastructure improvement and availability of public open spaces. It permits flexibility in terms of location of sale, open spaces and rehab housing.
- As the liability of the construction of school is added to the costs, the net profit is reduced. This is considering that the school itself will be given free of cost back to the BMC.
- The study indicates that the amalgamation of land parcels under slums and going for a Master Plan approach (option 4) gives greater open spaces and possibilities of better amenities; however due to the high rise construction, the cost of construction and maintenance is very high, (approx. Rs.5.50 per sq. ft per month), therefore option 3 with G+7 structures would be a preferable option. A global FSI of 2.5 can be given on the amalgamated plot area; 30% space should be left for roads and open spaces.

Inferences

The studies indicate that the amalgamation of land parcels under slum and going for a Master Plan approach gives greater open spaces and possibilities of better amenities. It is also possible to have better layout of the units on a floor to facilitate good light and ventilation and to generate revenues to finance project cost..

Participation in the redevelopment

The survey revealed variations in the capacity of the households to pay, though there is consensus on the redevelopment options. The residents showed willingness to participate in the redevelopment process, with the first priority in redevelopment being a Pucca tenement with Secure Tenure, followed by sanitation services and health & education. However there is no indication of their capacity and willingness to pay for redevelopment. In this background the SRA model of cross subsidisation through the incentive FSI seems the only viable model to facilitate slum redevelopment. Community participation, however, is crucial to all the options to ensure transparency in development process and safeguarding the interests of the urban poor.

The survey has revealed that the tenements in the slums have been bought in the informal market at a cost of around 1.8 lakhs for a house of 24 sq.m. The residents also pay regular water charges and electricity charges. Rental charges in the slum vary from Rs. 1000 to Rs. 2000 per month. The survey also showed that 46% of the households spent Rs. 300 per month on maintenance per month.

Given an option to buy affordable low-income houses on ownership or rental basis, many urban poor might like to prefer this option rather than settling down in a slum.

11. Consultation on slums and emerging issues

A process of consultation was carried out by the MTSU with the support of the Tata Institute of Social Sciences (TISS). The outcome of the consultation is outlined below -

Entitlements: The slum policy should define the entitlements of the slum dwellers in terms of tenements, amenities and infrastructure and provision of basic urban services prior to slum redevelopment. The slum residents should be entitled to a free hold collective ownership rights of the land they occupy at a concessional occupancy price. This would strengthen the bargaining position of the slum dwellers vis-a-vis the developer, facilitate institutional finance and open up possibilities of self-redevelopment. The cooperative societies could either access bank finance or could partner with a developer as a contractor to redevelop the area using the incentive floor space provision in the existing policy. Under this option the owner of the land could be compensated in terms of the FSI that is required over and above what is required to meet the cost of construction of the rehabilitation component. In case of Government land the Government agency could also be entitled to such FSI in addition to the occupancy price paid by the co-operative society of the slum dwellers in lieu of the ownership rights.

The entitlements of the slum dwellers should be clarified upfront. In case of the willingness of the slum dwellers to pay the cost of area over and above the stipulated 225 Sq. feet, they could be given the option to purchase additional area. This might improve the quality of housing and keep further densification in check. It is important that the issue of uniquely numbered ID swipe cards, which carry a photograph, fingerprint images and perhaps a retinal image, accompany the entitlements. These ID cards can then be used in a variety of databases, including in particular one that records GIS information regarding the entitlement.

Financing: Since security/ repayment of the loan is a major concern of the finance institutions, the credit worthiness of the slum dwellers societies can be enhanced through the system of cross-subsidies through the mortgage of the development rights.

Low Income Housing: The **concept of free housing (for slum residents) must be discarded, as a long-term strategy.** The Government could consider granting occupancy rights in the developed layouts to the co-operatives societies of low income groups. In the Mumbai Metropolitan area another option could be to require inclusionary zoning in large layouts, mandating a certain area of the layout to be developed for Low Income houses along with a mechanism to ensure that such houses are not cornered by the High Income Group. There has been a consensus that the public sector will have to take a more proactive role in taking up construction of LIG and EWS houses on the land belonging to the Government. In the peri urban areas where it is feasible to design and implement Town Planning Schemes; developed plots for LIG houses could also be carved out and the Government could consider funding construction of such houses either through sources like JNNURM or through institutional finance and also with PPP with FSI incentives wherever possible.

Consent: There was one view that the concept of ‘consent’ be removed in the case of slum redevelopment as this encourages malpractices and brings both money and muscle powers to dominate the decision making process. This could be replaced by freezing the tenurial rights and the entitlements of the rehab families, specifying their involvement in the planning process and adoption of mechanisms to ensure transparency in the entire development process.

Bidding Process - It was opined by some that if the owners/slum residents do not respond to the self-development model within a specified time period, the State could intervene and have the option to redevelop the plots through a transparent bidding process.

Area based approach for planning: Redevelopment should ideally follow an area-based approach with attention to the densities generated through the rehabilitation and for-sale components in totality so that due consideration is given to required infrastructure, public open spaces and carrying capacity. Additionally, the planning process should give ample consideration to maintaining and enhancing the livelihood of slum dwellers.

Accreditation: A process of accreditation of the developers and of NGOs should be undertaken by the government so as to keep the unscrupulous elements out of the slum redevelopment process.

Transit tenements: To address the issue of the shortage, of transit tenements, one of the suggestions was that MHADA should build transit camps to be rented out by the private developer for use during the construction period.

Construction of transit shelters: The Government may encourage shelters/ night shelters for migrants on a temporary basis with bare minimum facilities on payment basis. Suitable sites with supporting infrastructure and transport connectivity should be identified in the Mumbai Metropolitan Region. The Governance machinery should then ensure that no further encroachment on public lands take place.

In situ redevelopment: The slums should be redeveloped *in situ* with the exception of the slums on the right of way, vital infrastructure land, non-buildable reservations and dangerous locations. Relocation, if inevitable, should integrate with livelihood and transport infrastructure.

Sustainable development: Slum redevelopment should consider the need to mandate the environmentally sustainable infrastructure such as rainwater harvesting, waste water management solid waste management and energy efficiency, apart from ensuring open spaces. The design and layout of tenements should provide scope for innovations in the use of building material, construction technology and adaptation to climatic conditions.

Institutional Capacity: A redevelopment strategy must review the capacity of governmental institutions in terms of facilitating the planning and redevelopment process. Experience shows the limitations of both the public sector and private sector capacities to address the issue of slum redevelopment at a scale it manifests in Mumbai. A more feasible strategy could therefore be to allow both public sector and community initiatives to identify plan and implement slum redevelopment schemes in a transparent manner safeguarding the interests of the urban poor along with due cognizance of the needs of the city at large. Streamlining the

approvals through a genuine single window mechanism in a realistic timeframe is imperative to promote sustained slum redevelopment.

Strengthening the technical capacity of the planning and the regulatory agency through human resource development in house as well as outsourcing is no less vital if the target of slum reduction is to be achieved.

12. Inferences and Recommendations for Change in Slum Policy

- The studies and the consultation process have identified the advantages of following the Precinct Approach in planning slum redevelopment. The precinct approach leads to better physical layout by creating better infrastructure, open spaces and planned internal road network. Planning bigger layouts facilitate onsite transit accommodation, which is a key to any redevelopment strategy. It may also lead to better economics of the project in terms of the returns from the sale component.
- The precinct approach however makes a comprehensive and GIS based physical and socio-economic mapping of slum pockets imperative to identify and design appropriate precincts. The precincts could be delineated on the basis of road network, drains, other physical features and boundaries of the municipal councillor wards or census circle or polling booths etc. Socio economic parameters could also be considered in this process.
- Each precinct should be assessed in details in terms of existing densities, the available infrastructure and development potential, and the future densities and the feasibility of incentive FSI should then be determined keeping the carrying capacity of the precinct.
- The slums should be redeveloped *insitu* with the exception of the slums on the right of way, vital infrastructure land, non-buildable reservations and dangerous locations. Relocation, if inevitable, should integrate with livelihood and transport infrastructure.
- The planning and implementation should be transparent and include mechanisms to safeguard the rights, entitlements and the interests of the slums dwellers and ensure that they are not cheated, or forced to leave the area.
- The policy may promote a self-development option by granting collective tenurial rights to the occupants, exercisable within a time frame; in case the societies did not respond, the state may intervene to develop the area through a transparent bidding option.

- Considering the capacity of the government institutions to manage both planning and implementation of slum redevelopment, public private partnerships involving the community, expert planning agencies and developers is imperative.
- Free housing should be discarded as a long-term policy. Construction of low-income houses and temporary shelters either by the public sector agencies or in partnership with the community should be promoted by the government. New encroachments should be effectively prevented.
- Both studies illustrate the fact that high on site FSIs make redevelopment more financially feasible. At the same time the planning process needs to ensure that projects have adequate open space, ventilation and circulation.

Part B - Cessed Buildings

13. Extent of Problem

The problem of redevelopment of cessed buildings is concentrated for the island city. As per available data there were approximately 17905 cessed buildings in 1997. These buildings are dilapidated and dangerous due to massive deferred maintenance. The main cause of the problem is the 1947 Rent Control Act which has frozen the rents to amounts being charged in that year till today. As result the landlords stopped maintenance of the buildings leading to their structural deterioration. Successive acts and policies to address the issue have not yielded expected results. The Maharashtra Housing and Area Development Authority (MHADA) is responsible for repairing and redevelopment of cessed buildings.

In 1969 the Bombay Repairs and Reconstruction Board was constituted to undertake repairs of old and dilapidated buildings. However it was found that it was almost impossible for the board to redevelop the buildings within the FSI limits prescribed by the DP as the consumed FSI was much more than that prescribed. Thus the FSI norms were relaxed for redevelopment of buildings by the board. In 1986 the MHADA Act was amended to permit tenant cooperatives to undertake repairs and reconstruction and they would also get ownership of their tenement. This however remained entangled in litigations and did not make much progress. In 1995 the Government adopted a policy of providing free houses to slum dwellers by attracting the private sector through the provision of higher FSI as an incentive. It provoked a similar in demand from tenants of rent frozen buildings. The Government therefore amended the 1991 DCR to facilitate private sector participation and provide free houses to tenants.

14. Existing Policy

Provisions under the MHADA act

Redevelopment is permitted under Section 103-B of MHAD Act Under this Section tenants can apply to MHADA to acquire the cessed building and hand over the same to the society of the tenants. The FSI available for redevelopment is FSI required for rehab or 2.5 whichever is higher.

Development under Section 33(7) of DCR

Regulations for the reconstruction or redevelopment of cessed buildings in the Island City by the Landlord and/ or Co-operative Housing Societies

Each tenant gets a tenement of minimum 225 sq. ft carpet area where existing area is less than 225 sq.ft, gets the same area as existing where the carpet area is between 225 sq.ft and 753 sq.ft, and gets a maximum of 753 sq.ft where the existing carpet area is more than 753 Sq. ft

An irrevocable consent of 70 % of the occupiers is required to implement the only cessed redevelopment scheme.

The FSI for rehabilitation of existing tenants/occupiers in a reconstructed building and incentive FSI that will be available shall be determined as follows :

- (a) In case of redevelopment of "A" category cessed building undertaken by landlord and/or Co-operative Housing Societies of landlord and/or occupiers, the total FS1 shall be 2.5 of the gross plot area or the FSI required for rehabilitation of existing occupiers plus 50% incentive FSI, whichever is more.
- (b) In case of redevelopment scheme of "B" category cessed building undertaken by landlord and/or Co-operative -Housing Societies of landlord and/or occupiers, the total FS1 shall be the FS1 required for rehabilitation of existing occupiers plus 50% incentive FSI.
- (c) In cases of composite redevelopment of "A", "B" and "C" category cessed buildings declared as dangerous by the Board before monsoon of 1997, FSI available for redevelopment undertaken by the landlord and/or Co-operative Societies of landlord and/or occupiers will be as available for A category cessed buildings vide sub-clause (a) above. (d)

Category A : Buildings constructed prior to 1st Sep.1940, Category B -: Buildings constructed between 1st Sep.1940 & 31st.Dec.1950

Category C -: Buildings constructed 31st.Dec.1950 but before 30th Sep.1969

In case of composite redevelopment undertaken by the different landlords and/or Co-operative Housing Societies of landlords and/or occupiers jointly of 2 or more plots but not less than 5 plots with "A", "B" and "C" category cessed buildings the FSI permissible. will be 2.5, or FSI required for rehabilitation of existing occupiers - plus 60% incentive FSI, whichever is more: Provided, however, that if the number of plots jointly undertaken for redevelopment is six or more the incentive FSI available will be 2.5 or FSI required of rehabilitation for occupiers plus 70% incentive FSI whichever is more.

Under this provision, owner or his constituted Power of Attorney (POA) applies to MHADA along with consent of 70% tenants for redevelopment of the cessed property. MHADA after verification of tenancies and consents, issues NOC, which entitles developers to obtain BMC permission.

Development under Section 33(9) of DCR

For repairs and reconstruction of cessed buildings and Urban Renewal Schemes undertaken by the Maharashtra Housing and Area Development Authority or the Mumbai Housing and Area Development Board or Corporation in the Island City, the FSI shall be 4.0 or the FSI required for rehabilitation of existing tenants/occupiers, whichever is more.

In this case, MHADA submits the proposal for redevelopment for the buildings, which are beyond economic repairs. The FSI available to MHADA is 4.0 or FSI required for rehabilitation. In this case, MHADA has to acquire the property from the owners.

15. Inadequacy of the policy

Taking a cue from the slum policy the policy grants free houses to tenants and advocates a similar model of cross-subsidizing the tenements by sale from new construction. The incentive FSI permissible is 50 – 70 % of the rehabilitation component and is allowed to be consumed on the same site without a cap. This has resulted in densification of the areas without consideration of the available infrastructure and light & ventilation of the buildings as well as the impacts of the project on their neighbourhood. The FSI could be as high as 11 for an individual building. The policy also encourages fictitious and fraudulent inflation of

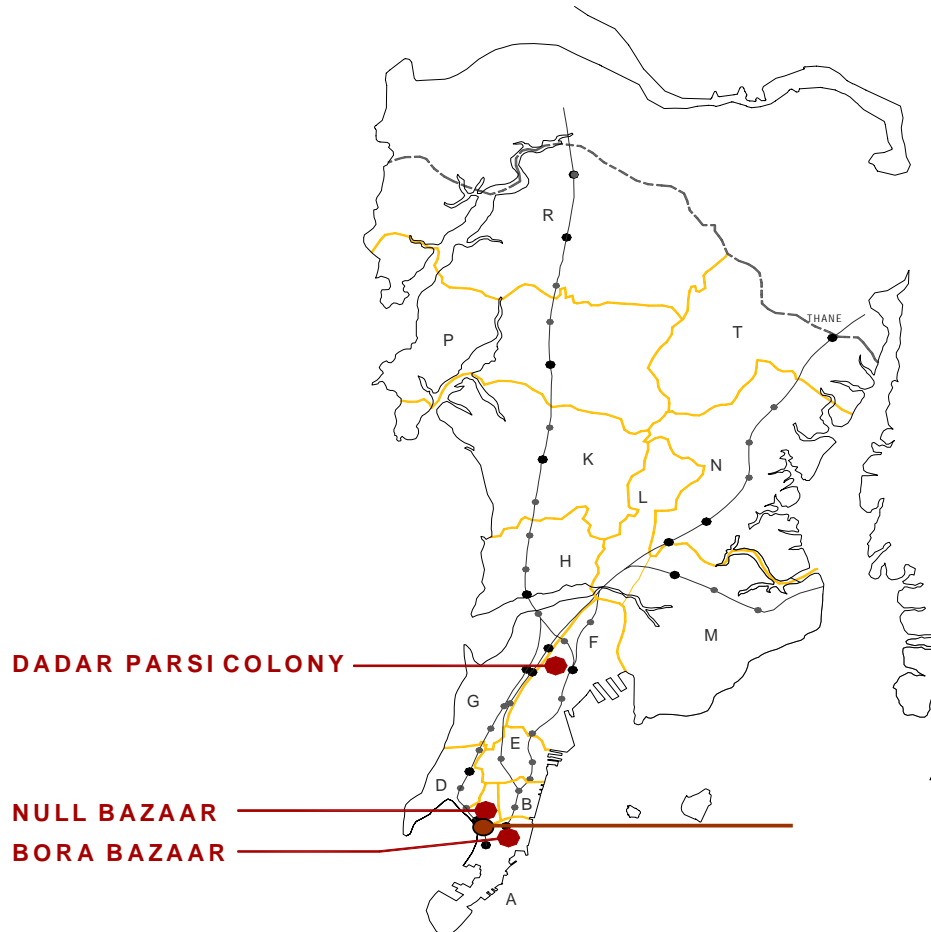
the number of tenants to get maximum benefit of the incentive FSI. The logic of cross subsidizing rehabilitation tenements through sale of new construction does not take into account demand and supply conditions of real estate market. As regards 33(7) there is nothing in the law as it stands which requires a building to be in dilapidated condition before it can be taken up for reconstruction. As a consequence perfectly sound buildings, which could easily and economically be repaired have been reconstructed only because they are cessed and to get the benefit of additional FSI. This poses a significant threat to historically significant buildings.

16. Objectives and Methodology of Cessed Buildings study

The redressal of the dilapidated conditions of the old buildings was the sole rationale that guided the policy up till the 1990s. The existing policy of providing ownership tenements to the tenants through the incentive FSI, imposed increased demands on physical and social infrastructure, which had not been taken into account earlier. The pilot studies have aimed at seeking policy response to this situation primarily through a planning and design exercise. The methodology included a socio economic survey and an in-depth physical planning and design exercise. The redevelopment options were then worked out on the basis of the distinct physical and socio-economic character of each precinct.

17. Study area profile

Four cessed building pockets giving a representative scenario of cessed buildings in the city were chosen for the pilot studies:



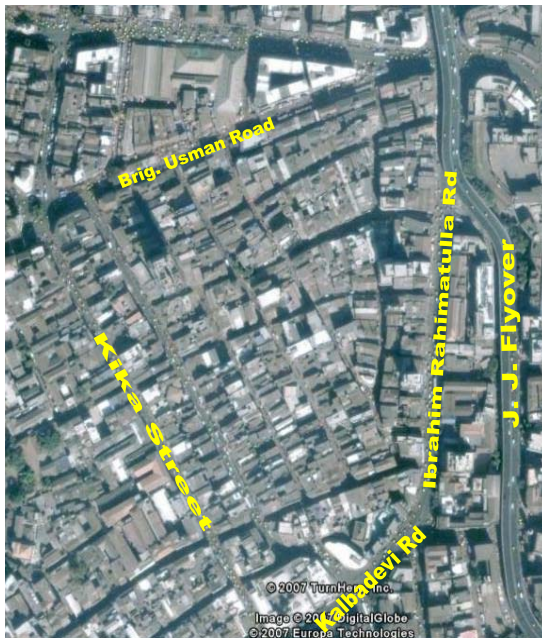
Null Bazaar Precinct

The area is located in the C Ward of the island city of Mumbai close to JJ Flyover. The precinct is bound by Kika Street on the west, Brigadier Usman road on the north, Ibrahim Rahimatullah Road on the east and Kalbadevi road on the south

Bora Bazaar Precinct

The area is located in the A ward of the island city and is at walking distance from the Mumbai CST railway station.

Dr. D.N. Road forms the boundary of the precinct on the west, Walchand Hirachand Marg on the North, Shahid Bhagat Singh Marg on the east, Sir P.M. Road on the south.



Null Bazaar



Bora Bazaar

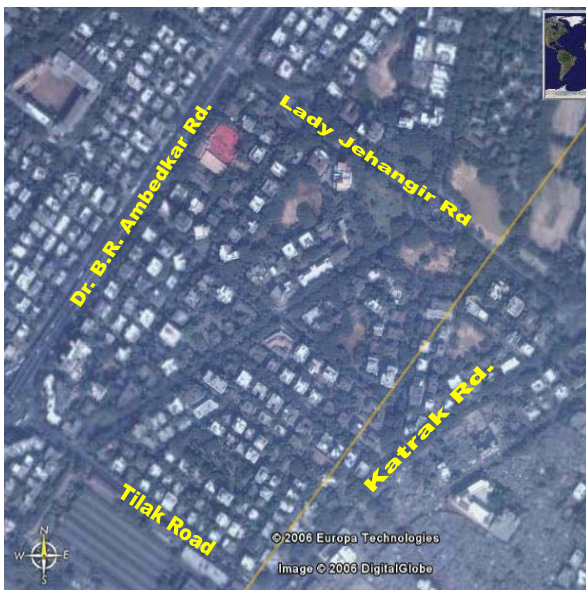
Dadar Parsee Colony

The area is located in Central Mumbai in the F North ward close to Khodadad Circle. The precinct is bound by Dr. B.R. Ambedkar Road on the west, Lady Jehangir Road on the north, Katrak road on the east and Tilak Road on the south

Girgaon Precinct

The area is located in the C / D ward of the Island city and is well connected by rail and road network.

The precinct is defined by Netaji Subash Chandra Marg on the west, Naroji Seth Road on the North, Jagannath Shankarseth Road on the East and Shamaldas Gandhi Marg on the south.



Dadar Parsi Colony



Girgaon

Key Physical and socio-economic characteristics of the precincts

Precincts	Physical	Socio-economic
Null Bazaar	High mixed use component of residential commercial and small scale manufacturing	Low affordability for self-redevelopment. 50% of precinct population having negligible savings
	0% Open space	
	Only 5% of the buildings in good condition	Majority of population live and work in close proximity to precinct with minimal expenditure on travel
	Low rise construction consuming high FSI of 3 to 4 82 % cessed buildings	56% of population ready to amalgamate
Bora Bazaar	56% of the buildings have mixed use 30% have commercial use and rest house various institutions	High resistance to any intervention within the precinct seen in the reluctance to participate in the survey.
	0% Open space	High number of commercial establishments engage in repair and maintenance regularly
	36% buildings in good condition	
	54% of the buildings consume FSI of 4 and above	
	Only 40% cessed buildings	
	High pedestrian and vehicular traffic Serious parking deficiency	
Dadar Parsee Colony	Predominantly residential precinct with 1.6% commercial component	Above 50% of the families in the precinct have monthly income above Rs 25,000
	Presence of large open space and amenities in the precinct	Majority of the people are of the opinion that the buildings are in good structural health and require no immediate attention.
	92% of buildings in good condition	75% people are against amalgamation
	Buildings have low FSI consumption	
	75% buildings come under cess regulation	
Girgaon	Balanced percentages of residential and commercial activities with a good number of amenities and institutional distribution	77% of the people prefer to stay within the rental system after redevelopment
	'wadi' typology with structured Open space	75% of the precinct has monthly income of less than Rs.10,000
	78% of the buildings are in good and average condition	
	60% buildings come under cessed regulation	
	71% buildings are G+2 or below	
	Area falls under the CRZ II	

18. Precinct strategy for redevelopment

The opinion survey showed that except in Dadar Parsee colony a majority of the residents would prefer amalgamation of plots for a better layout.

Almost all the tenants are unwilling to take up the responsibility of transit accommodation and felt that the Government should arrange for the transit accommodation. They also felt that the transit accommodation should be in a nearby area.

The redevelopment aspirations of the people in the order of priority included open spaces, broad roads, schools, shopping, amenities and other infrastructure. People in Null Bazaar desired more religious places in spite of existing high number of religious places. Water supply was an important aspiration for people from Bora Bazaar.

Each precinct has different physical and socio economic characteristics. The redevelopments options for each precinct are accordingly different and distinct as described below.

Table – 12
Observations and Strategies for Redevelopment of Precincts

Precinct	Observations	Strategy for Redevelopment
Null Bazaar	82% of the buildings are cessed and Willingness of the residents to amalgamate Low affordability of residents to pay and contribute to transit tenements	Full precinct redevelopment through amalgamation, within a short time period under the provision of 33(7) of the DCR
	Immediate intervention warranted to redress the poor precinct condition	
Bora Bazaar	Only 38 % of the buildings are cessed ; Poor infrastructure to support the commercial nature of the precinct	Proposal to create East –West corridor and resettle the buildings affected to alternative plots; develop the centre of the precinct as a commercial plaza
	Immediate redevelopment not required	Phase wise redevelopment of the plots in the precinct under the provision of 33(7) of the DCR
Dadar Parsi Colony	Precinct has heritage value as it is a planned garden precinct Majority of the buildings are residential, cessed and in good condition	Option 1. Allowing plot-wise development with common guidelines for redevelopment regarding open spaces, building heights and built form typologies based on existing street widths or an FSI of 1.33 whichever is higher.
	High income level to maintain the property Unwillingness of the residents to amalgamate plots No immediate intervention in the precinct warranted	Option 2. Conserving existing fabric by strategic deployment of Incentive FSI on only particularly dilapidated sites, providing maintenance for the heritage fabric
Girgaon	Buildings are better maintained as many of the landlords are residing in the same building and better understanding with the tenants Amalgamation of plots feasible due to single landlord of the wadi Possibility of redevelopment along wadi typology with owners maintaining after redevelopment	Option 1 – Repair Model A mechanism where Residents take up responsibility for self-maintenance Option 2. Conservative Surgery A phase wise development conserving the wadi typology. Each building takes up redevelopment individually irrespective of neighbouring plots. Exemption from CRZ necessary

Table – 13

Null Bazaar Redevelopment Strategy

Built form	Finance					
	Financial Implications					
	Incentive FSI (50% of rehab area)	FSI Breakup	Sale Price	Tenant compensation	Landlords compensation	Profits
Amalgamations – 6 – 8 Plots Public Open Spaces - +2.23% Private Open Spaces - +24.2% Road Areas - +0.98% Footpaths – +6.05%	20% of total rehab area on site 30% as TDR	80% residential 20% commercial 70% residential 30% commercial 50% residential 50% commercial 100% commercial	Rs 7000/- Rs 9000/- Rs 7000/- Rs 9000/- Rs 7000/- Rs 9000/- Rs 9000/-	Free House Free House Free House Free House	20% of project costs 0.3 FSI 0.3 FSI 0.3 FSI	Loss Breaks Even 5% Profit 15% Profit
Amalgamations – Entire Block Public Open Spaces - +2.15% Private Open Spaces - +14.4% Road Areas - +2.21% Footpaths – +12.65%	20% of total rehab area on site 30% as TDR	80% residential 20% commercial 70% residential 30% commercial 50% residential 50% commercial 100% commercial	Rs 8000/- Rs 10000/- Rs 8000/- Rs 10000/- Rs 8000/- Rs 10000/- Rs 10000/-	Free House Free House Free House Free House	20% of project costs 0.3 FSI 0.3 FSI 0.3 FSI	Loss Breaks Even 15% Profit 25% Profit

**** Operatives for redevelopment**

Maximum shop frontage or developing multi-level commercial areas within the precinct

More public areas along the shop

Provision of open spaces within the precinct

Provision of community spaces at the building level and around religious institutions

Better light and ventilation conditions

Improved movement pattern

Sustainable model for redevelopment assuming the possibility of amalgamation of plots

(Project implemented by Tenant co-operative society. (FSI given to the landlord is within the incentive FSI on site)

The property rates are based on the Ready Recknor Prices for the year 2006 and Market survey)

Table - 14
Bora Bazaar Redevelopment Strategy

Built form	Finances		Planning and Implementation
	Incentive FSI	Financial Implications	
Proposal to create East –West corridor and resettle the buildings affected to alternative plots; develop the centre of the precinct as a commercial plaza	Incentive FSI of 15% of rehab area Enough for cross subsidizing the redevelopment and the infrastructure cost, and avoiding over densification	The additional incentive FSI is used for complete commercial exploitation, which finances the redevelopment and additional infrastructure. Tenants and landlords can regularise property for commercial exploitation	Societies of owners and occupants (Both commercial & residential) within the precinct plan and take up the development Heritage character of the precinct to be maintained
Phase wise redevelopment of the plots in the precinct under the provision of 33(7) of the DCR	Self redevelopment	Tenants and landlords can regularise / convert property for commercial exploitation	Societies of owners and occupants (Both commercial & residential) within the precinct plan and take up the development Heritage character of the precinct to be maintained

Operatives for redevelopment

To quickly reconstruct the buildings in dilapidated state in manner that adds value to the precinct

Create framework for redevelopment of other buildings in phased manner that improves open spaces, parking and circulation pattern

Table - 15
Dadar Parsi Colony Redevelopment Strategy

Built form	Finances	Planning and Implementation
Option 1. Allowing plot-wise development with common guidelines for redevelopment regarding open spaces, building heights and built form typologies based on existing street widths or an FSI of 1.33 whichever is higher	Incentive FSI to the extent of cross subsidizing the redevelopment and the infrastructure cost and avoid over densification	Societies of owners and occupants within the precinct plan and take up the development. In the long run Dadar Parsi Colony Area should gradually be taken out of the Rent Control Act by telescopic increases in rent, over a fixed period of time.
Option2 – Conserving existing fabric by strategic deployment of Incentive FSI on only particularly dilapidated sites, providing maintenance for the heritage fabric	Incentive FSI to the extent of cross subsidizing the redevelopment and the infrastructure cost and avoid over densification	Societies of owners and occupants within the precinct plan and take up the development

Operatives for redevelopment

Accelerate reconstruction of dilapidated buildings without excessive FSI particularly where the road widths and open spaces are not conducive to high rise construction\

To facilitate redevelopment of average buildings over a period of time by consolidating fragmented setback areas into more usable open spaces

Create additional floor space at locations having wider roads and larger open spaces to cross subsidize repairs/reconstruction of remaining buildings without additional FSI

Girgaon

Traffic Proposal

- A North-South vehicular road is proposed along the burial grounds
- Three main East-West roads are proposed to be extended as pedestrian connectors to increase accessibility

Table – 16
Repairs and Redevelopment Strategy

Builtform	Finances		Planning and Implementation
	Strategy	Break-up of monthly maintenance	
<p>Option 1 – Repair Model</p> <p>A mechanism where Residents take up responsibility for self-maintenance</p>	<p>Setting up a co-operative society of owners and tenants which maintains the building</p>	<ul style="list-style-type: none"> • Sinking funds for major repairs • Regular maintenance charges 	<ul style="list-style-type: none"> • The co-operative society would collect monthly maintenance charges from tenants as well as owner (In case the owner also resides in the building)

Built form	Finances					Planning & Implementation
Option 2 – Conservative Surgery A phase wise development conserving the <i>wadi</i> typology. Each building takes up redevelopment individually irrespective of neighbouring plots.	Incentive FSI	FSI Break-up (sale component)	Sale Price	Tenant’s compensation	Landlords compensation	Project implemented by Tenant co-operative society.
	25% of rehab area (The building heights have to be maintained within the CRZ regulations height)	20% commercial 80% residential	Rs.12,000 / sq.ft. Rs.11,000 / sq.ft.	Free house	20% of the total project cost	

The property rates are based on the Ready Recknor Prices for the year 2006 and Market survey)

Operatives for redevelopment

Addressing dilapidation

Conservation of existing open space structure

Conservation of wadi typology

Creation of new wadis in cases where accessibility is a problem

Allowing amalgamation of buildings in bad condition so as to use immediate redevelopment as an opportunity to reconfigure and reinstate the wadi typology and open spaces

After the first set of bad buildings have been redeveloped, the individual buildings to take up redevelopment as and when they want

19. `Consultations on Cessed Buildings and emerging issues

It was also very strongly expressed that there should not be a blanket policy on cessed buildings and chawls. The cooperative societies of the owners and tenants should be allowed to decide among various options for repair or reconstruction. If undertaking self-development, the surplus FSI should first be offered to the landlord and tenants based on the cost recovery of redevelopment. This may enhance the quality of houses and keep over densification of the precinct at bay. The intervention of the developer in the self-development model should be through a bidding process managed by the cooperative society itself. All the basic principles laid down for slum redevelopment are to be followed in the case of cessed buildings and chawls as well.

It was strongly advocated that the cluster/precinct approach be incentivised as it would not only foster better usage of FSI, but would also prevent developers from taking advantage of divisions among residents of the various buildings in the area by negotiating separately with each building. In this model, the precinct would collectively take the decisions with regard to redevelopment or repair.

- The need to move away from the focus on reconstruction and to consider repair as a viable alternative on a precinct-to-precinct basis was emphasized. It was also mooted that the assessment and classification of buildings in terms of their structural soundness be done by a specially constituted committee with external experts. The current practice of having assessments done by a committee of three government engineers' vests too much power in a few hands. The committee should also lay down the criteria for assessment of the stability of a building.
- MHADA to take a more proactive role in providing transit tenements

20. Inferences and Recommendations for Policy Change

The studies indicate distinct advantages of the precinct approach in planning inner city renewal by creating better layouts with adequate open spaces and planned internal road network. It may also assist in developing on site transit camps.

- It may also lead to better economics of the projects in terms of pricing and returns from the sale component.
- The approach also underlines the significance of physical planning for areas of comprehensive development such as inner city redevelopment as mentioned in the Section 33 of the MRTP Act. Ideally such plans should go hand in hand with the redevelopment policy.
- It is imperative that a comprehensive physical and socio-economic mapping of cessed buildings on a GIS platform to be undertaken and these should be grouped into precincts. The planning authority or MHADA should undertake such an exercise. The parameters of road grids, socio economic characteristics of the area and population should be considered for defining the precinct. The political and demographic units such as electoral ward and census areas could also be the additional considerations.
- A redevelopment scheme could be of cluster having 25 to 50 plots within the boundary of the four roads. The area wise cluster like Khotachiwadi, Nagpada, Kamathipura, Agarbazaar, Madanpura etc. can be undertaken.
- All the cessed buildings, non-cessed buildings, reconstructed / redeveloped buildings, irrespective of their present conditions should be included in the cluster development.
- Each precinct should be assessed in details in terms of the available infrastructure and development potential and an FSI be then worked out based on the same.
- Role of the Govt./MHADA should be of a facilitator and could comprise of :
 1. Identification of the precinct and preparing a comprehensive development plan of the precinct area in accordance with section 33 of the MR&TP Act.
 2. Preparation of the redevelopment scheme in accordance with the plan and facilitate convergence of stakeholders.
 3. Appointment of or supporting the bidding process for fixing the agency in association with the cooperative societies of the owners and tenants.
 4. Act as “Single Window” for clearances.
 5. To facilitate shifting of occupiers in transit camp and in the newly constructed buildings
 6. Monitoring the scheme and setting up a mechanism of grievance redressal
- The Rent Control Act needs to be amended to gradually phase out standard rents

Part C: Sahakar Nagar Redevelopment Study

The Sahakar Nagar study tries to evolve a redevelopment model for colonies built by Government agencies such as MHADA, MCGM etc. In case of MHADA properties, the ownership of the land has been transferred to the Cooperative Societies of the occupants.

21. Background

One of the issues in the inner city renewal is the redevelopment of government built housing colonies such as the BDD and BIT Chawls, constructed to provide rental accommodation to the low-and middle-income working class population. Most of the buildings have tenements of areas ranging from 180 sq.ft. to 350 sq.ft. Later,



MHADA also constructed buildings for lower- and middle-income groups on its land and allotted this to the Cooperative societies of the occupants on lease. In due course of time the land was transferred to the co-operative societies of the tenants and, each tenant became the owner of his tenement. However the open spaces in the layout and a few tidbit plots remained with MHADA. MHADA has now granted additional FSI to these buildings. The consumed FSI in the area is 0.8 and FSI permissible in that area as per DCR 1991 is 1, thus the balance of 0.2 and additional 0.2 under DCR 33(5) has made the available FSI as 1.2, Over and above this, additional FSI in the form of TDR can be purchased. However the maximum FSI permissible on site is 2. Redevelopment is taking place in individual plots and in most cases each society is being redeveloped by a different developer. In many cases, there have been disagreements between the societies and between MHADA over the plot boundaries of the societies. Such a development has resulted in inadequate appurtenant spaces, tidbit plots and unbuildable plots. Redevelopment of the individual plots has been happening using TDR without much consideration to the infrastructure required for the increased population.

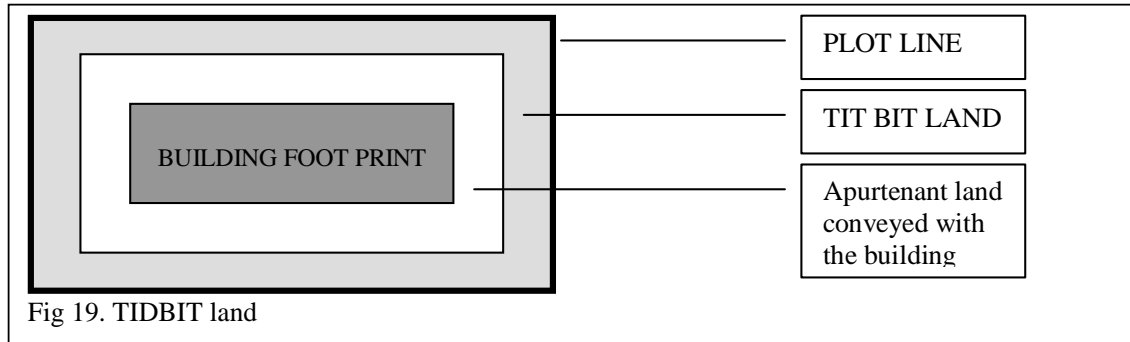


Fig 19. TIDBIT land

TID BIT Lands are lands that are within the plot area of a building, but are not conveyed along with the building and remain the property of MHADA.

22. Objectives of the study

The objective of the study is to look at the possibilities of developing such lands in a manner that not only benefits the residents in terms of better housing stock but also the area in terms of better amenities open spaces and infrastructure. Some benefit could also go back to the Government Agency, either in terms of affordable housing stock or revenue flows to augment physical infrastructure. The objective is to ascertain the benefits of a Master Plan or precinct approach for redevelopment initiated by the co-operative societies (instead of a developer), thereby promoting sustainable development.

23. Area Profile

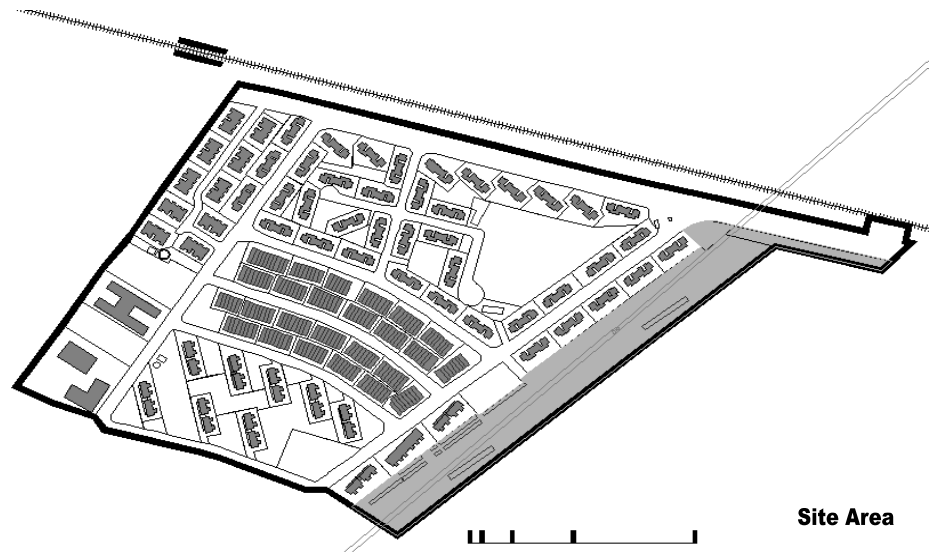
Sahakar Nagar is located in the 'M' Ward of Mumbai in Chembur and is well connected by rail and road. It is at a walking distance from the Tilak Nagar Railway station on the Harbour Line. It is located on land belonging to MHADA, bearing C.T.S. nos 49-58 & 60. It is flanked by the harbour line on the north, the Eastern Express Highway on the east, the Tansa pipeline on the west and Kurla station road on the south.

Key Characteristics

- Sahakar Nagar is a planned development. It has 4 housing societies respectively named as Sahakar Nagar1, Sahakar Nagar 2, Sahakar Nagar 3 and Sahakar Nagar 5. Sahakar Nagar 4 is physically disconnected from this ensemble and hence is not part of the area of study. The present status of the colony shows a state of disrepair and dilapidation.

- Currently Sahakar Nagar 1 has 39 buildings of three storeys each with a total height of 11m housing 488 tenements. Sahakar Nagar 2 has 200 ground storey structures of a total height of 5m. Sahakar Nagar 3 has 11 four storied buildings of a total height of 14 m housing 352 tenements each. Sahakar Nagar 5 has 10 buildings of 5 floors each of a total height of 17 m.
- Total area of Sahakar Nagar covers an area of 144355 sq m with an area of 17,922.95 sq m under encroachments. With a total number of tenements excluding encroachments being 1240 the population on this site is 6200 persons.
- Present density of Sahakar Nagar is 620 persons per hectare or 124 households per hectare.
- Current land use shows a purely residential area with reservations for playground, secondary school, primary school, police housing and public housing. While most of the area is residential, the belt to the east is encroached.
- Sahakar Nagar has large number of trees, which the residents prefer to maintain in the new scheme. The present open spaces are haphazard and not optimally used.

- The colony has been home to lower income Shell colony employees. Current economic status of the households ranges from lower middle class to middle class



status for whom the high maintenance costs required to be paid for new developments is a matter of deep concern. Any redevelopment of this area hence needs to consider financial models to ease the maintenance issues.

Current Development status of the area

In Sahakar Nagar 1, out of a total of 39 buildings, 8 buildings, covering a plot area of 6,519.93 sq m, are already developed or are in the process of development. The rest of the 32 buildings, disillusioned by the land grabbing history of several developer groups and their unsustainable solutions, have come together to self develop their properties. The accompanying plate shows the buildings that cannot be developed under the master plan.

Sahakar Nagar 5 is yet not ready to develop. On the other hand Sahakar Nagar 2 and 3 have shown interest.

Hence this proposal deals with only Sahakar Nagar 1,2 and 3 excluding the 8 buildings in Sahakar Nagar 1.

24. Redevelopment Strategy

- The precinct based Self Development model encourages communities to take up development of their own properties with technical help from experts appointed by the community. The community itself will use some of the profits of the development for sustaining the maintenance of the new residential buildings in the future. This financial model can also ensure that part of the profit is channelled via MHADA into city infrastructure.
- Area of all the plots with DP Reservations is subtracted from the overall area for planning.
- Eight buildings that have not agreed for redevelopment in Sahakar Nagar 1 are excluded
- Sahakar Nagar 4 is excluded as they have not agreed for redevelopment
- Societies do not want to merge and hence their boundaries are treated as roads
- The space between buildings are used to plan new buildings as this minimizes transit
- The existing trees are un-touched as far as possible

Table - 17						
Sahakar Nagar 1						
Built form	Finances					
	Financial Implications					
	Incentive FSI	FSI Breakup	Sale Price	Payment to MHADA	Rate of TDR	Profits
Amalgamation of Sahakar nagar 1, 2 and 3 as one town-planning scheme with planned open spaces and road network.	Total Redevelop. Built Up is 50.47% Sale is 49.53%	FSI on redevelopment plot is 1.41 while FSI on sale pot is 2.36 with total FSI being 1.76. This shows that the sale plot has a higher FSI presumably for higher income levels Gross Area for Redevelopment is 63.09 % while Gross area for sale is 36.91%	Sale price for Residential units = Rs. 3500/ sq ft. Sale price for Commercial units = Rs. 5500/sq ft.	For tit bit plots @ Rs 3255 per Sq.ft Rate to MHADA Payment to MHADA for NOC for TDR for commercial @ Rs 105.04 /sq ft. For residential @Rs. 70.03 /sq ft.	Market Rate of TDR at Rs. 2500/ sq ft. In this case only 76% of the TDR is bought	This financial arrangement gives a corpus of Rs 181566577 i.e. A total corpus of Rs 504352 per tenement.

Table - 18						
Sahakar Nagar 2						
Built form	Finances					
	Financial Implications					
	Incentive FSI	FSI Breakup	Sale Price	Payment to MHADA	Rate of TDR	Profits
Amalgamation of Sahakar nagar 1, 2 and 3 as one town-planning scheme with planned open spaces and road network.	Total Redevelopment Built Up is 49.15% while sale is 50.85%	FSI on redevelopment plot is 1.31 while FSI on sale plot is 2.82 with total FSI being 1.8 . Higher FSI presumably for higher income levels. Gross Area for Redevelopment is 67.54% while Gross area for sale is 32.46%	Residential units = Rs 3500/sq ft. Commercial units =Rs. 5500/ sq ft.	@Rs 3255 per Sq. ft for tit bit plots. Payment for NOC to MHADA for TDR for commercial @Rs 105.04 per sq ft. For residential @Rs 70.03/sq ft.	Market Rate of TDR at Rs. 2500 per sq ft. In this case only 80 % of the TDR is bought	This financial arrangement gives a corpus of Rs 146413811 i.e. A total corpus of Rs 415948 per tenement.

Table - 19						
Sahakar Nagar 3						
Built form	Finances					
	Financial Implications					
	Incentive FSI	FSI Breakup	Sale Price	Payment to MHADA	Rate of TDR	Profits
Amalgamation of Sahakar nagar 1, 2 and 3 as one town planning scheme with planned open spaces and road network.	Total Redevelop Built Up is 44.28% while sale is 55.72%	FSI on redevelopment plot is 1.29 while FSI on sale pot is 3.55 with total FSI being 1.76. This gives higher FSI on sale plot presumably for higher income groups. Gross Area for Redevelopment is 68.6% while Gross area for sale is 31.40%	<p>Sale price for Residential units =Rs 3500/ sq ft.</p> <p>Sale price for Commercial units -Rs. 5500/ sq ft.</p>	<p>For tit bits and other plots @ Rs 3255 per sq ft.</p> <p>Payment for NOC to MHADA for TDR for commercial - @ Rs 105.04/sq ft.</p> <p>For residential- @Rs 70.03/sq ft.</p>	<p>Market Rate of TDR at Rs. 2500 per sq ft.</p> <p>In this case 100% of the TDR is bought</p>	<p>This financial arrangement gives a corpus of Rs 146413811 i.e. A total corpus of Rs 415948 per tenement.</p>

Inferences

- FSI should be as much as required to rehabilitate the existing population (along with a consideration of some additional area for existing families to accommodate growing family sizes*) and not more than 2 FSI, which ever is lower.
- Spot FSI on land set aside for sale should be allowed to be higher as sale buildings can afford to go higher. However overall FSI (including sale and rehab) should not be more than 2.
- Master plan approach is good as it would generate possibilities of integrated development and also reduce transit costs as spaces between existing buildings can be used to build new buildings.
- Care should be taken to conserve existing green cover.

* This will provide an incentive for families to agree to redevelop. However the additional area given should not be more than 25% of the existing area.

Part D - Transit Oriented Development

25. Background

Considering the scarcity of land, it is often demanded that Mumbai should have higher FSI. Comparisons of Mumbai are made with cities like Singapore, New York that have allowed higher FSI in their Business Districts. There are grave concerns on the other hand, about an overall high density of population in Greater Mumbai and crumbling infrastructure. The objective of the Transit Oriented Development Pilot study was to identify the potential of more dense development and relatively higher FSI in areas having adequate transport and other types of infrastructure for planning dense development. Here an underlying assumption is that in a city like Mumbai, a sector specific development should be considered in conjunction with the carrying capacity of that sector, rather than a uniform FSI.

26. Principles

Transit Oriented Development (TOD) is generally defined as development of an area that is located within a 10 minutes walking range or approximately 0.8 km from light rail, heavy rail, or mass transit system such as bus rapid transit corridors. In some communities, water transit also supports TOD. A mix of uses, including housing, retail, office, research,

hospitality and entertainment and other activities characterize the TOD. Since it promotes pedestrians movements and more balanced use of transit facilities. It also involves development at higher than typical densities, to take advantage of transit proximity, and planning and design elements that encourage walking.

The principles of TOD are to:

- Organize growth on regional level to be compact and transit supportive
- Place commercial housing, jobs, parks and civic uses within walking distances of transit stops
- Create pedestrian friendly street networks that directly connect local destinations
- Provide a mix of housing types, densities and costs
- Preserve sensitive habitats, riparian zones and high quality open spaces
- Make public spaces the focus of building orientation and neighbourhood activity
- Encourage infill and redevelopment along transit corridors within existing neighbourhoods

(Source: Time saver standards for Urban Design – Donald Watson, Allan Plattus, Robert Shibley & Planning and Urban Design Standards, APA)

27. Brief description of the study – layout proposed

The study was carried out for Bandra Kurla Complex (BKC). The BKC has been developed as the Business District by the MMRDA, which owns the land and is also its Special Planning Authority. The MMRDA is planning and developing an MRTS (Metro Rail System) through the BKC. The MRTS line from Charkop - Bandra to Mankhurd is planned to pass through the BKC. Two metro stations opposite ICICI Bank and the Citibank are proposed within the BKC before the line goes into Kurla and further to Mankhurd.

The objective of the study was to delineate a zone of influence of the Transit Node at ICICI Bank and propose a set of options of more dense commercial development mixed with some residential use for a precinct defined by 10 minutes walking distance from the proposed metro station. The objective of the study was to study the existing DCR in the influence zone and assess the potential of the land based thereon, evolve and evaluate alternative development proposals based on most optimum and efficient land use, and propose an area development plan along with amended zoning FSI and DCR. The study was also expected to assess the infrastructure potential of the area for the proposed TOD and also give a financial analysis of different development alternatives.

28. Existing policy

The existing policy of FSI in Mumbai permits a general FSI of 1.33 in the Island City and 1 in the suburbs. In case of the BKC, the FSI is set at 2 for commercial uses and 1.5 for residential uses. The Government has permitted higher incentive FSI by amending the DCRs for slums, cessed buildings or specific areas/uses.

In the BKC, the policy of the MMRDA is to dispose of developed plots with 2 FSI to different institutions through a bidding process.

29. Broad Findings

a. The influence zone: The study identifies (which is supported by the definition of the TOD in the literature) an area of about half a kilometre around the transit point, which is within less than 10 min walking distance, as the area of influence. By its nature therefore the TOD precinct will be exclusively pedestrian with provision for segregated public transport facility at different levels of the proposed metro station.

b. Design implications of Pedestrianization:

c. Densified non-residential use: The focus of TOD would be more on commercial use of the area in order to ensure low public ground area requirement to enable high density development

Table - 20	
Population Density	
(Persons per gross hectare for the overall development)	
Day time	1235 ppl/Ha
Night time	90 ppl/Ha
Public Ground Area per person* (sqm per capita)	
Day time	3.52 sqm/person
Night time	47.6 sqm/person

e. Employment generation: The existing potential of employment generation in Block G and in the proposed options is indicated in the following table

Table – 21

Employment Generation in Different options

	Option 1 Existing Landuse Designation	Option 2 Maximum Commercial	Option 3 Emphasizing Residential belt near Mithi	Option 4 Mixed use
Household Population	3,051	6,106	18,468	31,775
Employment Generated	60,090	1,42,973	11,4011	76,169
Overall Composition				
Household Population	10,601	13,656	26,018	89,325
Employment Generated	1,98,046	2,80,930	2,51,967	2,14,126

f. Implications on infrastructure: The implications of different options of TOD are given in the following table. The study indicates the availability of water, sewerage and power infrastructure though the storm water drain capacity would require enhancement. (Elsewhere the availability of this infrastructure may have to be ascertained and also factored into the project cost)

Table – 22

Infrastructure requirement for different options

Infrastructure	Option 1	Option 2	Option 3	Option4
	Existing designation of land use	Maximum commercial	Emphasizing residential belt along Mithi	Mixed use
Residential				
Water Supply(lit/day)	4,57,681	9,15,883	27,70,186	47,66,190
Sewage (lit/day)	4,11,913	8,24,298	24,93,168	42,89,571
Electricity (KW/day)	5,633	11,272	34,095	58,661
Commercial				
Water Supply(it/day)	27,04,028	64,33,791	51,30,478	34,27,622
Sewage(it/day)	24,33,625	57,90,412	46,17,430	30,84,860
Electricity (KW/day)	1,34,600	3,20,260	2,55,384	1,70,619
Total				
Water Supply(it/day)	31,61,709	73,49,673	79,00,664	81,93,812
Sewage (it/day)	28,45,538	66,14,706	71,10,598	73,74,431
Electricity(KW/day)	1,40,233	3,31,532	2,89,478	2,29,280

Assumptions for Table 21, 22

- * 6-10 sqm generated 1 job
- Average size of household – 5 people
- Average area of household – 50 sqm (25%),100 sqm (25%),150 sqm (50%)

g. Change in FSI and DCRs: The study has indicated four options of mix land use (varying degrees of residential & commercial). The zoning and the DCR would depend on the option that is considered appropriate by the Planning Authority for that area.

30. Lessons for replicability

For replicating the proposed model criteria for designating Transit Oriented Development nodes needs to be evolved. Feasibility of delineating a pedestrian zone around a major mass rapid transit point along with the availability of other infrastructure could be the primary criteria for this purpose. Each TOD could be unique in landuse and design would therefore require a different spatial plan and development control regulations.

The replication of such a model on an existing suburban railway station needs to be examined through a detailed study

31. Revenue Generation Potential

In case of Government or Public Land, the net revenue generated could be appropriated by the Government. In case of private land within the TOD area, part of the revenue generated could be captured by the MMRDA by charging a premium on the additional FSI, levying value based development charges and property taxes.

Table – 23

Revenue Generation potential of different options

Type of use	Option 1	Option 2	Option 3	Option4
	Existing designation of land use	Maximum commercial	Emphasizing residential belt along Mithi	Mixed use
Residential	Rs.578 crore	Rs.1,331 crore	Rs.4,026 crore	Rs.6,928 crore
Commercial	Rs.7,354 crore	Rs.20,999 crore	Rs.16,745 crore	Rs.11,187 crore
Total	Rs.7,933 crore	Rs.22,331crore	Rs.20,772 crore	Rs.18,115 crore

Note: The TOD study is being worked on to look at the impacts of proposed TOD on the influence zone and its implications in the entire BKC. The study is not yet complete.

Refer Annexure-1 for Tables 21,22,23

32. Broad Conclusions of the Pilot Studies

The collective studies reveal that a precinct approach to development needs to be adopted for inner city renewal, slum rehabilitation as well as transit oriented development. This precinct approach should be informed by studies of infrastructure requirements. This approach would minimize the negative fall out of the existing isolated plot development approach, which occurs regardless of the infrastructure capacity of the area.

The pilots have reinforced the thesis that amalgamation makes it possible to have more contiguous open spaces, with better light and ventilation and amenities. Due to availability of more open space on the ground, open spaces required for residential use can be separated from those required for commercial establishment.

The studies also indicate that large plot amalgamations may reduce project costs and fetch better revenues from free sale structures.

The stakeholder consultation process, based on the observations in the pilot studies and the draft housing policy of the Government of Maharashtra has raised several issues of entitlements, equity, livelihood, density and liveability as the parameters of redevelopment process.

This also flagged legal, institutional and governance issues that are fundamental to housing and urban reforms. A series of meetings with different stakeholder groups focused on the past and existing policy frameworks of both redevelopment of cessed buildings and slums and highlighted the weaknesses and institutional capacity issues therein. These deserve focussed attention and intervention in order to make urban renewal policy more meaningful.

In order to pursue a precinct or cluster approach of redevelopment, a GIS based mapping and identification of precincts become imperative as the first step of the planning process. This role can be performed by a planning authority like the MCGM or MHADA or SRA, which could be authorised by the state government for this particular purpose.

Precinct level planning including physical and socioeconomic mapping of the area is the next logical step, which the planning authority can pursue in collaboration with the local stakeholder groups and the representatives of the civil society. The formulation of the precinct plan in case of cessed buildings could follow the framework of a Comprehensive Plan under section 33 of the MR&TP Act.

A time bound programme for mapping, identification of precincts and making comprehensive precinct plans based on local needs and priorities for repair or redevelopment needs to be evolved.

In case of both slum redevelopment, urban renewal, cessed building repair an option should be given to the federation of cooperative societies of owners/ occupiers to plan and redevelop the precinct under the existing Government policy. In case they did not exercise the option, the government could intervene, plan and implement the scheme in collaboration with the community.

To facilitate the urban renewal of old areas as well as redevelopment of slums, MHADA should construct the transit tenements, spread out in different areas for renting out to the promoters or developers of slum or cessed buildings schemes.

Though the studies did not address this issue directly, the consultation on the slums highlighted the need to discourage free housing and construction and facilitation of low income housing stock and shelters to prevent slums on a sustainable basis.

The study on the TOD underlines the approach to promote high-density development around transit nodes and also highlights the revenue generation potential of such a strategy.

The availability of amenities, infrastructure and over all carrying capacity of the precinct brought out by the studies as the guiding principle of urban renewal and planning high density development, should be the foundation of planning a world class city.

33. Recommendations for Policy Changes

The CRZ rules will need to be amended to facilitate the redevelopment of the cessed buildings and of the slums falling in CRZ II areas. General review of CRZ rule would be warranted to permit high-density development around the transit nodes also.

It is also recommended that the privilege of using higher incentive FSI for redevelopment of cessed buildings and in the TOD and other special plan areas should be subject to the payment of the market value based development charges.

It is proposed to amend the MR &TP Act to facilitate the levy of Development Charges on the basis of the capital value of the property under development along with the condition that such charges should be used to function infrastructure in the affected area, ULB or Special Planning Authority. The details of other policy changes are given below.

Table - 24
Final Recommendations on Slum Policy

No.	Recommendation	Legal framework	Amendments required	Concerned Agency	Remarks
1	GIS mapping of all existing slums	Slum improvement act 1976	Policy GR	SRA, With the help of MCGM Settlement Commissioner, MRSAC	The activity should be targeted for completion in 12 months
2	Socio-economic survey of all existing slums	Slum improvement act 1976	Policy GR	SRA with the help of MCGM, NGOs and CBOs and Academic Institutions	The activity should be targeted for completion in 12 months. Can be Concurrent with GIS mapping
3	Issue of uniquely numbered ID swipe cards carrying fingerprint and photo, for all residents	Slum improvement act 1976	Policy GR	SRA with the help of MCGM, NGOs and CBOs and Academic Institutions	The activity should be targeted for completion in 12 months. Can be Concurrent with GIS mapping
4	Grouping & Demarcation of the mapped slums into Precincts	Sec 33 or Sec 40 of the MRTP Act	Slum Policy and Resolutions & Amendments in DCR	SRA, MCGM, NGOs and CBOs	12 months
5	Prioritisation of precincts for redevelopment	Sec 33 or Sec 40 of the MRTP Act	Criteria/ guidelines for precinct delineation Structured participation of the stakeholders	SRA/ MCGM	Phased programme of 5 years in order of priority
6	Comprehensive Redevelopment Plan for each precinct	Sec 33 or Sec 40 of the MRTP Act	Policy GR & Amendment in the DCR	SRA/ MCGM	Slums on infrastructure, dangerous and high value lands could be taken up on priority

No.	Recommendation	Legal framework	Amendments required	Concerned Agency	Remarks
7	Clarifying Entitlements of slum dwellers	(Sec 3B of Slum Act – Slum Rehabilitation Scheme) DCR 33(10)	Collective tenurial rights Amendments in SRA Policy; Policy of R&FD	SRA/ MCGM Housing Dept and Revenue & Forest Dept. (R&FD)	
8	Self Redevelopment of prioritised precincts	Existing SRA Scheme DCR33 (10)	Timeframe for taking up self redevelopment; State intervention on elapsing of timeframe	SRA/ MCGM	6 months for submission of formal proposal and 6 months for starting the redevelopment work on all approvals
9	Accreditation of Developers and Empanelment of NGOs	-	Slum policy	SRA	
10	Bidding Process for redevelopment	Existing SRA Scheme DCR33 (10)	Modifications to ensure transparency in the process	SRA	Simultaneous after examining the response of the Slum Co-operatives
11	Provision of Temporary/ Permanent Transit tenements	DCR 33(14)	-	SRA, MHADA	
12	Provision of Transit Shelter/ Night Shelters	DCR 33(14)		MHADA	
13	Inclusionary Zoning	DCR	In DCR	MCGM	
14	TPS Schemes in Peri-Urban areas	Sec 51 of MRTP Act	-	MMRDA/ ULBs in MMR along with CIDCO	12 Months

Table - 25
Final Recommendations on Cessed Building and Public Sector Housing Redevelopment

No.	Recommendation	Legal framework	Amendments required	Concerned Agency	Remarks
1	GIS mapping of island city	MHADA Act	-	MHADA, MCGM, Settlement Commissioner MRSAC	12 months
2	Socio-economic and building condition survey island city	MHADA Act	-	MHADA, Settlement Commissioner MRSAC	
3	Issue of uniquely numbered ID swipe cards carrying fingerprint and photo, for all residents	MHADA Act	Policy GR	MHADA, MCGM NGOs and CBOs	The activity should be targeted for completion in 12 months. Can be Concurrent with GIS mapping
4	Grouping & Demarcation of the Precincts	Sec 33 or Sec 40 of the MRTP Act	Criteria/ guidelines for precinct delineation	MHADA, MCGM	12 months
5	Comprehensive Redevelopment Plan for each precinct	Sec 33 or Sec 40 of the MRTP Act & DCR 33(7)	Typology of precincts with redevelopment guidelines	MHADA Federation of Co-op societies of tenants &	In order of priority depending on the condition of the

No.	Recommendation	Legal framework	Amendments required	Concerned Agency	Remarks
				owners or agency appointed by MHADA	buildings in the precinct
6	Maintenance Model	MHADA Act Rent Control Act	Amendments in Rent Control Act to telescopically raise rent and phase out standard rents up		
Public sector Housing Redevelopment					
1	GIS and Socio-economic mapping of all such colonies		Precinct approach	Co-operative societies of occupants and MHADA	As per demand
2	Grouping & Demarcation of the Precincts	Sec 33 or Sec 40 of the MRTP Act	Criteria/ guidelines for precinct delineation	PWD & MCGM	
3	Issue of uniquely numbered ID swipe cards carrying fingerprint and photo, for all residents	-	-	MHADA, MCGM, PWD	The activity should be targeted for completion in 12 months. Can be Concurrent with GIS mapping

Table - 26
Final Recommendations on Transit Oriented Development

No.	Recommendation	Legal framework	Amendments required	Concerned Agency	Remarks
1	GIS and Physical infrastructure mapping of existing & proposed Transit Nodes	DCR	Policy GR	MCGM, Railways, MRVC, MMRDA	12 months
2	Identification of Transit node & precinct for densification based on above analysis	DCR	Policy GR	MMRDA, Railways, MCGM, MRVC	12 months
3	FSI policy – for higher FSI on paying the prevalent price as premium	DCR (32), for MCGM areas	Increasing FSI for TOD area	MCGM MMRDA where its SPA	
4	Transport policy for the Transit node and the precinct		Design & development of transit node that promotes Pedestrianization	MCGM, MMRDA, Railways, CIDCO and other ULBs	
5	Building Byelaws	DCR 1991	Podium areas, Plot setbacks, Mezzanine connections	MCGM, MMRDA where its SPA	

Note: The CRZ rules will need to be amended to facilitate the redevelopment of the cessed buildings and of the slums falling in CRZ II areas. General review of CRZ rule would be warranted to permit high-density development around the transit nodes also.

It is also recommended that the privilege of using higher incentive FSI for redevelopment of cessed buildings and in the TOD and other special plan areas should be subject to the payment of the prevalent market price as the premium to be paid to the planning authority.

It is proposed to amend the MR &TP Act to facilitate the levy of Development Charges on the basis of the capital value of the property under development along with the condition that such charges should be credited to a special infrastructure fund. At the level of the ULB or the Special Planning Authority

17.1 Table for constants: Commercial

COMMERCIAL										
Plot Number	Plot owner	Plot Area	Permissible BU Area at FSI 2	BU Area granted	F.S.I	No. of workers (1 job / 8sqm)	Water supply consumption (lt/day)	Sewerage (90% of water consumption) (lt/day)	Electricity (KW/day)	Parking
C1	NSE	16,038.00	32,076.00	31,044.00	1.94	3,881	174,623	157,160	8,692	388
C2	Wockhardt	6,980.00	13,960.00	13,992.00	2.00	1,749	78,705	70,835	3,918	175
C3	Neptune Forune 2000	7,185.00	14,370.00	13,992.00	1.95	1,749	78,705	70,835	3,918	175
C4A	SEBI	5,806.39	11,612.78	11,612.78	2.00	1,452	65,322	58,790	3,252	145
C4	BOI	3,488.00	6,976.00	6,976.78	2.00	872	39,244	35,320	1,953	87
C5	Bank of India	7,020.99	14,041.98	14,041.98	2.00	1,755	78,986	71,088	3,932	176
C6	State Bank of India	9,306.11	18,612.22	18,612.22	2.00	2,327	104,694	94,224	5,211	233
C7	IDBI	9,294.66	18,589.32	18,589.32	2.00	2,324	104,565	94,108	5,205	232
C8	Union Bank	5,951.99	11,903.98	13,600.00	2.28	1,700	76,500	68,850	3,808	170
C9	PNB	2,878.39	5,756.78	5,670.43	1.97	709	31,896	28,707	1,588	71
C10	Dena Bank	2,878.39	5,756.78	5,756.78	2.00	720	32,382	29,144	1,612	72
C11	SIDBI	2,878.39	5,756.78	5,756.78	2.00	720	32,382	29,144	1,612	72
C12		4,543.33	9,086.66	9,080.66	2.00	1,135	51,079	45,971	2,543	114
C13	ONGC	7,131.15	14,262.30	14,262.30	2.00	1,783	80,225	72,203	3,993	178
C14	Canara bank	7,131.15	14,262.30	14,262.30	2.00	1,783	80,225	72,203	3,993	178
C19		6,098.00	12,196.00	12,196.00	2.00	1,525	68,603	61,742	3,415	152
C20	INAM Financial	3,637.04	7,274.08	7,700.00	2.12	963	43,313	38,981	2,156	96
C21		4,047.00	8,094.00	8,094.00	2.00	1,012	45,529	40,976	2,266	101
C22	IL&FS	12,550.00	25,100.00	30,000.00	2.39	3,750	168,750	151,875	8,400	375

Plot Number	Plot owner	Plot Area	Permissible BU Area at FSI 2	BU Area granted	F.S.I	No. of workers (1 job / 8sqm)	Water supply consumption (lt/day)	Sewerage (90% of water consumption) (lt/day)	Electricity (KW/day)	Parking
C23	ICICI	12,550.00	25,100.00	30,000.00	2.39	3,750	168,750	151,875	8,400	375
C24	NABARD	12,550.00	25,100.00	30,000.00	2.39	3,750	168,750	151,875	8,400	375
C25	Lakshmi Towers	10,764.00	21,528.00	21,000.00	1.95	2,625	118,125	106,313	5,880	263
C26	Bank of Baroda	6,084.00	12,168.00	11,520.05	1.89	1,440	64,800	58,320	3,226	144
C27	Court	6,041.12	12,082.24	11,438.63	1.89	1,430	64,342	57,908	3,203	143
C28	BDB	80,858.98	161,717.96	161,717.96	2.00	20,215	909,664	818,697	45,281	2,021
C29	Global Trust	3,545.00	7,090.00	7,090.00	2.00	886	39,881	35,893	1,985	89
C30		4,556.17	9,112.34	11,000.00	2.41	1,375	61,875	55,688	3,080	138
C31		3,443.04	6,886.08	8,000.00	2.32	1,000	45,000	40,500	2,240	100
C32		3,443.04	6,886.08	8,000.00	2.32	1,000	45,000	40,500	2,240	100
C33	IBP	3,523.00	7,046.00	7,100.00	2.02	888	39,938	35,944	1,988	89
C34	BOB	4,758.39	9,516.78	11,515.30	2.42	1,439	64,774	58,296	3,224	144
C35	Excise Commission	4,662.47	9,324.94	10,257.43	2.20	1,282	57,698	51,928	2,872	128
C36	VSNL	8,094.00	16,188.00	16,188.00	2.00	2,024	91,058	81,952	4,533	202
C37		4,983.00	9,966.00	9,966.00	2.00	1,246	56,059	50,453	2,790	125
C38	NAMAN Developers	4,500.00	9,000.00	10,000.00	2.22	1,250	56,250	50,625	2,800	125
C39	NAMAN Developers	4,500.00	9,000.00	10,000.00	2.22	1,250	56,250	50,625	2,800	125

Plot Number	Plot owner	Plot Area	Permissible BU Area at FSI 2	BU Area granted	F.S.I	No. of workers (1 job / 8sqm)	Water supply consumption (lt/day)	Sewerage (90% of water consumption) (lt/day)	Electricity (KW/day)	Parking
C40	ICA	2,981.18	5,962.36	5,962.36	2.00	745	33,538	30,184	1,669	75
C41-43	Income tax	9,500.00	19,000.00	19,000.00	2.00	2,375	106,875	96,188	5,320	238
C44	CBI	3,000.00	6,000.00	6,000.00	2.00	750	33,750	30,375	1,680	75
C45	Regional Passport Office	2,800.99	5,601.98	5,601.98	2.00	700	31,511	28,360	1,569	70
C46		2,981.18	5,962.36	5,962.36	2.00	745	33,538	30,184	1,669	75
C47		2,981.18	5,962.36	5,962.36	2.00	745	33,538	30,184	1,669	75
C48		2,981.00	5,962.00	5,962.00	2.00	745	33,536	30,183	1,669	75
C49	U.S consulate	40,470.00	80,940.00	30,352.50	0.75	3,794	170,733	153,660	8,499	379
C50		1,200.00	2,400.00	960.00	0.80	120	5,400	4,860	269	12
C51			0.00			0	0	0	0	0
C52			0.00			0	0	0	0	0
C53	TCG	3,940.91	7,881.82	8,500.00	2.16	1,063	47,813	43,031	2,380	106
C54		4,034.20	8,068.40	8,875.24	2.20	1,109	49,923	44,931	2,485	111
C55		4,042.18	8,084.36	8,892.80	2.20	1,112	50,022	45,020	2,490	111
C56	Hotel and Parking Garage	15,000.00	30,000.00	30,000.00	2.00	3,750	168,750	151,875	8,400	375
C57-58		8,092.40	16,184.80	18,600.00	2.30	2,325	104,625	94,163	5,208	233

Plot Number	Plot owner	Plot Area	Permissible BU Area at FSI 2	BU Area granted	F.S.I	No. of workers (1 job / 8sqm)	Water supply consumption (lt/day)	Sewerage (90% of water consumption) (lt/day)	Electricity (KW/day)	Parking
C59		5,359.84	10,719.68	12,000.00	2.24	1,500	67,500	60,750	3,360	150
C60		3,914.43	7,828.86	7,900.00	2.02	988	44,438	39,994	2,212	99
C61	Citibank	3,818.89	7,637.78	7,274.08	1.90	909	40,917	36,825	2,037	91
C62	Raheja	4,289.49	8,578.98	10,000.00	2.33	1,250	56,250	50,625	2,800	125
C63	INS	10,415.02	20,830.04	20,830.04	2.00	2,604	117,169	105,452	5,832	260
C64	Reliance Convention Centre	75,000.00	150,000.00	115,000.00	1.53	14,375	646,875	582,188	32,200	1,438
C65	Cultural Centre	12,500.09	25,000.18	25,000.18	2.00	3,125	140,626	126,563	7,000	313
C66	Parking	10,183.00	20,366.00	0.00	0.00	0	0	0	0	0
C67	Petrol Pump	1,100.00	2,200.00	2,200.00	2.00	275	12,375	11,138	616	28
C68		10,309.59	20,619.18	25,000.00	2.42	3,125	140,625	126,563	7,000	313
C69	Utility Complex	25,323.00	50,646.00	50,646.00	2.00	6,331	284,884	256,395	14,181	633
C70	Parking	7,021.74	14,043.48	0.00	0.00	0	0	0	0	0
C71	MTNL	10,000.00	20,000.00	20,000.00	2.00	2,500	112,500	101,250	5,600	250
GN BLOCK										
C1	UTI	5,000.00	10,000.00	10,000.00	2.00	1,250	56,250	50,625	2,800	125
C2		2,500.00	5,000.00	5,000.00	2.00	625	28,125	25,313	1,400	63
C3	HP pump	1,200.00	2,400.00	960.00	0.80	120	5,400	4,860	269	12
C4	MGL pump	1,200.32	2,400.64	1,178.31	0.98	147	6,628	5,965	330	15
	Total Plot Area	596,840.82	Total Projected BU	1,103,653.91		137,957	6,208,053	5,587,248	309,023	13,796

17.2 Table for constants: Residential

RESIDENTIAL										
Plot Number	Plot owner	Plot Area	Permissible BU Area	Existing BU Area	F.S.I	Number of People	Water supply consumption (lt/day)	Sewerage(90% of water consumption) (lt/day)	Electricity (KW/day)	No. of house holds
R1	Total plot	29,286.20	43,929.30	50,379.75	1.72					
R1-1		3,255.18	4,882.77	7,050.00	2.17	320	48,000	43,200	705	64
R1-2		3,533.40	5,300.10	7,050.00	2.00	320	48,000	43,200	705	64
R1-3		3,533.27	5,299.91	7,050.00	2.00	320	48,000	43,200	705	64
R1-4		2,799.39	4,199.09	7,050.00	2.52	320	48,000	43,200	705	64
R1-5		3,566.97	5,350.46	6,050.00	1.70	275	41,250	37,125	605	55
R1-6		3,034.60	4,551.90	6,050.00	1.99	275	41,250	37,125	605	55
R1-7		1,968.32	2,952.48	3,250.00	1.65	150	22,500	20,250	325	30
R1-8		3,908.12	5,862.18	6,270.00	1.60	275	41,250	37,125	627	55
R1-S		919.08	1,378.62	559.75	0.61	0	0	0	56	
R1-SS	Sub station	414.00				0	0	0	0	
common RG1		1,853.16				0	0	0	0	
common RG2		500.71				0	0	0	0	
R4A	NABARD	2,000.00	3,000.00	3,000.00	1.50	100	15,000	13,500	300	20
R4B	AG	2,000.00	3,000.00	3,000.00	1.50	100	15,000	13,500	300	20
R4C	IT	3,610.00	5,415.00	5,415.00	1.50	300	45,000	40,500	542	60
R4D	BOI	3,606.73	5,410.10	5,410.10	1.50	300	45,000	40,500	541	60
R4E	BOB	3,612.00	5,418.00	5,418.00	1.50	300	45,000	40,500	542	60
R5-5A		4,587.00	6,880.50	6,880.50	1.50	375	56,250	50,625	688	75

Plot Number	Plot owner	Plot Area	Permissible BU Area	Existing BU Area	F.S.I	Number of People	Water supply consumption (lt/day)	Sewerage(90% of water consumption) (lt/day)	Electricity (KW/day)	No. of house holds	
GN BLOCK											
RESD 1		20,246.00	30,369.00	30,369.00	1.50	1,375	206,250	185,625	3,037	275	
RESD 2		5,241.00	7,861.50	7,861.50	1.50	375	56,250	50,625	786	75	
RESD 3						0	0	0	0		
RESD 4	MTNL	2,680.88	4,021.32	4,281.30	1.60	300	45,000	40,500	428	60	
RESD 5	BPCL	2,940.00	4,410.00	4,281.30	1.46	300	45,000	40,500	428	60	
RESD 6	ONGC	3,564.15	5,346.23	4,281.30	1.20	440	66,000	59,400	428	88	
RESD 7		1,911.00	2,866.50	2,866.50	1.50	250	37,500	33,750	287	50	
RESD 8	HPCL	1,600.00	2,400.00	2,400.00	1.50	240	36,000	32,400	240	48	
RESD 9	HPCL	1,600.00	2,400.00	2,400.00	1.50	240	36,000	32,400	240	48	
RESD 10		3,370.00	5,055.00	5,055.00	1.50	300	45,000	40,500	506	60	
		Total Plot Area	91,854.96	Total Projected BU	143,299.25	38.4	7,550	1,132,500	1,019,250	14,330	1,510

17.3 Table for constants: Social facilities

SOCIAL FACILITIES / AMENITIES					
Plot Number	Plot owner	Plot Area	Permissible BU Area	Existing BU Area	F.S.I
G BLOCK					
SF1	Sewage Pumping Station	1,200.00	1,800.00	1,800.00	1.50
SF5	Dhirubhai Ambani International School	5,723.44	8,585.16	8,585.16	1.50
SF6	American School	5,906.76	8,860.14	8,860.14	1.50
SF7		2,202.00	3,303.00	3,303.00	1.50
SF9		1,500.00	2,250.00	2,250.00	
GN BLOCK					
SF1		4,025.00	6,037.50	6,037.50	1.50
SF2	Asian Heart	10,000.00	15,000.00	15,000.00	1.50
SF3	Police Station	3,000.00	4,500.00	4,500.00	1.50
SF4		900.31	1,350.47	1,350.47	1.50
SF5		2,620.00	3,930.00	3,930.00	1.50
SF6	AVM school	5,302.00	7,953.00	7,953.00	1.50
Public Toilet		925.00	1,387.50	1,387.00	1.50

Plot Number	Plot owner	Plot Area	Permissible BU Area	Existing BU Area	F.S.I
G TXT					
SF1		5,979.00	8,968.50	8,968.50	1.50
SF2		2,605.00	3,907.50	3,907.50	1.50
SF3		3,595.00	5,392.50	5,392.50	1.50
SF4	Fire Station	5,000.00	7,500.00	7,500.00	1.50
SF5	BP Petrol Pump	1,225.00	1,837.50	1,837.50	1.50
Total Plot Area		61,708.51	Total Projected BU		92,562.27

17.4 Table for variables: Option 1

VARIABLES FOR OPTION 1											
Plot Number	Proposed Designation	Plot Area	Permissible BU Area at FSI 2	Proposed BU Area	Proposed F.S.I	No. of workers /Household Population	Water supply consumption (lt/day)	Sewerage (90% of water consumption) (lt/day)	Electricity (KW/day)	Parking	No. of house holds
CTM1	Commercial	28,181.00	56,362.00	56,362.00	2.00	7,045	317,036	285,333	15,781	705	
CTM2	Commercial	19,809.00	39,618.00	39,618.00	2.00	4,952	222,851	200,566	11,093	495	
CTM3	Commercial	17,355.00	34,710.00	34,710.00	2.00	4,339	195,244	175,719	9,719	434	
CTM4	Commercial	19,209.00	38,418.00	38,418.00	2.00	4,802	216,101	194,491	10,757	480	
CTM5	Commercial	22,600.00	45,200.00	45,200.00	2.00	5,650	254,250	228,825	12,656	565	
CTM6	Commercial	20,501.00	41,002.00	41,002.00	2.00	5,125	230,636	207,573	11,481	513	
CTM7	Commercial	22,397.00	44,794.00	44,794.00	2.00	5,599	251,966	226,770	12,542	560	
CTM8	Commercial	21,581.00	43,162.00	43,162.00	2.00	5,395	242,786	218,508	12,085	540	
CTM9	Commercial	38,965.00	77,930.00	77,930.00	2.00	9,741	438,356	394,521	21,820	974	
SF2	Commercial	2,500.00	3,750.00	5,000.00	2.00	625	28,125	25,313	1,400	63	
SF3	Commercial	2,800.00	4,200.00	5,600.00	2.00	700	31,500	28,350	1,568	70	
SF4	Commercial	7,969.00	11,953.50	15,938.00	2.00	1,992	89,651	80,686	4,463	199	
RLY STN	Commercial	16,491.00	24,736.50	32,982.00	2.00	4,123	185,524	166,971	9,235	412	
R3	Residential	1,739.00	2,608.50	3,478.00	2.00	188	28,259	25,433	348	54	38
R2	Residential	26,426.00	39,639.00	52,852.00	2.00	2,863	429,423	386,480	5,285	815	573
Variable	Residential	28,165.00		56,330.00	2.00	3,051	457,681	411,913	5,633	868	610
	Commercial	240,358.00		480,716.00	2.00	60,090	2,704,028	2,433,625	134,600	6,009	
	SUB TOTAL	268,523.00		537,046.00	2.00		3,161,709	2,845,538	140,233	6,877	610

Constant	Residential	91,854.96		143,299.25	1.56	7,550	1,132,500	1,019,250	14,330	0	1,510
	Commercial	596,840.82		1,103,653.91	1.85	137,957	6,208,053	5,587,248	309,023	13,796	
	Social Facilities	61,708.51		92,562.27	1.50						
	SUB TOTAL	750,404.29		1,339,515.43	1.79		7,340,553	6,606,498	323,353	13,796	1,510
New	Residential	120,019.96		199,629.25		10,601	1,590,181	1,431,163	19,963	868	2,120
Composit	Commercial	837,198.82		1,584,369.91		198,046	8,912,081	8,020,873	443,624	19,805	0
ion	GRAND TOTAL	1,018,927.29		1,876,561.43	1.84		10,502,262	9,452,036	463,586	20,673	2,120
MMRDA	Commercial	73,549,548,000.00	BU sold @ Rs. 1,53,000								
Sale	Residential	5,785,091,000.00	BU sold @ Rs. 1,02,700								
value	Total	79,334,639,000.00									
Market	Commercial	120,179,000,000.00	BU sold @ Rs. 2,50,000								
Value	Residential	8,449,500,000.00	BU sold @ Rs. 1,50,000								
	Total	128,628,500,000.00									

17.5 Table for variables: Option 2

VARIABLES FOR OPTION 2											
Plot Number	Proposed Designation	Plot Area	Permissible BU Area at FSI 2	Proposed BU Area	Proposed F.S.I	No. of workers / Household Population	Water supply consumption (lt/day)	Sewerage (90% of water consumption) (lt/day)	Electricity (KW/day)	Parking	No. of house holds
CTM1	Residential	28,181.00	56,362.00	112,724.00	4.00	6,106	915,883	824,294	11,272	1,738	1221
CTM2	Commercial	19,809.00	39,618.00	99,045.00	5.00	12,381	557,128	501,415	27,733	1,238	
CTM3	Commercial	17,355.00	34,710.00	86,775.00	5.00	10,847	488,109	439,298	24,297	1,085	
CTM4	Commercial	19,209.00	38,418.00	96,045.00	5.00	12,006	540,253	486,228	26,893	1,201	
CTM5	Commercial	22,600.00	45,200.00	113,000.00	5.00	14,125	635,625	572,063	31,640	1,413	
CTM6	Commercial	20,501.00	41,002.00	102,505.00	5.00	12,813	576,591	518,932	28,701	1,281	
CTM7	Commercial	22,397.00	44,794.00	111,985.00	5.00	13,998	629,916	566,924	31,356	1,400	
CTM8	Commercial	21,581.00	43,162.00	107,905.00	5.00	13,488	606,966	546,269	30,213	1,349	
CTM9	Commercial	38,965.00	77,930.00	194,825.00	5.00	24,353	1,095,891	986,302	54,551	2,435	
SF2	Commercial	2,500.00	3,750.00	10,000.00	4.00	1,250	56,250	50,625	2,800	125	
SF3	Commercial	2,800.00	4,200.00	11,200.00	4.00	1,400	63,000	56,700	3,136	140	
SF4	Commercial	7,969.00	11,953.50	31,876.00	4.00	3,985	179,303	161,372	8,925	398	
RLY STN	Commercial	16,491.00	24,736.50	65,964.00	4.00	8,246	371,048	333,943	18,470	825	
R3	Commercial	1,739.00	2,608.50	6,956.00	4.00	870	39,128	35,215	1,948	87	
R2	Commercial	26,426.00	39,639.00	105,704.00	4.00	13,213	594,585	535,127	29,597	1,321	
Variable	Residential	28,181.00		112,724.00		6,106	915,883	824,294	11,272	1,738	1,221
	Commercial	240,342.00		1,143,785.00		142,973	6,433,791	5,790,412	320,260	14,297	
	SUB TOTAL	268,523.00		1,256,509.00	4.68		7,349,673	6,614,706	331,532	16,035	1,221

Constant	Residential	91,854.96		143,299.25		7,550	1,132,500	1,019,250	14,330	0	1,510
	Commercial	596,840.82		1,103,653.91		137,957	6,208,053	5,587,248	309,023	13,796	
	Social Facilities	61,708.51		92,562.27							
	SUB TOTAL	750,404.29		1,339,515.43	1.79		7,340,553	6,606,498	323,353	13,796	1,510
New Composit ion	Residential	120,035.96		256,023.25		13,656	2,048,383	1,843,544	25,602	1,738	2,731
	Commercial	837,182.82		2,247,438.91		280,930	12,641,844	11,377,659	629,283	28,093	0
	GRAND TOTAL	1,018,927.29		2,596,024.43	2.55	0	14,690,226	13,221,204	654,885	29,831	2,731
MMRDA Sale value	Commercial	209,998,926,000.00		BU sold @ Rs. 1,83,600							
	Residential	13,313,268,020.00		BU sold @ Rs. 1,18,105							
	Total	223,312,194,020.00									
Market Value	Commercial	343,135,500,000.00		BU sold @ Rs. 3,00,000							
	Residential	19,444,890,000.00		BU sold @ Rs. 1,72,500							
	Total	362,580,390,000.00									

17.6 Table for variables: Option 3

VARIABLES FOR OPTION 3											
Plot Number	Proposed Designation	Plot Area	Permissible BU Area at FSI 2	Proposed BU Area	Proposed F.S.I	No. of workers / Household Population	Water supply consumption (lt/day)	Sewerage (90% of water consumption) (lt/day)	Electricity (KW/day)	Parking	No. of house holds
CTM1	Residential	28,181.00	56,362.00	112,724.00	4.00	6,106	915,883	824,294	11,272	1,738	1221
CTM2	Commercial	19,809.00	39,618.00	99,045.00	5.00	12,381	557,128	501,415	27,733	1,238	
CTM3	Commercial	17,355.00	34,710.00	86,775.00	5.00	10,847	488,109	439,298	24,297	1,085	
CTM4	Commercial	19,209.00	38,418.00	96,045.00	5.00	12,006	540,253	486,228	26,893	1,201	
CTM5	Commercial	22,600.00	45,200.00	113,000.00	5.00	14,125	635,625	572,063	31,640	1,413	
CTM6	Commercial	20,501.00	41,002.00	102,505.00	5.00	12,813	576,591	518,932	28,701	1,281	
CTM7	Commercial	22,397.00	44,794.00	111,985.00	5.00	13,998	629,916	566,924	31,356	1,400	
CTM8	Commercial	21,581.00	43,162.00	107,905.00	5.00	13,488	606,966	546,269	30,213	1,349	
CTM9	Commercial	38,965.00	77,930.00	194,825.00	5.00	24,353	1,095,891	986,302	54,551	2,435	
SF2	Residential	2,500.00	3,750.00	10,000.00	4.00	542	81,250	73,125	1,000	154	108
SF3	Residential	2,800.00	4,200.00	11,200.00	4.00	607	91,000	81,900	1,120	173	121
SF4	Residential	7,969.00	11,953.50	31,876.00	4.00	1,727	258,993	233,093	3,188	491	345
RLY STN	Residential	16,491.00	24,736.50	65,964.00	4.00	3,573	535,958	482,362	6,596	1,017	715
R3	Residential	1,739.00	2,608.50	3,478.00	2.00	188	28,259	25,433	348	54	38
R2	Residential	26,426.00	39,639.00	105,704.00	4.00	5,726	858,845	772,961	10,570	1,630	1145
Variable	Residential	86,106.00		340,946.00		18,468	2,770,186	2,493,168	34,095	5,256	3,694
	Commercial	182,417.00		912,085.00		114,011	5,130,478	4,617,430	255,384	11,401	
	SUB TOTAL	268,523.00		1,253,031.00	4.67		7,900,664	7,110,598	289,478	16,657	3,694

Constant	Residential	91,854.96		143,299.25	1.56	7,550	1,132,500	1,019,250	14,330	0	1,510
	Commercial	596,840.82		1,103,653.91	1.85	137,957	6,208,053	5,587,248	309,023	13,796	
	Social Facilities	61,708.51		92,562.27	1.50						
	SUB TOTAL	750,404.29		1,339,515.43	1.79		7,340,553	6,606,498	323,353	13,796	1,510
New Composit ion	Residential	177,960.96		484,245.25		26,018	3,902,686	3,512,418	48,425	5,256	5,204
	Commercial	779,257.82		2,015,738.91		251,967	11,338,531	10,204,678	564,407	25,197	0
	GRAND TOTAL	1,018,927.29		2,592,546.43	2.54	0	15,241,218	13,717,096	612,831	30,453	5,204
MMRDA Sale value	Commercial	167,458,806,000.00		BU sold @ Rs. 1,83,600							
	Residential	40,267,427,330.00		BU sold @ Rs. 1,18,105							
	Total	207,726,233,330.00									
Market Value	Commercial	273,625,500,000.00		BU sold @ Rs. 3,00,000							
	Residential	58,813,185,000.00		BU sold @ Rs. 1,72,500							
	Total	332,438,685,000.00									

17.7 Table for variables: Option 4

VARIABLES FOR OPTION 4											
Plot Number	Proposed Designation	Plot Area	Permissible BU Area at FSI 2	Proposed BU Area	Proposed F.S.I	No. of workers / Household Population	Water supply consumption (lt/day)	Sewerage (90% of water consumption) (lt/day)	Electricity (KW/day)	Parking	No. of house holds
CTM1	Residential	28,181.00	56,362.00	112,724.00	4.00	6,106	915,883	824,294	11,272		1221
CTM2	Commercial	19,809.00	39,618.00	99,045.00	5.00	12,381	557,128	501,415	27,733	1,238	
CTM3	Commercial	17,355.00	34,710.00	86,775.00	5.00	10,847	488,109	439,298	24,297	1,085	
CTM4	Commercial	19,209.00	38,418.00	96,045.00	5.00	12,006	540,253	486,228	26,893	1,201	
CTM5	Commercial	22,600.00	45,200.00	113,000.00	5.00	14,125	635,625	572,063	31,640	1,413	
CTM6	Commercial	20,501.00	41,002.00	102,505.00	5.00	12,813	576,591	518,932	28,701	1,281	
CTM7	Commercial	22,397.00	44,794.00	111,985.00	5.00	13,998	629,916	566,924	31,356	1,400	
CTM8	Residential	21,581.00	43,162.00	86,324.00	4.00	4,676	701,383	631,244	8,632	1,331	935
CTM9	Residential	38,965.00	77,930.00	155,860.00	4.00	8,442	1,266,363	1,139,726	15,586	2,403	1688
SF2	Residential	2,500.00	3,750.00	10,000.00	4.00	542	81,250	73,125	1,000	154	108
SF3	Residential	2,800.00	4,200.00	11,200.00	4.00	607	91,000	81,900	1,120	173	121
SF4	Residential	7,969.00	11,953.50	31,876.00	4.00	1,727	258,993	233,093	3,188	491	345
RLY STN	Residential	16,491.00	24,736.50	65,964.00	4.00	3,573	535,958	482,362	6,596	1,017	715
R3	Residential	1,739.00	2,608.50	6,956.00	4.00	377	56,518	50,866	696	107	75
R2	Residential	26,426.00	39,639.00	105,704.00	4.00	5,726	858,845	772,961	10,570	1,630	1145
Variable	Residential	146,652.00		586,608.00		31,775	4,766,190	4,289,571	58,661	7,306	6,355
	Commercial	121,871.00		609,355.00		76,169	3,427,622	3,084,860	170,619	7,617	
	SUB TOTAL	268,523.00		1,195,963.00	4.45		8,193,812	7,374,431	229,280	14,923	6,355

Constant	Residential	91,854.96		143,299.25	1.56	7,550	1,132,500	1,019,250	14,330	0	1,510
	Commercial	596,840.82		1,103,653.91	1.85	137,957	6,208,053	5,587,248	309,023	13,796	
	Social Facilities	61,708.51		92,562.27	1.50						
	SUB TOTAL	750,404.29		1,339,515.43	1.79		7,340,553	6,606,498	323,353	13,796	1,510
New Composit ion	Residential	238,506.96		729,907.25		39,325	5,898,690	5,308,821	72,991	7,306	7,865
	Commercial	718,711.82		1,713,008.91		214,126	9,635,675	8,672,108	479,642	21,413	0
	GRAND TOTAL	1,018,927.29		2,535,478.43	2.49	0	15,534,365	13,980,929	552,633	28,718	7,865
MMRDA Sale value	Commercial	111,877,578,000.00		BU sold @ Rs. 1,83,600							
	Residential	69,281,337,840.00		BU sold @ Rs. 1,18,105							
	Total	181,158,915,840.00									
Market Value	Commercial	182,806,500,000.00		BU sold @ Rs. 3,00,000							
	Residential	101,189,880,000.00		BU sold @ Rs. 1,72,500							
	Total	283,996,380,000.00									