Study for the Inter-American Development Bank on housing
Issues and Opportunities for the Integrated Provision of Serviced Land
and Credit for Progressive Housing

CASE STUDY

INDIA
SECTOR-26, VASHI, NAVI MUMBAI

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SUMMARY

1. GENERAL DESCRIPTION OF THE PROJECT

1.1. Name of the project
Demands Registration Housing Scheme in Sector-26 of Vashi, Navi Mumbai, India

1.2. Location and area of land
Navi Mumbai is a Newtown conceived as a counter magnet to Mumbai metropolis. Spread over an area of 344 sq.km, Navi Mumbai is divided into 14 self-contained nodal townships. Vashi is the first node so developed and is located adjacent to Mumbai. Each node is divided into several sectors accommodating residential, commercial, industrial and other land uses. Sector-26 of Vashi is a residential sector with an existing village located within. A village expansion scheme surrounds the original village, the demand registration scheme located along its periphery. The other uses are school, play ground and other such community amenities. The demand registration schemes are for mixed income groups, consisted of 800 to 1500 tenements each, and are spread over 8 nodes of Navi Mumbai. The scheme in Sector-26 covers an area of 5.75 ha. It is located at the northern end of Vashi, at its north is another node called Koparkhairane and at its south is the wholesale Agriculture Produce Market.

1.3. Details of target population
While the demand registration scheme generally included housing for all the income groups, the scheme in Sector-26 of Vashi is designed to provide housing for lower and middle-income groups. This is particularly because it is located close to the wholesale agriculture produce market. About 62% of the houses in this scheme were for LIG category, with construction area ranging between 19 and 21 sq.mtrs. The households eligible to apply for this scheme at the time of registration (July 1987) were those earning between Rs. 701 and Rs.1500 per month. The estimated cost of the tenement was about Rs. 33,000 (i.e. Rs. 1833/sq.mtr.) at that time and the registration amount was Rs. 1000 per these households. The accommodation promised was a multi-purpose room with asbestos sheet roof, a kitchenette, WC and a bath. At the time of actual allotment in 1992, the cost was escalated to Rs. 4183/sq.mtr. (cost of house is Rs. 83,660).

1.4. Financial resources of the beneficiaries and proportion of households belonging to the lower four deciles of the income distribution structure
In India, the population is divided based on monthly incomes earned, as Economically Weaker Section (EWS), Low Income Group (LIG), Middle Income Group (MIG) and High Income Group (HIG). The categories EWS and LIG are generally referred to as lower income groups and they constituted about 56% of the population in Navi Mumbai (10% and 46%). During the time of construction of the above scheme, the EWS was up to Rs. 700 per month and the LIG was between Rs. 701 and Rs. 1500. It is estimated that the lower income groups can spend about 15% of their monthly incomes on a plot for housing and 25% on plot+house.

In 1987 it was expected that CIDCO obtain loan from HUDCO and pass on the same to the beneficiaries to be repaid over a long period of time. However, by the time the houses were ready, the situation of housing finance in India improved substantially due to economic liberalisation and hence beneficiaries had more and better options on their own to obtain loans. It is for this reason that these houses were allotted on outright purchase basis. This also reduced the interest rate, as CIDCO would otherwise charge 1% overhead for servicing the HUDCO loan. The documentation requirement of other institutions was much less and the beneficiaries had the option to chose how much loan is to be raised on the house, at what rate of interest and over how long a period of repayment.
1.5. Legal status of the land and housing for the inhabitants

The entire land of Navi Mumbai is owned by CIDCO and is leased out for 60 years. Thus the tenements sold by CIDCO are on ownership by individual households, whereas the land under a group of tenements known as Condominium is leased to the condominium association for a period of 60 years. Thus while the tenement is on individual ownership, the land is under collective leasehold of the co-operative society of tenements in a given condominium.

2. AIMS OF THE PROJECT

2.1. General development objectives

Navi Mumbai is a Newtown where land is acquired by the government and placed at the disposal of a single nodal organisation called CIDCO. It was expected that CIDCO would use the land as the prime resource for financing the development of the new city. Towards this end, CIDCO attempted decentralised and phased pattern of development. CIDCO embarked on housing and infrastructure development. Housing was to be a complete package attracting further land development by private sector. During the first decade itself it was very clear that the private sector would develop mostly housing for the higher income groups and hence it was the prime responsibility of CIDCO to devise ways to provide affordable housing for the lower income groups. A large number of serviced sites and built-up apartments were constructed for the lower income groups by CIDCO in the seventies and eighties. The land pricing mechanisms devised since seventies aim at making land affordable to all sections of society. A continued effort at providing the same is the mandate of CIDCO expressed through its Shelter Policy.

2.2. Specific objectives

The concept of demand registration for housing:

Demand registration is an idealistic concept where demand is registered first so that supply can be matched with this. This is possible only when the resources are either unlimited or adequate to meet the expected demand. In July 1987, a massive scheme of demand registration started in Navi Mumbai. Prospective buyers could choose the location and area of their choice for housing in seven nodes in Navi Mumbai. The demand was registered for 8 types of houses (18 to 100 sq.mts.) with indicative prices ranging from Rs. 33,000 to Rs. 335,000 covering all income groups.

Even though 55,000 households registered their demand, only 36,000 were found eligible for the scheme. Some prospective buyers withdrew from the scheme due to time delays and cost escalation, leaving the demand for about 25,000 tenements. These were grouped in about 19 schemes ranging from 750 to 1750 tenements each all over Navi Mumbai. These units were built in two phases. Phase–I, completed in early 1993 contained 16,850 units and the rest were completed a year later. The final costing working out in 1993 at the time of allotment and handing over the tenements, was generally 20% higher than what was originally worked out in 1991. The schemes were generally for mixed income groups, with the exception being in sector-26, Vashi where the entire scheme was for LIG and MIG. This was due to the proximity of this scheme to the Agriculture Produce market, which engaged a large group of low wage earners.

3. INSTITUTIONAL AND FINANCIAL PLANNING

3.1. Institutional actors involved in the project

In order to ensure adequate and timely supply of dwelling units, CIDCO decided to involve reputed architects and resourceful developers including those specialised in pre-fabricated techniques. It was hoped that CIDCO’s capacity would be substantially augmented by engaging consultants whose services and experience can be gainfully utilised for creating a much larger housing stock with stress on improved layout, design of dwelling units, specifications and new techniques of construction. The services of construction management consultants were also hired. CIDCO’s role was to provide serviced land, development of physical, social and city level infrastructure in various nodes and co-ordinating the various agencies involved in the above
process. The architectural and project management consultants were paid a fee of 2.5% of the estimated cost of the project or tendered cost whichever was less.

3.2. Global budget of the project

Roughly estimated the 25,000 tenements constructed under the DRS scheme cost about Rs. 3.5 billions. Out of the 25,000, 5,318 tenements consisting of 18 to 50 sq. mtr. area categories were financed by HUDCO under the hire-purchase scheme. In terms of project costs, this constituted about 15% of the overall cost of Rs. 3.5 billions. The remaining 19.682 tenements were on self-financing basis where the prospective buyers raised finance from general or housing finance institutions.

Costing of the schemes was to be on two accounts, land costing and construction cost. Land cost was as per the pricing policy approved by CIDCO and was differential. While the lower income groups got subsidised land, the higher income groups paid up to double the Reserve Price. Construction cost was calculated as per the actuals and loaded.

4. IMPLEMENTING THE PROJECT

4.1. Forms of credit and repayment methods

As explained above, about 15% of the project cost was raised from HUDCO as loan, which was passed on to the prospective buyers who registered the demand for hire-purchase schemes. An interest of 11 to 13.5% was charged on the loan component, which was to be repaid in 15 years (including the two years construction period) time in equal monthly instalments. This served only 21% of the buyers (Sector-26 of Vashi consisted of only units on outright purchase basis) and the remaining opted for outright purchase. A token amount was collected in July 1987 as registration charge. The estimated cost was first communicated in the letters of intent sent to the prospective buyers in August-September 1990 from when the remaining amount was to be paid over the next two years in 8 equal quarterly instalments during the construction stage, making the scheme self-financing.

4.2. Overall schedule

The scheme was registered in June-July of 1987. Even though the houses were promised to be completed and delivered to the beneficiaries by mid 1990, phase-1 of about 19,000 tenements were actually delivered only in early 1993. The second phase of about 6000 tenements (out of the 25,000) were constructed between 1993 and 1995. The time delays are attributed by CIDCO to the process of engaging external professional architects and Project management consultants and the need to co-ordinate the same and also the conventional construction technologies adopted.

4.3. Methods of implementation

Three different approaches were adopted to deliver the housing. 800 to 1500 houses each have been assigned to six consulting architects, reputed developers were selected to quote on turnkey basis with their own design but based on the requirements and specifications given by CIDCO, and five architects were selected though national competition and each prize-winning architect was awarded a scheme. The developers included those who constructed with conventional RCC frame technology and those who built with prefabricated technology. At the ultimate stage, there were 8 schemes by developers, 3 by pre-fabricated technology, 9 by reputed architects and one later addition by in-house designs of CIDCO to fulfil the shortfall. The total houses delivered thus were 25,000.

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1 CIDCO does not provide subsidy on construction cost. While private developers are sold lands at market price and can’t subsidise land price, CIDCO can differentially price (cross-subsidise) with no profit-seeking attitude. Building construction cost is same for both CIDCO and developers; both either borrow from financing agencies or raise finance from prospective customers. Land cost charged by CIDCO for HIG being equal to what is charged for the builders, if construction cost is higher, there will be no takers.
Project Management Consultants were also appointed to supervise the construction of houses. Thus, the participatory construction management approach of CIDCO was expected to accelerate the pace of construction without sacrificing quality, in keeping with the objective of the National Housing Policy formulated by the Govt. of India recommending that the public sector agencies should act more as facilitators and not as builders. Thus the innovation was in design, technology and management. The contracts were awarded between late 1989 and mid 1990. This has helped the organisation to remain lean and on its course, and allowed the evolution of the new city with a vision from within and outside CIDCO.

The firm “Architects Combine” of Mumbai, one of the Architects selected through the competition process, designed the scheme under reference in Sector-26 of Vashi.

4.4. Stages of implementation

The demand was registered in July of 1987 wherein the location, area and financing the purchase choice of prospective households was enlisted. The applications were then scrutinised and eligible applicants separated out. Between 1987 and 1989, the total demand was broken down into smaller schemes of 800 to 1500 tenements and the consultants appointed. Tenders for building work were invited between 1989 and 1990. The cost of tenements was then worked out based on the tender award cost of each project. The letters of intent were sent to the eligible applicants in August-September of 1991 indicating the above estimated cost. A location draw of lots was drawn in 1991 as to the sector location of the applicant’s tenement in the node as per the order of choice mentioned in the application. The applicants were then asked to pay the outright purchase cost of the tenement in 8 equal quarterly instalments during the construction period.

The schemes were constructed between 1989 and 1992 and were handed over to CIDCO by late 1992. The final cost of tenements was then calculated and the final computerised draw of exact tenement address of each applicant was carried out in early 1993. The tenements of phase-1 were thus handed over to the buyers in early 1993. The balance requirement of about 6000 tenements was constructed in phase-2, between 1993 and 1995 and handed over accordingly. Agreements were entered into with each applicant for the tenement. The occupied tenements had to then register themselves as co-operative housing societies and take control of the condominiums for maintenance.

5. RESULTS

5.1. Number of homes built

Sector-26 of Vashi extends over 25 hectares area and houses the DRS scheme and other types of housing such as plots for co-operative housing societies, large parcels of land allotted to companies and a village. The details of DRS scheme are:

<table>
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<th>Description</th>
<th>Details</th>
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<tr>
<td>Total scheme area</td>
<td>5.75 Ha.</td>
</tr>
<tr>
<td>Total tenements constructed</td>
<td>960</td>
</tr>
<tr>
<td>Expected population</td>
<td>4320 Persons (@ 4.5 persons per household)</td>
</tr>
<tr>
<td>Design Consultant</td>
<td>Architects Combine, Mumbai</td>
</tr>
<tr>
<td>Project Management Consultant</td>
<td>Shrikhande Constructions, Mumbai</td>
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5.2. Type of housing and nature of progressive features

The tenements provided in the scheme were generally based on the design brief furnished by CIDCO to the consultants. The brief prescribed the land-uses to be provided and the no. of tenements of each area type.

<table>
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<th>Area as per design brief</th>
<th>Area provided</th>
<th>No. of units provided</th>
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<tr>
<td>18m² category Units</td>
<td>19.18 to 21.36 m²</td>
<td>590</td>
</tr>
<tr>
<td>25m² category Units</td>
<td>25.73 to 27.79 m²</td>
<td>210</td>
</tr>
<tr>
<td>34m² category Units²</td>
<td>35.23 to 39.65 m²</td>
<td>160</td>
</tr>
<tr>
<td>Total</td>
<td>23571 sq.mts. (2.3571 ha.)</td>
<td>960</td>
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<table>
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<tr>
<th>Land-Use as per design brief</th>
<th>as provided</th>
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<tbody>
<tr>
<td>Area-ha.</td>
<td>Percentage</td>
</tr>
<tr>
<td>Residential</td>
<td>2.13</td>
</tr>
<tr>
<td>Shopping</td>
<td>0.60</td>
</tr>
<tr>
<td>Social facilities</td>
<td>0.70</td>
</tr>
<tr>
<td>Public Utilities</td>
<td>0.05</td>
</tr>
<tr>
<td>Open Space</td>
<td>1.69</td>
</tr>
<tr>
<td>Roads &amp; pathways</td>
<td>0.58</td>
</tr>
<tr>
<td>Total</td>
<td>5.75 ha.</td>
</tr>
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The final layout provided for:
- Residential condominiums (8 nos.)
- Plots for service shops & big shops (one each)
- Market for daily necessities
- Plots for electric substations (3 nos.)
- Plots for health (2), religious (2), and other social facilities (3 nos.)
- Open spaces like school playground and other gardens
- Roads, pathways and parking lots

Located in linear fashion along two major roads of 30 and 20 mtrs. width and two minor roads of 11.0 m width, the scheme is divided into 8 residential condominiums, all accessible by 6.0 to 9.0 m wide roads. 2.5 m wide pathways provide access to tenements within each condominium. This was particularly in view of the LIG nature of the tenements where vehicle ownership was expected to be very low and where pathways will be motor-free thereby providing safe community space for the children to play in. All the amenities and utilities are located along the periphery, separately accessible by the external roads.

The LIG units of 18 to 25 sq.mts are arranged in twin fashion with a shared entry both in the front and at the back. These are two storeys high and the twin units are in staggered rows

² Due to the increase in area, these tenements were finally allotted under 40m² category.
thereby creating semi-private shared space on the ground. A single straight flight leads to the upper floor where the twin units are repeated with a shared balcony in the front. The space below the slight of stairs is divided between the twin tenements and very effectively arranged as storage space. The lower MIG units of 40 sq. mts category are detached buildings of three floors high containing three apartments at each floor level.

Each condominium has a ready built office for the effective functioning of the associations. The open space between the groups of buildings is bridged at the roof terrace level and the architectural features of the schemes reflect a Rajasthani community setting with high-corbelled openings wherever feasible. Each condominium has a sizable recreation ground for its residents while a single common garden is also provided in the layout.

Incrementality

Initially the buildings were designed to consume the entire construction potential of the condominium. Subsequently an amendment to the building regulations in Navi Mumbai made it possible to make incremental addition to the units by about 20%. The apartments in a single vertical row have to come together for such incremental construction to ensure structural stability and least disturbance to the neighbours and also for cost effectiveness.

5.3 Description of the beneficiaries affected

The beneficiaries had to fulfil the following conditions to be eligible for a house under the DRS:

- Any person eligible to contract under the Indian Contract Act
- One who can furnish proper Income/Employment Certificate from the employer and/or affidavit in case of self-employed or such other persons
- Persons who have regular and established sources of income
- A person who has already a house/plot/member of a co-operative housing society in New Bombay is ordinarily not eligible for second allotment
- Only one member of the family can apply for a house under the scheme
- Bulk registration from institutions, companies, government departments who may be buying for use by their employees (only under outright purchase scheme)

A new rule introduced in 1989 by the government of Maharashtra made it mandatory for the applicants to have lived in the state of Maharashtra for at least 15 years to be eligible for a house constructed by any public agency in Maharashtra. Due to this and due to other reasons, by 1991 about 40% of the 55,000 original applicants became ineligible for a house under the DRS.

6. EXPERIMENTAL AND INNOVATIVE FEATURES

Demand Registration: Registering the demand before devising a housing scheme is an experiment itself. This was done primarily to match the supply with demand. Even though there were small housing schemes constructed for specific demand-driven target groups by other public housing authorities elsewhere in India, DRS in Navi Mumbai was the biggest ever such effort.

Professional Consultants: The second experimental feature is hiring the consultants. While professional architects are hired for small mass housing schemes elsewhere in India, there was no matching example where architects are hired for so many projects. The opportunity to design mass housing for all income groups is a rare one for consulting architects and designing DRS housing in Navi Mumbai became the biggest turning point in their professional career. Further,

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3 If the house owned by a member of the applicant family has an apartment area or a plot with permissible construction on it being less than 56 sq.m., then the family was permitted to apply under DRS.
4 The family is defined as consisting of husband, wife, dependent children and dependent parents.
the practice of appointing Project Management Consultants for managing the construction of mass housing scheme by public housing agencies was not a common feature in India either.

However, the most important innovative feature, which is general to CIDCO constructed housing in Navi Mumbai, but specific to the Demand Registration Scheme is the organisation of condominiums.

**Organisation of condominiums:** CIDCO constructed dwelling units in Navi Mumbai are organised in the form of residential condominiums, each accommodating 100 to 200 tenements. The condominiums are provided with independent services like storm water drainage, sewerage, electricity and water supply. Totlots, pathways/small roads and parking spaces are provided in each condominium as common amenities for the small community living within. The condominiums are either registered under the apartment ownership act or as co-op societies. Once registered, the condominiums have an annually elected body officially recognized for any further negotiations, initiatives. These associations are responsible for the development and maintenance of the public open and covered spaces and infrastructure within their boundary. Thus, ensuring participation by the residents in the maintenance of infrastructure at a decentralised level, condominiums have also proved to be social units where innovative ideas can be introduced by the municipality or development authority. Decisions concerning the physical development of the town are generally communicated to the condominium associations. Thus they act in partnership with CIDCO. The societies look after the following:

- Land, its development, use and maintenance
- Maintaining the common areas like staircases, roof terraces, water pump houses, overhead water tanks, pathways, gardening, security, solid waste collection, common electricity etc.
- With elected bodies representing the condominium, the associations also perform as cohesive social units for discussing matters concerning the residents and participate in discussions with the development authority or municipality.

Most of the DRS tenements were ready by late 1992 and were handed over to the households. The clusters were formed into housing co-operatives after occupation. The land is collectively owned and the apartments are individually owned. It was debated whether the condominiums should be registered under the Apartment ownership act or under the housing co-operatives. It was finally decided to register them as co-op housing societies to strengthen the associations with regard to controlling the defaulters and to maintain better services. To facilitate the process of co-operative movement, especially for the lower income group housing schemes, CIDCO deputed a sub-registrar of co-operative societies in its own office.
7. SPECIFIC ASPECTS OF THE PROJECT DIRECTLY LINKED WITH THE STUDY

Specifications of the various housing types in the Demand Registration Scheme:

The following accommodation standards were prescribed in the demand registration booklet:

<table>
<thead>
<tr>
<th>No</th>
<th>Approx. BUA in sq.mts.</th>
<th>Approx. cost of the unit in Rs.</th>
<th>Eligible monthly income in Rs.</th>
<th>Amount in Rs. for registration</th>
<th>Description of the Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18</td>
<td>33,000</td>
<td>701 – 1500</td>
<td>1,000</td>
<td>One Multi-purpose room with Asbestos sheet roof, a kitchenette, WC and bath</td>
</tr>
<tr>
<td>2</td>
<td>25</td>
<td>58,000</td>
<td>1501 – 2500</td>
<td>2,000</td>
<td>One living room, small kitchenette, WC and bath</td>
</tr>
<tr>
<td>3</td>
<td>34</td>
<td>90,000</td>
<td>1501 – 2500</td>
<td>3,000</td>
<td>One living room, one small bed room kitchen, WC and bath</td>
</tr>
<tr>
<td>4</td>
<td>40</td>
<td>1,10,000</td>
<td>Above 2500</td>
<td>4,000</td>
<td>One living room, one small bed room, kitchen, WC, bath and a balcony</td>
</tr>
<tr>
<td>5</td>
<td>50</td>
<td>1,50,000</td>
<td>Above 2500</td>
<td>5,000</td>
<td>One living room, one bed room, a kitchen, WC, bath and a balcony</td>
</tr>
<tr>
<td>6</td>
<td>70</td>
<td>2,25,000</td>
<td>Above 2500</td>
<td>7,500</td>
<td>One living room, two bed rooms, a kitchen, one attached and one common toilet and a balcony</td>
</tr>
<tr>
<td>7</td>
<td>85</td>
<td>2,85,000</td>
<td>Same as above</td>
<td>10,000</td>
<td>One living room, three bed rooms, a kitchen, two attached and one common toilet and a balcony</td>
</tr>
<tr>
<td>8</td>
<td>100</td>
<td>3,35,000</td>
<td>Same as above</td>
<td>15,000</td>
<td>One Hall, three bed rooms, a kitchen, two attached and one common toilet and a balcony</td>
</tr>
</tbody>
</table>

Source: Demand Registration Booklet, CIDCO, June 1987

The buyers were to pay separately for the electric connection charges. It was further committed in the booklet that the Registration amount will be adjusted against cost of the unit, that the tenements except 18 sq.mts will be in more than storeyed high buildings and that the tenements is likely to be completed before the monsoon of 1990.

Reserve Price mechanism for land cost and costing the project. The project cost consisted of two components, land cost and building cost. CIDCO adopts the policy of totally recovering the building construction cost while the land cost is differentially loaded depending upon the type of land-use and the income groups in case of housing. Thus while the commercial residential and industrial uses pay above the reserve price, social amenities, public utilities are offered land at subsidised price. Amongst the residential use, up to LIG is subsidies wrt land cost, but the loading progressively increases with the increase in income bracket. Another mechanism to control land cost is through disposal mechanism and the corresponding pricing structure. While housing co-operatives and LIG are offered land at fixed price (presently twice to 2.5 times the reserve price), the higher income groups are offered land by tender system (auction) with the highest bidder getting the land.

Costing of the tenements in Sector-26, Vashi is done in the following manner. The basic cost of construction was as per the tendered amount and the additional costs added are as below:
1. **Cost of Infrastructure development**: Rs. 113/sq.m.

2. **Tender premium**: 0% for 18m², 3.25% for 25m² & 40m²

3. **Physical contingencies**: 1% for 18m², 3% for 25m² & 40m²

4. **Cost escalation**: 5% for 18m² & 25m², 10% for 40m²

5. **Administrative overheads**: 10% for all categories of areas

6. **Interest during construction period**:
   - 18 m²: 11.0% on 75% of the cost for one year & 1% on the balance for another year
   - 25 m²: 12.5% on 65% of the cost for one year & 1% on the balance for another year
   - 40 m²: 13.5% on 60% of the cost for one year & 1% on the balance for another year

7. **Profit margin**: 0% for 18m², 1% for 25m², 7.5% for 40m²

8. **Land cost added as per the pricing policy prevalent**
   - For 18 m² tenements: Rs. 250/m² (25% RP)
   - For 25 m² tenements: Rs. 487/m² (50% RP)
   - For 40 m² tenements: Rs. 737/m² (75% RP)

9. **Water resource development charges**: Rs. 50/m² of built-up area

<table>
<thead>
<tr>
<th>Area category of tenement</th>
<th>Allotment cost in 1992 per sq.m. of built-up area in Rs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 m²</td>
<td>4,183</td>
</tr>
<tr>
<td>25 m²</td>
<td>4,711</td>
</tr>
<tr>
<td>40 m²</td>
<td>5,574</td>
</tr>
</tbody>
</table>

The final allotment cost of 1992 was about 22% higher than the estimated cost of 1991, which was communicated to the applicants in the letters of intent. A general escalation of 10 to 12% was accepted in a two-year construction period, but the higher escalation was due to the construction period of 4 years. Though informed in 1991 that there would be cost escalation, the increase in cost prompted some of the buyers to approach the consumer court. But the Court ruled in favour of CIDCO after studying all the records as to why the cost increased.
1. ECONOMIC AND POLITICAL CONTEXT OF THE PROJECT

1.1 INDIA – VITAL STATISTICS

India – the land of a billion people. Holding 16.7% of world’s population on just 2.2% of the earth’s land surface, India is expected to become the most populous country in the world by 2045, according to most recent estimates by the UN Population Fund (The Indian Express – 30.12.2000). With 52% literacy rate, population below poverty line was 35% in 1999 as per Human development report of UNDP, projected to reduce to 18% by 2001-02. About 54% population belonged to low-income group in mid nineties, which, as per studies, will reduce to 33% by 2001-02. The urbanisation rate in 1991 was 26% but the share of urban areas in national income was 55%. As per the census of 1991, 76% of urban households had access to electricity, 64% have toilet facility and 82% has access to safe drinking water. 30 to 50% urban population lives in slums. The policies to address the problem have varied from slum clearance to on-site redevelopment.

2.4% of central plan outlay (in the XIII five year plan of 1992-97) is allocated for housing, water supply, sanitation and urban development sectors. Housing is a priority sector for public sector banks, but only 1.2% is lent for this purpose. Private sector investment in housing sector is 93%. About 10% of household incomes is spent on housing and related activities. Housing finance linked to household savings is very poor. 4% workforce is engaged in construction activity. Building construction costs are increasing at a rate, which is 50% more than inflation.

1.2 THE NATIONAL SETTING

The planning process in India, throughout the post independence period, has emphasised the importance of housing, first as a welfare and employment programme and, later, as an important activity in the mainstream of national development. However, the gap between the supply of and demand for housing has persisted and remains a tremendous challenge. The shortfall in urban housing stock in the year 1990 was estimated to be about 10 millions and the investment requirement at that time was estimated to be Rs. 5.2 billion (Projection by Federation of Indian Chambers of Commerce and Industry). It was also estimated that an investment of Rs. 10 millions in housing would provide direct employment to about 300 persons and generate many more indirect jobs.

Apart from severe shortages of housing units, the physical condition of much of the existing housing stock has also substantially deteriorated over the years, needing replacement. Thus, dilapidation and conversion to non-residential users also add to housing shortages (a rough estimate puts the requirement per annum at about 0.5% of the existing stock due to these two factors).

As per Indian Constitution urban development, land and housing are subjects of the states. The role of centre in respect of these aspects is:

- bring out national level acts (mostly model acts for each state to adopt with or without modifications) such as Land Acquisition and Urban Land (Ceiling & Regulation) Act
- formulate policy such as urbanisation, housing and slum policies, and also through the policy statements of five year plans (ex: The IX Five Year Plan (1997 – 2002) specifies the facilitator role of public institutions, but identifies certain disadvantaged groups for direct land and shelter provision. It proposes incentives for the private sector to participate in the process of land and shelter supply for the poor.)
- Set physical targets for infrastructure provision,
Establish financial institutions to channelise credit for housing and infrastructure provision, allocate budgets for direct central provision or to give to various state governments. These are generally through the five year plans encourage and offer incentives (generally in taxation) to the housing industry (on building material, construction methods & technologies, housing providers, financial institutions and to the buyers)

1.2.1 The National Housing Policy 1994 (NHP)

NHP has been formulated by the GOI in the context of the Global Shelter Strategy and the endorsement of the enabling strategy for shelter as well as a comprehensive view of housing in the socio-economic development of the country. The policy states that “the crucial role of government at different levels is not to build houses itself but to make investments and create conditions where all women and men, especially the poor may gain and secure adequate housing, and to remove impediments to housing activity.” Increase in the supply of land and providing access to basic services for all, particularly the poor and the vulnerable groups are seen as crucial elements in the policy through direct intervention by the governments, for which several measures have been proposed. The policy also advocated creation of enabling environment by the state by eliminating constraints. On the whole, the emphasis was on households being empowered to provide affordable shelter for themselves.

1.2.2 The Draft National Slum Policy-1999 (DNSP)

The fundamental objective of this policy is that households in all urban informal settlements should have access to certain basic minimum services, irrespective of land tenure or occupancy status. Proposing that Cities without slums should be the goal and objective of all urban planning for social and economic development, the policy sought continuous supply/recycling of serviced and semi-serviced land suitable for high-density occupation by lower income groups as an answer to the growth of slums. For the first time, the policy advocated de-listing of slum dwellers who attained the desirable socio-economic status. While supporting grant of tenure to all squatters, the policy stressed that resettlement should be an option only when other options are exhausted. The policy provided guidelines for acquisition of private lands occupied by slums. Again for the first time, the policy spoke in favour of permitting transfer of property at a fee, to arrest black market. Pointed out that state and municipal funds for slum re-development, rational use of subsidies and improvements on community cost sharing basis with full recovery of user charges and taxes. Urban bodies are also asked to rationalise building/planning norms and standards and use creative unit design and layout patterns.

1.2.3 Urban land (Ceiling & Regulation) Act 1976

A very socialistic piece of legislation, which embodied the government’s commitment to the socialistic pattern of society. The three essential features of the Act were imposition of ceiling on the vacant land holding of individual or companies on a graded basis according to the classification of the urban agglomeration, and the take over of the surplus land after following procedure and payment of compensation, limitation of the plinth area of future dwellings, and regulation of transfer of urban property. It provided for exemptions. The Act was to prevent concentration of urban land in a few hands and to provide surplus vacant land to the government for redistribution for public purpose and low-income housing.

The measure attained very limited success in 70 urban agglomerations covered by it, due to exemption clauses, the unwillingness of the landowners to r with the land at low rates of compensation in the face of rising urban land prices, administrative delays and court injunctions. As against the estimated surplus of 250,000 hectares of land, the state governments could acquire about 34,000 hectares and bring to development about only 13,000 hectares. In the meanwhile the Act has frozen development on vast tracts of land and contributed to the steep rise in prices of urban land placing it beyond the means of a majority of the population. (PSN
Sundaram, 1996). Most of all, to avoid taking over land by the government, land was illegally sub-divided and sold which later come up for regularisation and provision of services.

The National Commission on Urbanisation (NCU) 1988 reviewed performance of the Act and recommended higher rate of compensation, deletion of exemption clauses and encouragement to land holders to develop their land for weaker section housing purpose. It suggested imposition of vacant land tax to arrest speculation and for more efficient development or transfer of land.

The year 1998 saw serious debate and efforts by Govt of India to repeal the Act to release private land for development activity, but the actual implementation is left to the various state governments.

1.2.4 Impact of economic liberalisation in India on housing for the poor

Since 1991, India has been trying to play a crucial role in global economy by adopting the liberalisation policy, the impact of which is felt very profoundly in the Housing sector. In the short run, the benefits of new economic policies are likely to accrue only to the upper income groups. Thus, the poor, who will not benefit from the market led growth, will be hard hit by the rising real estate prices. These impacts can be mitigated, to a large extent, with appropriate policy reform that combine market oriented housing support policies with targeted approaches to improve the housing conditions of the poor. However, the access to credit has improved with more financial institutions now lending loans to individual families.

With the State’s is role diminishing in direct provision of housing, the field is left open without any players for provision of EWS housing. LIG situation has improved with market prices being affordable, easy availability of housing, and improved access to credit. Attempts to involve private sector in delivering housing for the lower income groups did not succeed. The experience of large-scale licensing in Haryana and Uttar Pradesh states did only lip service. The plots reserved for the poor in those mega private sector land development projects are permitted to be disposed off by the private developers and the result is today a complete take over by the higher income groups.

1.2.5 Basic housing development types in India

a. Formal sector:

Individual households building dwelling units for self-occupation or for part renting.

Housing co-operatives building for a group of at least 10 households

Private developers building apartments for any no. of households depending upon the plot size and the market demand, both low-rise and high-rise

Employer housing (staff housing) where large companies in public and private sectors construct mass housing and provide the same on rental to their staff. This type also includes rental stock created by the central government and the various state governments and municipalities for their employees

Public housing, which is generally provided by the state level agencies like the housing boards or the urban development authorities, municipalities or any other such state level authority. The biggest being the Housing Development Boards established in all states, which construct housing in all the districts of the state in the form of mixed-income group housing or weaker section housing or for any special target groups such as socially backward classes.

Public housing for special target groups including disaster-affected people or for low-income groups or for any special occupation groups.

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5 "New economic policies and urban housing” by Dinesh Mehta in Urban India in Crisis, edited by Kulwant Singh and Florian Steinberg - 1996
b. Informal sector

Squatter settlements

Illegal land sub-divisions where a parcel of land owned by govt. or private individuals is divided into plots without any statutory approvals and sold illegally to households. The individual households in turn develop housing on these plots without any further permissions and later form pressure groups to get the developments regularised and to get access to all services such as water supply, sanitation, electricity etc. People in illegally sub-divided layouts are less poor than those in the slums and have means to make initial investments on the plots.

1.2.6 Need for public sector intervention in housing for the poor

Urban poor in India is generally concentrated in slums, which symbolise the outcome of the inability of the city to provide land and shelter to all its citizens (A. Bhattacharya, Nagarlok – problems of urban slums and possible solutions). 30 to 50% of urban households live in slums with 35% of the urban population living below poverty line. While it can be argued that these settlements have provided majority households with affordable and shelter, as per Jan Van der Linden (editorial We Do We Go From Here, Third World Planning Review-August 1994) there are obvious disadvantages of remaining in informal housing. These are lack of protection to the victims from all sorts of injustices, malpractices and oppression due to working out of law, high costs of regularisation, loss of tax and other revenue base for the governments, formal planning and development processes becoming questionable as a majority of the population is outside its framework and partly the entry of informal housing too becoming unaffordable to some.

The formal processes for providing low-income housing are, therefore, necessary. While the problem of major cities is to take up schemes to bring slums into formal fold by offering tenure status or shelter upgradation or re-development, there was also a need for creation of additional stock. Since later seventies, the additional stock has generally been by way of serviced plots or by providing fully built houses. In seventies governments in developing countries began adopting approaches for low income housing programmes, legalisation and upgrading of squatter settlements and sites & services schemes (SSS) for creation of new housing stock. The SSS approaches were later criticised for their remaining demonstrative without being scaled up, and for inadequate land supply for the same and for mismanagement of the schemes.

It is often felt that governments were not comfortable with SSS as providing mere services sites implied that government was incapable of providing total and ready made houses. The initial low standards offered in SSS were felt beneath the dignity of governments. Another reason identified was that the schemes are for new population, and hence are not vote banks like squatter settlements. The last reason is that the construction sector tends to favour ready-made housing. Built housing where initial costs are high is, therefore, an option for the public sector. Even though it may not be affordable to the poorest of the poor, it may retain the low-income groups well.

1.3 Housing Finance in India

As already mentioned, investment by private sector accounts for 93% of the housing finance in India in 1996. The formal Housing Finance Systems in India (HFI) are budgetary support of central/stage govt.s., resources from General Financial Institutions (GFI) (Life Insurance Corporation of India, General Insurance Corporation of India, the commercial banks etc.), Housing Financial Institutions (HFI) like Housing & Urban Development Corporation (HUDCO), Housing Development Finance Corporation (HDFC), the National Housing Bank (NHB), housing co-operative, specialised subsidiaries of various banks (Andhra Bank Homes) etc. Despite a rapid growth in the HFS over the years, resources from the formal systems still constitute a mere 16% of the total investment in the housing sector because of its weak financial base attributed to the low household savings. Most of the finance is extended for house construction rather than for getting access to land. While it was made mandatory for GFIs to allocate a fixed percentage of their resources for housing finance, commercial banks were directed that at least 30% of the
allocation of banking sector for housing should be reserved for direct lending, another 30% for term loans to public housing agencies and the remaining 40% for subscription to the guaranteed bonds and debentures of HUDCO and NHB. 55% of the housing units financed by HUDCO are for EWS and LIG categories, at lower interest rates of 9.5 to 13.5% and with 85 to 90% of the cost of the house being provided as loan.

Out of the total investment in the economy, the various five-year plans of central govt. allocation for housing sector reduced from 34% in 1951-56 (first five year plan) to a mere 9.7% in the 8th Plan (1992-97). While other sectors got priority, liberalisation may further reduce govt’s allocations for housing. While the contribution of public sector in investment on housing has reduced from 22% to 7%, that of private sector has grown from 78% to 93%.

While the performance of NHB is not noteworthy, HDFC is primarily financing the MIG and HIG though simplified procedures and it is only HUDCO, which is financing the weaker section housing as a priority. HUDCO provides housing finance for EWS & LIG housing at lower interest rate, with a repayment period of 10 to 15 years and finances up to 90% of the house cost. HUDCO also started extending loans to the individual households since 1999.

1.3.1 Recent trends in housing finance

Early nineties have witnessed the mushrooming of housing finance institutions and liberal policy and procedures for lending for housing. Purchase of land for housing is now being financed and re-financing has also become possible. While in the past employees who could not wait for cheaper housing finance from their organisations had to secure loans from HFIs, today they can repay these loans as soon as the loan from their organisations is available. While most of the HFIs (except HDFC which reached middle and high income groups) provided loans only to the public housing agencies in the past, they now provide loans to the real estate developers and even to the households. The HUDCO NIWAS programme and most other agencies process individual applications and release loans for housing in 7 to 10 days if all the documentation is submitted. This has opened up many channels for borrowings by individual households and the demand for public housing schemes linked to institutional loans has decreased.

1.4 MUMBAI

The state of Maharashtra has the highest rate of urbanisation in India, 35%. Greater Mumbai, the capital of Maharashtra and the financial capital of India, had over 12 million population in 1991 with reduced growth rate recorded between 1981-91. However, as per the recent estimate by UNPF, Mumbai will be the most populous city in the world by 2020 with a projected populated of 28.5 million. Mumbai accounts for 54 percent of factory employment of Maharashtra state. It is estimated that the average annual incremental demand for housing is 30,000 units and the replacement demand of dilapidated houses is another 15,000, thus making the total demand of 45,000 units per anum for the next ten years. Against this, the current supply mechanisms are providing only 20,000 units a year (Shelter supply in MMR 82-91, MMRDA).

1.4.1 Public housing in Mumbai

The public housing component is a mere 6.28 percent although it is the most affordable form of shelter for most aspiring residents in any urban area in India. This is due to limited resources available with the public agencies for housing. Even here, 50 percent of the budgetary allocations had to be for the higher income group housing so as to cross-subsidise the economically weaker section component. It is being increasingly realised that public housing options cannot fulfil the requirements of the growing mass of poor people in terms of cost, scale and variety and that land assembly for housing projects is becoming extremely difficult. Thus it becomes a viable option only in situations where land banking is available. Against this background, emergence of Navi Mumbai with public ownership of land acquires significance.
1.4.2 Slums in Mumbai

55% of Mumbai's population lives in slums, a majority of them living on marginal lands and on private lands. They occupy a mere 5% of the city's land. The population density in Mumbai slums is 400,000/sq.km as against 23,000/sq.km. in other areas. 68% of Mumbai's workforce is engaged in informal sector activities. Slums in Mumbai also throw up social problems due to very low female: male ratio. 73% of Mumbai households live in one-room tenements indicating the growing need for family accommodation. The most recent survey of slums identified 2644 pockets and 1,120,290 huts, meaning 5.5 million people who constitute 55 percent of Mumbai's population. 51 percent of the huts are situated on government lands. It is estimated that about 50 percent of slum households are below the poverty line and hence have very little affordability towards formalising their housing stock.

Thus the problems of housing for the lower income groups in Mumbai are a problem of addressing the slums. The Government of Maharashtra has created both legislative and institutional framework in the past to improve the situation in slums. While there are several institutions dealing with the problems of slums, it is the Maharashtra Housing and Area Development Authority (MHADA), which carry the main responsibility. On the legislative front, the following acts have been brought about:

Maharashtra Slum Areas (Improvement, Clearance and Redevelopment) Act (1971) : The Slum Improvement Board was created under this act which later became the Maharashtra Housing and Area Development Authority (1972) and implemented the schemes of slum improvement and environmental improvement. By 1993, 4.1 million slum dwellers were provided with services under the above schemes at a cost of Rs. 820 m (US$ 23.4).

The Alternative Sites Act was introduced in 1973 reduced the responsibility of government from providing alternative accommodation to slum dwellers, to provision of developed sites.

The Maharashtra Vacant Lands (Prohibition of Unauthorised Structures and Summary Evictions) Act in 1975 gave powers to the government to clear slums without providing any alternative accommodation.

The Urban Slum Renewal Schemes saw resettlement of slum dwellers from certain pockets in Mumbai at far away locations on specified plots of land (referred to as pitches). This too met with stiff resistance.

1.4.3 Housing schemes for the poor

The subsequent housing schemes for the poor included the 100,000 tenements and 8000 developed plots provided by the MHADA. Another 15,000 tenements were built under the Prime Minister's Grant Project (PMGP) in the early nineties and finally under the World Bank financed Bombay Urban Development Project (BUDP) 60,000 new serviced sites were allotted and 15,000 slum households were given leases of their occupied land.

The search was then for finding city wide solutions that offered on-site shelter improvement and involving participation by much wider group of actors. An idea gained credence in late eighties that additional buildable space could be offered as an incentive to cross subsidise the costs of slum re-development. An outcome of this thought is the Slum Redevelopment Scheme (SRD), first introduced in 1991 and improved in 1995, by involving the commercial private sector as well as the slum co-operatives/NGOs by offering land-based incentives. The scheme is explained below.

Each eligible slum dweller is now entitled to one free tenement of about 30m2 construction area. To make the rehabilitation unit free, a proportionate construction area is permitted to be built and sold in the market by the developer. The property market in Mumbai is expected to make the cross-subsidy possible at this rate. The scheme can be taken up only if 70 percent of the eligible slum dwellers consent and land is leased for 30 years to the slum co-operative. Landowners (both public and private), co-operative societies of slum dwellers, real estate developers and non-governmental organisations are permitted to take up redevelopment on this principle. The
primary variables affecting the viability of SRD scheme are the existing density of the slum and cost of construction (favourable if low), and the property values (favourable if high). However, the differential construction area for sale theoretically takes care of the viability of schemes at all locations.

Two institutions have been newly created to deal with the scheme, Slum Rehabilitation Authority (SRA) in 1995 as a regulatory authority to provide single window clearances, and Shivshahi Punarvasan Prakalp Limited (SPPL) in 1998 as an implementation and financing body. Up to December 1998, around 367 schemes involving a total of 75,682 tenements have been sanctioned. Of these, only 183 schemes involving 23,280 tenements are under actual implementation.

1.5 NAVI MUMBAI NEWTOWN

The city owes its origin to the realisation in late 1960s that Greater Mumbai has limits to its proper growth due to its peculiar wedge shape confining physical growth. Activity concentration in the southern tip necessitated upward growth of residential townships resulting in long and tedious journeys. To decongest Mumbai metropolis, it was envisaged in sixties to take up development of industries and townships all over the state of Maharashtra as a state-wide Industrial Decentralisation policy. Navi Mumbai new town has come into existence in 1970 across the Mumbai harbour on the mainland, as a metro sized alternative growth centre to decongest Mumbai. And CIDCO was created as a New Town Development Authority responsible for the planning and development of Navi Mumbai.

Covering an area of 344 sq.km. Navi Mumbai project was envisaged to be developed on a self-financing basis using land as a resource. The entire private land was acquired by the government and placed at the disposal of CIDCO. Land banking and a flexible plan permitted effective plan implementation. Started in 1970, Navi Mumbai is developed with polycentric pattern of development with 14 self contained townships called nodes strung along the mass transit corridors. The new city was to achieve a population level of 2 millions and jobs of 700 to 800 thousands by 1991. In thirty years, the new city accommodated 1 million people and 200,000 formal sector jobs. The present densities and accommodation trends indicate holding capacity of about 4 million. There are an estimated 25,000 families living in squatter settlements, especially near the industrial belt. The primary employment is industry (70%) and wholesale markets (8%) and the office sector.

1.5.1 The Economic Base

In 1970 the only economic base available in Navi Mumbai was the two industrial estates of Thane-Belapur and Taloja. Present level of jobs in these two areas today total about 120,000. CIDCO on behalf of the Agriculture Produce Market Committee (APMC) has also shifted the wholesale agriculture produce markets of Mumbai to Vashi at Navi Mumbai, achieving the objective of decongesting Mumbai, by releasing activity space and reducing of traffic congestion in Mumbai. An estimated 5,000 trucks to APM are now terminated at Navi Mumbai every day. From the wedge of Mumbai they are now shifted to a location more centrally placed within Mumbai metropolitan region, leading to significant economy in the distribution costs of produce. An estimated trade turnover of over Rs. 60 billions annually is expected from these markets enabling faster take-off of Navi Mumbai. The markets are also estimated to provide 60,000 direct jobs. The wholesale marketing activity has ensured development of warehousing, transport activities and other services like banking, insurance, residences etc. The impact of the markets is also felt in the housing for traders and workers, finance and other sundry services. All the people associated with shifting of the wholesale markets are eligible for preferential allotment of lands for housing at confessional prices.

CIDCO took up development of Vashi on govt land closest to Mumbai with infrastructure available due to its proximity to existing Thane-Belapur industrial estate. The Navi Mumbai project has been a testing ground for many new approaches in physical planning; land
assembly, public-private partnerships in provision of services, maintenance of properties by resident condominiums, greening of public spaces, etc. and public-public partnership for financing the transport infrastructure projects.

Total development expenditure on Navi Mumbai : Rs. 56 Billions
Expenditure on housing stock creation : Rs. 9 Billions (16%)

1.5.2 Land Pricing mechanism in Navi Mumbai

Land is the only resource for financing development in Navi Mumbai. Valued at Rs. 4 to 30/m2 in 1971, it was to become a resource only if value addition was done by CIDCO. Since the project was to be self-financed, CIDCO had to evolve a foolproof method of making the land development break even at any point of time.

a. Reserve Price of land

The break-even cost known as Reserve price (RP) is worked out for each node. The land acquisition & development cost (past and future) of a node is calculated and divided by the saleable area of the node. RP is revised every year node-wise, and presently varies from Rs. 1500/m2 to Rs. 3,200/m2. This method of pricing ensures that the project breaks even in the worst scenario.

b. Differential land pricing

Land being a precious resource, the system of pricing land under various uses is evolved based on the affordability of the end user, its desirability in Navi Mumbai, and the market value for the same. The policy adopted charges EWS/LIG housing between 25 to 50 percent of RP and social facilities including educational at 10 to 50 percent of RP. The subsidy given to these groups is recovered by changing market price for commercial and prices higher than RP for the MIG and HIG housing. Thus the variable for fixing the price of a parcel of land are Reserve Price, Pricing Policy, Disposal mechanisms (ex: housing co-ops are allotted land at fixed price while commercial plots are auctioned), Land-use, Income group in case of residential, and the level of development of the node (ex: plots for housing co-ops in developed nodes like Vashi are sold at 250% RP while those in developing nodes are sold at 200%). Lands in Navi Mumbai are allotted only on leasehold basis for 60 years.

1.5.3 Housing stock in Navi Mumbai

CIDCO takes up housing schemes with institutional finance and infrastructure development with sale of land. So far about 50% of the land is developed, but only about 25% of the residential land is constructed upon and occupied. The total housing stock created in Navi Mumbai is about 175,000 units, out of which 109,522 units are built by CIDCO. The estimated population of Navi Mumbai in the year 2000 is about 1.0 million, which is 25% of the holding capacity of population of Navi Mumbai at current occupation trends. By income groups, CIDCO catered to:

<table>
<thead>
<tr>
<th>EWS+LIG</th>
<th>BUDP</th>
<th>Others</th>
<th>MIG</th>
<th>HIG</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>24,653</td>
<td>31,660</td>
<td>40,313</td>
<td>12,896</td>
<td>109,522</td>
<td></td>
</tr>
</tbody>
</table>

CIDCO built 63% of the housing stock and the rest is built by the private sector consisting of individual households, housing co-operatives, corporate bodies for their employees, and real estate developers. About 65% of the households own their houses in Navi Mumbai.

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650 sq.m. per household is the average spatial occupation rate of housing in Navi Mumbai currently. The holding capacity of Navi Mumbai is calculated based on the present land-use allocation for residential purpose and the permissible construction on the same.
1.5.4 Ews & Lig Housing in Navi Mumbai

As per the Socio-economic survey conducted in Navi Mumbai in 2000, about 38% of population belongs to EWS & LIG categories. The same figure for Mumbai is over 65%, but the lower percentage in Navi Mumbai can be attributed to the following factors:

There is a higher percentage of nuclear families

The household size is 4 compared to Mumbai’s 5.07

There is a higher percentage of formal sector employment

The population living in slums is negligible

About 32% of the total city’s stock (CIDCO constructed and by the private sector) is for EWS and LIG categories, but out of the CIDCO constructed housing, a much higher 51% is for such groups. The types of housing provided is: Built housing, sites and services with constructed houses, partially constructed and only developed sites.

a. Affordability Criteria: Affordability criteria adopted by CIDCO are threefold. First is the criterion for conventional houses, which are given to EWS/LIG on hire purchase basis. In this the purchaser is expected to pay 20 to 33 of the total cost as down payment and the rest as equated monthly instalments (EMI), which are not more than 18% of his monthly income. This criterion is in line with the one prescribed by HUDCO. Second is the criterion for the serviced sites of CIDCO. Under this, the cost of sites is very low, but the buyer’s contribution is higher at 33 to 40%. Equated monthly instalments are limited to 13% of the monthly income. Third is the criterion for “Sites & Services” under the BUDP schemes where the buyer’s contribution is not to exceed 1.5 to 2 times the mean monthly household income and the EMI is not to exceed 15% of the mean monthly income for purchase of a serviced site, and 25% including repayment for optional construction loan.

b. Allotment procedures: The built housing schemes in early years were advertised and allotted on first come first served basis, as the supply was more than the demand and the early customers generally got to choose the location and floor of the apartment. The built tenements under demand registration housing scheme, everybody who registered got a tenement, but the location and floor of the tenement were decided by a computerised draw of lots from among the tenements of similar area. The serviced sites under the BUDP scheme were subsidised, were plotted developments and hence were in great demand. After advertising and receiving the applications, the allottees were chosen on the basis of drawl of lots. The location of plots too, was, decided on the same basis. In other words, when the demand is too much in excess of supply, which was the case when the property prices went very high, or when the property is sold far below the market prices, drawl of lots method is adopted. And when the supply is close to demand, allotments are on the first come first served basis.

c. Subsidies: The earnings of EWS and LIG imply that housing for the urban poor needs subsidy in some form or the other, Low interest loans from HUDCO and under BUDP is one form of the subsidy. For example, up to 1995, HUDCO has provided Rs., 163.6 million loan at annual interest rates varying between 5 and 9% for EWS category and Rs. 524 million at annual interest rates ranging from 7 to 12% for LIGs. These loans are not by themselves sufficient to provide affordable housing, considering the criteria as above. An important form of subsidy is through provision of developed plots for EWS/LIG housing at below the Reserve Price. CIDCO charges only 25 to 50% of the Reserve Price for land for EWS/LIG houses, depending upon the size of the plot/tenement.

d. Special Regulations for the EWS housing: The developments in Navi Mumbai are governed by the General Development Control Regulations for Navi Mumbai (GDCRs). GDCRs specify special regulations for preparation of layouts and building byelaws, primarily lowering the...
general standards. These include higher densities, reduced common open spaces, plot sizes, open spaces around the buildings, room sizes, tread & riser of the staircases etc. These were brought about as amendments during implementation of the BUDP schemes financed by the World Bank. The plots allotted to the original villagers as part of the compensation package for acquisition of their lands, also have reduced regulations. As a political commitment, these plots are allotted with higher development potential (FSI) and for a mix of residential and commercial uses. The reduced standards are to permit consumption of the full potential as promised, on the smallest plot (40 sq.mtrs.) also.

Out of the 112,136 houses constructed & under construction by CIDCO in Navi Mumbai, 49% has been for the EWS/LIG categories. However, if the tenements constructed by the private sector are added to the total stock in Navi Mumbai at present, the percentage of EWS/LIG housing reduces to about 39%. Considering the average dwelling unit size of 64 sq.mts. constructed by the private sector, it is clear that the provision of housing for the lower income groups will have to be the responsibility of public agencies along. Thus CIDCO needs to continue its efforts at providing affordable housing to this group. It is estimated that to house the targeted 2 million population in Navi Mumbai by the year 2005, an additional housing stock of 300,000 is to be created. The housing policy statement of CIDCO-1995 advocated that 60% of this is to be provided as the lower income group housing, to bring the percentage of EWS/LIG to 50% of the total housing stock (as the population of this groups constitutes 50% of the total population of Navi Mumbai).

e. Bombay Urban Development Project (BUDP): About 25,000 units out of the EWS/LIG are provided by way of serviced sites through the World Bank financed BUDP Sites & Services schemes in three phases between late seventies to early nineties. As per the WB norms with regard to BUDP schemes, a minimum of 60% of the total dwelling nits are to be provided for the target group of EWS category and the units should be sold by open advertisement inviting the eligible beneficiaries to apply. This guideline, it was felt, overlooked the local administrative and other reasons which necessitate allotment to a particular category of EW/LIG without public advertisement. 40% of the scheme are is developed and sold as plots for higher income groups at market price to cross subsidise the 60% land under EWS/LIG housing.

The individual dwelling units have potential for incremental (Progressive) additions, but total physical and community infrastructure are provided by CIDCO. A core house is constructed and suitable housing finance is made available to enable households to complete construction of their tenements with materials of their choice and self-help. They were part of large composite sites & services schemes where plots for higher income groups were provided at locations with higher market potential, thereby making the subsidies on plots for EWS economically viable. The plot sizes for the weaker section varied from 21 to 32 sq.mts. A recent survey indicates that about 70% occupants moved in from the other parts of Navi Mumbai itself indicating that the local industrial workers of Thane Belapur industry moved in to these schemes due to their proximity to the industrial belt. Thus location of EWS/LIG schemes close to existing/proposed work centres played a crucial role in Navi Mumbai in making them a success.

The allotment procedures laid down by the World Bank demanded that urban poor from the entire MMR should be eligible for EWS plots, CIDCO had more local problems to address. Allotting plots to the poor from Navi Mumbai in Phase-II lead to the World Bank withdrawing finance for phase-III. Phase-III is, therefore, entirely financed by CIDCO using its internal resources. Due to the internal finance, and the high costs of development in early nineties due to gulf war, CIDCO could not provide part construction on serviced plots as it would have gone completely out of their affordability. Hence the cost is kept low and recovered by outright sale of serviced plots to the poor.

7 Ex: The open space requirement is 10% as against 15% in a layout for other developments. Similarly the front and side open spaces required for EWS plots is 1.0 and 1.5 mtrs as against the 3.0 mtrs required for general developments. The minimum tread of the staircase is less and the riser is more in the case of EWS houses.
This was necessary, as CIDCO’s policy does not permit any subsidy on construction component. In the case of such plotted clusters, all the units in one cluster are formed into a single housing co-operative after allotment, and the co-ops were to undertake development collectively. This was to ensure both economy and save space by adopting common walls. However, the experience of these co-operatives shows that the plots change hand right in the beginning and a higher income group takes over.

1.5.5 Built-housing schemes in Navi Mumbai for ews/lig

In the context of Navi Mumbai where land values are high, the following observations can be drawn in case of both plotted developments and constructed premises for EWS/LIG:

a. Constructed houses : High initial cost, no possibility of incremental additions to built space, but retains the intended income group and provides much higher densities, saves land.

b. Plotted developments : Low entry cost and thus easy access to lower income households, but high cost of land in the market forces changing hands fast. Incremental additions as per the capacity and requirements of the households are possible. The densities achievable are low and land is less intensively utilised.

1.5.6 Role of private sector in providing affordable shelter to the lower income groups in Navi Mumbai

The average size of tenements built in the private sector is 65 sq.mts. while the general sizes adopted by CIDCO for EWS/LIG are 18 to 25 sq.mts. This speaks for the role private sector has been playing in providing shelter to the lower income groups. CIDCO tried to make an intervention and devise ways to involve private sector in this endeavour by offering large parcels of land for private sector development with a stipulation that they should deliver to CIDCO/construct on their own, certain percentage of housing stock for the LIG. The private sector did not agree on this, and got this clause deleted finally. However, the entire venture did not succeed due to various other reasons.

However, a newly emerging trend is provision of LIG housing on the plots allotted to the villagers as part of the compensation package for acquiring their lands for Navi Mumbai project. A political commitment to share the benefits of development with the villagers, the package offered is return of 12.5% of the lands acquired, to the villagers as a developed plot. Though the level of development of the plot is lower in this case, the plots are granted higher FSI and with mixed land use of residential and commercial (15% of the FSI). Since most of the early allotments were around the original villages, the villagers had less access to finance and were always in a hurry to make quick money, and due to the level of development & standards being lower, these developments delivered cheap rental and ownership houses to the EWS & LIGs in Navi Mumbai. However, due to high political intervention, the new trend is to locate these plots at prime locations. The villagers are now permitted to sell these plots to real estate developers who in turn provide housing for the HIG or LIG depending on the market potential of the site. It is expected that these plots will continue to deliver, even if at reduced rate, LIG housing even in future.

1.5.7 Slums in Navi Mumbai

As per a survey conducted in 1996, there are about 25,000 slum households in Navi Mumbai. The vast hill slopes and the creek fonts, the railway corridor reservations, and the areas around the 95 villages have witnessed mushrooming of slums. Their existence can be attributed to a) due to its proximity to Mumbai, where real estate prices have always been far higher than anywhere else in the country and where, most of the crime centres around acquisition of real estate, and b) due to other developments taking precedence over focus on the needs of lower income groups, the city may encourage formation of slums.
Policy regarding slums in Navi Mumbai: CIDCO does not have a policy of enumerating, declaring and addressing the problem of slums. Some settlements have been taken up for resettlement due to urgency of clearance of the sites occupied or under political pressure. Since 1992, Navi Mumbai Municipal Corporation (NMMC) has come into existence for the developed parts of Navi Mumbai. The role distribution between CIDCO and NMMC, even for other functions is a hot issue, which is yet to be resolved by the government. Since most of the slums are situated in the developed parts of Navi Mumbai, CIDCO now thinks that the problem should be dealt with by NMMC. However, the time has come for the statutory revision of Navi Mumbai Development Plan and while carrying out this exercise, CIDCO will need to adopt a definite policy regarding identification and attending to the problem of slums.

1.5.8 Vashi Node

Vashi is the first township to be developed by CIDCO due to the following reasons:

Its proximity to Mumbai

All the lands in Vashi were low lying, non-agricultural, and belonged to the government hence CIDCO did not have to wait for land acquisition in this area

Infrastructure availability due to proximity to existing industrial developments

After three decades of development, Vashi is considered to be the financial, job and cultural centre of Navi Mumbai. With a population of about 200,000 today, it occupies about 1000 ha. of land and is almost fully developed. Accessible by road, rail and water, the township is water fronting on its western side and by dense developments on other sides. Major industries abut Vashi on its eastern boundary, which offer employment and also pollution. Vashi has been the experimental ground for many firsts in Navi Mumbai. An early development plan for Vashi permitted developments to take place while the first Navi Mumbai Development Plan was prepared and approved by the government for implementation in 1979.

A central spine running north to south connects Vashi to Mumbai-Pune state highway on southern side and to Koparkhairane (KK) node on the northern side. While the first developments of residential and commercial districts occupied the obvious southern half of Vashi, with its nearness to the Mumbai-Pune road, the developments in late 80s and early 90s were concentrated on the northern end, enroute to KK, coinciding with the developments in KK.

DRS Scheme in Vashi: There were two DRS schemes in Vashi in sectors 26 and 29. Sector-26 consisted of only EWS, LIG and lower MIG units while sector-29 consisted of lower MIG to HIG units. Sector 26 is located across the agriculture produce market and service industries and hence it the demand in this vicinity was for LIG houses while sector-29 is located along the main spine linking Vashi to Koparkhairane and hence the provision of HIG units.

Sector-26 of Vashi extends over 25 hectares area and houses the DRS scheme and other types of housing such as plots for co-operative housing societies, large parcels of land allotted to companies and a village.

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8 Vashi is the first area across the Thane creek from Mumbai.
9 Thane-Belapur Industrial Area, one of the largest Industrial estates in India was developed prior to Navi Mumbai. The industrial area abuts Vashi, and had access road; water supply and other such infrastructure which could be extended to Vashi.
2. PROJECT LAUNCH AND CONSOLIDATION

2.1 AFFORDABLE SHELTER OPTION IN NAVI MUMBAI FOR THE LIG & MIG

With the property prices of houses in Mumbai in late eighties ranging between Rs. 20000 to 200,000 per sq.m. the lower income groups and even the wage earning middle income groups had no option but to house themselves in slums. This had also encouraged colonisation of the peripheral areas outside the city’s suburbs which had witnessed a population growth rate of 6 to 8% against Mumbai’s 2% during 1081-91. But since most of these areas lacked planned infrastructure except commuter railway, the urban services were deficient resulting in chaos. Navi Mumbai became a viable option for the lower and middle-income groups, particularly with the announcement that commuter railway would be made available by early nineties. By mid eighties, CIDCO was acknowledged as an innovative and trustworthy public sector organisation with a track record of delivering quality urban services.

2.2 DEMAND SURVEY

In 1987, the Board of Directors of CIDCO, a fully owned company of the state government of Maharashtra, took a review of the houses constructed by CIDCO over the previous 17 years and concluded that the organisation can be made much more effective and its contribution can be greatly augmented if new methods of construction management are adopted. The result was the idea of demand registration survey, which brought in 55,000 applications in a months time. The organisation felt that such a large programme of housing couldn’t be provided by CIDCO’s in-house staff by following traditional approach to construction management due to:

Paucity of critical staff recruitment of which required government approvals and even if that were possible, the staff would be rendered useless once the large scheme is constructed. Instead it was felt that the in-house professionals could concentrate on infrastructure development projects

Variety and diversity in layout planning and building & house type design will be lacking if such a large-scale project is handled in-house and may result in monotony and poor quality due to lack of effective supervision.

2.3 A new approach

It was then decided to adopt a different approach for delivering housing against the registered demand. Towards this end, a) pre-qualified developers were invited to quote on turn-key basis with their own designs and layouts, and b) eminent architects/planners invited to design other schemes. Both were to follow the design briefs furnished by CIDCO and work along with the project management consultants appointed by CIDCO. While the developer was to complete the construction and hand over the houses to CIDCO for allotment to the registered eligible applicants, the architectural consultants were to bring the project up to the stage of tendered after which a contractor take up the construction under the supervision of the architect as well as the PMC. It was expected that use of modern methods of monitoring such as CPM and PERT networks by PMCs would deliver better results. They were also to report financial and physical progress of work with reference to pre-fixed targets, review progress in view of time and cost parameters, and suggest improvements from time to time. In both cases, CIDCO’s role was reduced to that of progress monitoring and co-ordination.

The two financing mechanisms were then workout for hire-purchase (18 to 50 sq.m. tenements) through HUDCO finance, and outright sale through self-finance by the prospective buyers.
3. SUSTAINABILITY OF THE PROCESSES

The experience of Navi Mumbai is unique and some of the practices and strategies adopted here for provision of housing in general and for the lower income groups in particular are of great significance. The following explain the processes adopted to achieve the results. It is further discussed as to the reasons for sustainability or non-sustainability of the relevant practices in future and the alternatives that need examination.

3.1 THE PRESENT PRACTICES

3.1.1 The development strategy
The strategy adopted by CIDCO is to first build composite housing schemes for all income groups and also the necessary social facilities such as schools, hospitals, fire stations, police stations, gardens, shopping, community centres, electrical and telephone facilities, sewage treatment plants, ground and elevated water reservoirs and also reserve plots for religious and other cultural amenities. This helped in attracting population to this ready to move in accommodation with improved quality of life and a safe environment for the children. These pockets acted as nucleus for new settlements around which developed plots were then sold for residential and commercial uses.

3.1.2 Arrest of land speculation
The Navi Mumbai Land Disposal Regulations stipulated that all plots are to be developed within a specified time frame and with 50% of the permissible construction on the plot. If not, an additional lease premium is levied when the owner approaches for further development permission, which is so high that it is not affordable for anybody, particularly those who purchase land in auction at market prices. Speculation on land is, thus, prevented to a large extent. Another measure that prevented speculation on land in the new city was that the plots leased by CIDCO are not permitted to be sold in their vacant form. Sale is permitted only with construction on the plot and at a transfer fee.

3.2 LESSONS FROM BUILT HOUSING SCHEMES

The adoption of conventional technologies for construction of built-housing schemes in Navi Mumbai suffered from time delays, cost over-runs and quality aberration and wide variation in design of dwelling units as well as quality of construction. Particularly, the experience of Demand Registration houses showed that the construction time varied between 2.5 to 6 years with a price escalation of about 20%. The basic reasons were fluctuation in quality and market for building materials, the execution depending on several sequential & interdependent activities leading to loss to time in waiting for completion of pre-requisite activities to begin a new activity, execution of work by mostly untrained labour force. The end result was financial losses to CIDCO, the contractors and ultimately to the buyers of the houses.

A search for technologies requiring lesser number of activities and those using factory produced & standardised materials and mechanised techniques of construction to ensure uniform quality. The result was to manifest in good quality houses, speedier delivery within the estimated cost. Thus tunnel form of construction technology is being adopted since 2000 for most of the housing schemes being taken up now where the houses are constructed within a year’s time. But time will tell us the advantages and disadvantages of this method of construction and its user

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10 All lands in Navi Mumbai are leased by CIDCO for 60 years and further transfer of lease by the first lessee attracts levy of transfer charges to CIDCO. This is a source of revenue to CIDCO in addition to the stamp duty, which accrues to the State Government.
satisfaction level after occupation. Quite a few big construction companies with imported equipment perfected the technology, but local production of equipment is also being experimented.

One foreseeable concern is rigidity of the method with all the members of the houses being structural. This will certainly reduce the scope for incremental additions and alterations by households after occupation, especially from the lower income group. Also due to the expensive equipment and trained manpower required to handle the same, presently the technology costs higher than the conventional technology, but large schemes will be able to offset these costs. The new methods adopted in contracts also include, fixed time of completion for the contractor, handing over constructed tenements in phases, fixed price contracts with no escalation clause, timely payments by CIDCO, payment of interest for delay on both sides and increased defects liability period from one year to five years.

3.3 LIMITATIONS TO PARTICIPATION OF PRIVATE SECTOR

CIDCO attempted to allocate large tracts of land for development by the private sector. In return, 25% of the land was to be utilised for building LIG housing and returned to CIDCO for sale. But this clause discouraged the prospective developers and its dilution to the extent of only asking the developers to build 25% of the housing stock on the project areas as dwelling units below 25 sq.mtrs. also did not yield any results. Providing large tracts of land unconditionally to the private developers would have necessitated CIDCO taking up large-scale housing schemes for the poor outside these pockets without any prospects of cross-subsidy making the whole experience unsustainable. The same would also have created islands of HIG housing on subsidised public land. It will be a long time before the commercial private sector in India contributes to provision of housing for the poor. A more practical alternative is to equip individual poor households to get access to land and credit and let the commercial private sector obtain land and credit at market prices.

The experience in Navi Mumbai shows that private sector will at best play a marginal role in provision of housing for the lower income groups. The main reasons for this are, the unit cost of construction is higher for smaller houses, the affordability of EWS/LIG is lower and the private sector wants a high profit margin. Therefore, there is a need for a key role for CIDCO to play in the provision of EWS & LIG houses. While CIDCO has so far provided a sizeable stock for these categories, sustainability of the attempt should manifest in continuous supply of EWS/LIG units by CIDCO or other public housing authorities, in adequate numbers to match their composition among the population. This in turn should result in no further increase in the population living in slums in Navi Mumbai. The commitment by way of the housing policy of CIDCO approved by it Board is the first step in this direction. However no further commitment to provision of targeted housing schemes for the poor is made since early nineties. Land and budgetary allocations in a fixed manner may improve the situation. However, the issue of acknowledging and upgrading the slums needs to be addressed at the earliest.

The much-debated evils of the Urban Land (Ceiling & Regulation) Act will also have to be debated now in India. If the arguments that the Act severely restricted the supply of land for housing are right, its repeal should greatly improve supply of land. Repeal of this legislation with a socialistic objective of increasing the supply of land for housing the LIG by redistributing urban land is not replaced by any other workable mechanism. Also the real estate developers this author has spoken to, do not feel so and mention that other interventions/policies have already achieved the same objective, especially in Mumbai metropolitan region. These are removing

11 50 to 200 ha. Paprcels were offered for development by global private sector with very liberal payment and development conditions.
restrictions on further growth of offices and employment centres in Mumbai city\textsuperscript{12}, development of new business centres in Mumbai city, application of slum-redevelopment approach in entire Greater Mumbai where the permissible construction on slum sites has been tremendously increase thereby creating scope for large-scale re-densification\textsuperscript{13} of these pockets and the overall slump in real estate market. All these factors have collectively contributed to decreasing demand for land and housing in Navi Mumbai.

### 3.4 **The Need for New Thinking**

Land being less of a constraint, the flexible planning instruments, and a forward looking institutional set-up like CIDCO being great assets, what is lacking is the commitment by CIDCO towards providing housing for the lower income groups in a sustained manner. A part of the problem is CIDCO being a bureaucratic organisation without much popular representation, and the elected representatives in the Municipal Corporation being more interested in vote banks from slums than from provision of formal sector housing for the lower income groups.

#### 3.4.1 **The context of new town and the status of ews housing in Navi Mumbai**

While decongestion of existing cities is not likely, counter-magnets to attract future additional growth can be an attainable goal. Particularly in developing countries, new towns might well be places where formal housing is an attainable dream for the poor. Within two decades of their coming into being, most new towns in India had 20-30\% of their population living in slums.

One of the stated objectives set before CIDCO for the development of Navi Mumbai was, “to provide physical and social services which raise living standards and reduce disparities in the amenities available to different sections of the population”, a noble objective for a self-financed new town. Also Navi Mumbai has conducive policy environment for legal shelter for the poor such as, less poor people, dispersed job centres and hence dispersed locations for LIG housing, the objectives set the direction for providing all the urban services to the poor, and a flexible development plan approach allowing detailing out plans as when the need arises giving scope for dovetailing housing schemes for the poor into the nodal plans.

The entire land of Navi Mumbai has been acquired and placed at the disposal of CIDCO, a single nodal agency, for using as a resource for development. Other financial resources are not provided to CIDCO as in the case of other new town projects elsewhere in India and other parts of the world, such as capital cities. Though this posed constraints as the city had to constantly struggle to self-finance its development, it is still a question to what extent the land resource is utilised for accommodating the poor in Navi Mumbai and to what extent their future needs will be taken care of. There is no doubt that the city needs the services of the urban poor and the opportunities of the poor to get fresh access to land in Mumbai are almost exhausted. While bringing out legislation and providing scope for private sector participation in re-development of existing slums in Mumbai, there is emphasis on arresting formation of new slums. Against this scenario, the poor view Navi Mumbai as an accessible and affordable alternative. At the same time vast tracts of public lands are in semi-developed stage are available in Navi Mumbai to make it very attractive. Also with increasing participation by private sector in provision of housing, the size of civil construction contracts became smaller requiring local and permanent construction labour force. Thus there are push factors from Mumbai coupled with the pull factors of Navi Mumbai in attracting the poor to it.

\textsuperscript{12} In mid sixties, the first Mumbai Metropolitan Region Development Plan froze further increase in activities in Mumbai and emphasised expansion of activities in areas such as Navi Mumbai. However, a revised Plan prepared in 1996-97 removed all these restrictions by arguing that Mumbai has immense potential for further growth of international business \& finance and any curtailment would be undesirable.

\textsuperscript{13} Under this approach, the redevelopment of one million houses of slum dwellers @ 30 sq.mtrs./unit will also permit 3000 ha. of construction area for other income groups to cross-subsidize the free houses to the slum dwellers. This will mean an additional stock of at least 800,000 dwelling units (3 million people) for MIG/HIG @ 50 sq.mtrs. per household which can accommodate three times the present population of Navi Mumbai.
Most of the EWS stock has been built by CIDCO between mid eighties and early nineties. Since 1994, no new schemes for EWS population are taken up. CIDCO being market oriented, Navi Mumbai being self-financed, less EWS population and due to the real estate market crash, CIDCO is forced to build what has market demand. Fortunately LIG has market demand now and hence benefits, but not EWS. Not that there are not resources including land, but CIDCO is too busy servicing its debts and is presently not bothered about EWS. Emergence of slums is not taken very seriously, worthy of formulating policies and attempting upgradation. There are multiple planning authorities\(^\text{14}\) in Navi Mumbai like Maharashtra Industrial Development Corporation (MIDC), Navi Mumbai Municipal Corporation (NMMC) and CIDCO. Even though most of the EWS has been created close to MIDC work centres, most of the slums are also located around here. Each of these authorities is waiting for the other to take the first step in addressing the problem of slums in their respective areas. There is a need for uniform policy to be decided by each authority sitting across the table.

### 3.4.2 New Options for increasing the land supply for EWS

Built housing has totally gone outside the affordability limits of EWS, while the serviced plots were the last delivery mechanism for the EWS used by CIDCO until early nineties. These plots consisted of extension of access, water supply, storm water drainage and sewerage to individual households. Analysis of cost components of BUDP Sites & Services schemes shows that land acquisition and ground preparation costs only 12-15% of the project cost whereas on-site and off-site infrastructure costs are as high as 60-80%. The remaining was towards provision of social infrastructure such as schools, community centres, daily markets etc. However, the non-saleable social infrastructure items such as community centres, gardens etc. require only 2-3% of the project cost, but result in immense social benefits. These figures indicate that there is a need to re-think about the delivery mechanism of EWS housing in Navi Mumbai. The solutions based on land availability, but low initial investment by public sector may be the most appropriate such as sites with minimum services. This approach may also make the plots unattractive for higher income groups for a considerable period.

On the other hand, part construction on plots is observed to ensure faster occupation and incremental improvements by the households as compared to easy transfer of open plots. A trade-off may be required where services and structure are not complete but sufficient for a household to start living on the plot.

The achievement for CIDCO would be reduced project costs enabling increased land supply (coverage). The approach has been tried\(^\text{15}\) in Latin America (Normas Minmus in Bogota, Colombia and the Incremental Land Development in Brasilia, Brazil), Africa (the Surveyed plots programme in Tanzania) and in Asia (The Incremental Development Scheme in Hyderabad, Pakistan and the Upgradable plots in Vijayawada & New Delhi, India) as a reactive measure, but can also be used pro-actively in areas such as Navi Mumbai where land is available with CIDCO. Thus Navi Mumbai fulfills the general pre-conditions for such approaches to succeed such as availability of public lands and the number of households, requiring absolute minimum shelter, being smaller. The sites could be near new employment centres of the Port and its related industry/warehouse in southern most part of Navi Mumbai, but on sites requiring lesser infrastructure costs and where peripheral infrastructure already exists. For the same reason this option will be viewed against the better serviced plots and built-housing units and be found less politically acceptable as Van Der Linden explains in the Third World Planning Review devoted to Incremental Housing. The advantage of this concept is provision of legal and inexpensive plots to the poor in a planned environment, which is affordable to the poor as well as to the public authorities.

\(^{14}\) The 74th Constitutional Amendment in India enabled the Industrial Development Corporation to act as a Planning authority.

\(^{15}\) Third World Planning Review has devoted the entire volume of August 1994, edited by Jan Van Der Linden, to discussing and documenting this approach under the title “Incremental Servicing and Housing”
3.5 **MICRO FINANCING THROUGH CREDIT**

Navi Mumbai is a new town and except the 10% population of the original villages, the rest of the population is new migrants from all over India. All the communities are new and heterogeneous and established linkages with one another after coming here. All the new housing has been for the new people hitherto unknown to each other and hence no community level micro financing was possible in the EWS housing. For the same reason community participation in the housing processes before and during settlement formation stages is absent. But introduction of the condominium concept has brought cohesion to the new communities. CIDCO encouraging the formation of cultural associations of regional groups from various parts of India has also brought together people with same place of origin. These condominiums and regional associations today act as representatives of new population, negotiating and lobbying for any policy affecting communities.

3.6 **FACTORS MAKING NAVI MUMBAI PROJECT A SUSTAINABLE EXPERIMENT**

CIDCO with its track record of being a very dynamic organisation should fulfil its obligations of providing affordable and acceptable shelter towards this large section of Navi Mumbai’s present and future population. The land bank and absence of illegal sub-division of land so far will help adopting new and wide approaches.

Though the special conditions in Navi Mumbai can ensure adequate supply of housing units for the EWS & LIG groups, the past experience throws up replicable practices for other organisations and situations. These are:

- Regulatory instruments to arrest speculation with heavy penalisation
- Devise composite housing schemes for all income groups for project-level cross-subsidisation
- Sustainable land-pricing mechanisms
- Layout patterns to justify direct subsidies on land
- Innovative and dynamic institutional set-up and creation of conducive environment for experimentation and new ideas
- Decentralised estate management
- Large scale and targeted public sector interventions – deliver in large numbers
- Location of the schemes close to employment centres that generate jobs with low incomes
- Choice of plotted developments or built houses depending on the housing finance mechanisms available
- Simplified procedures and single window clearances

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16 CIDCO provides land at concessional rate to the linguistic and cultural associations of people who migrated from different parts of India and this brought about centres for each linguistic group in each node and these buildings also act of community centres where gatherings and ceremonies can be held by any other group by hiring the facilities created.
4. TECHNICAL SUPPORT

As described elsewhere in this report, the main technical contribution in the DRS schemes came from the professional consultants for architectural designs and the construction management. The role of in-house staff of CIDCO from the planning, architectural, and engineering disciplines remained supervisory. Some of the architectural consultants were selected from a list available while the others were selected by conducting a national level architectural design ideal competition. The project management consultants were selected through a pre-qualification method. Scope of work, scale of fees and the conditions of contract had to be drafted based on the guidelines provided by the Institutes of Architects and Engineers for engaging the services of professional consultants. In-house teams initially prepared design briefs for each of the DRS scheme providing the details of no. of tenements of each type and the land-use.

The professional firms appointed had their own organisational capacity to handle the specialised jobs and the in-house professionals were only required to scrutinise their designs and the final legal documents submitted. The PMCs were also required to certify the bills of quantities submitted by the contractors for payment and also verify the certain aspects of the legal documents submitted by the architectural consultants. The problems encountered while undertaking this are explained later in this report under the risks. The external technical support, thus, enabled CIDCO to remain lean and reduce its organisational overheads. While the fee for engaging these services cost 5% (2.5% each for the architectural and management consultants) of the building construction cost, the same was not separately loaded to the project. The overhead cost loaded covered this.

No authentic documentation is done subsequently to record the contribution of these professional services. A general impression in CIDCO is that neither of these services served the intended purpose of providing more acceptable house designs and better quality control during construction. The feeling expressed by the buyers at the time of occupation of the architect designed houses was that they were generally less sensitive to the needs of Mumbai residents and the local climatic conditions. After nearly a decade of occupation, the DRS houses are not appreciated as better quality houses than those provided by CIDCO with in-house technical capacities. However, the environment for community living at the condominium level in the architect designed schemes and the built-form are seen as definite improvements over the standardised designs followed by CIDCO prior to DRS, even though they were acknowledged by the residents as very space efficient designs.

Friction between various consultants and with CIDCO: Though the PMCs and architectural consultants were selected from big firms, they deployed only skeleton staff at site. The contractors, who were traditionally used to working under CIDCO’s supervision, did not respond to the PMCs seriously. The architects and PMCs had difference of opinion on site in several cases. CIDCO’s in-house professionals were very unhappy with the idea of consultancies and were wary. Enormous amount of co-ordination was required and resulted in time over-runs causing cost escalation. As the success of the new approach relied heavily on timely completion, this was a point of grave concern. The period of 99-91 was also very turbulent with the Gulf war and its impact on the cost of building materials.

With more briefing and closer interaction from the in-house professionals, the respective capacities could have been combined for producing better results. However, the management of CIDCO generally does not encourage higher levels of participation by the in-house professionals.

17 CIDCO has an overall strength of 2,200 employees out of which over 300 are postgraduate Engineers and another 60 postgraduate Urban Planners & Architects.
18 Prices of petroleum and other products sky rocketed and so did inflation.
5. RESULTS

Since the overall impact of DRS scheme is elaborated in the next chapter, it is attempted to analyse the performance of the scheme in Sector-26 of Vashi here.

5.1 RETENTION OF INTENDED BENEFICIARIES

Most of the first owners hailed from Mumbai who already had other but smaller accommodation in Mumbai. Very few have sold their houses, but about 70% of the houses are rented out. This is one of the reasons why very few encroachments/additions and alterations are observed on the ground. The average income of the present residents varies between Rs. 5000 to Rs. 10,000 per month for those in the 18 and 25 m² apartments and between 10,000 and 15,000 for those in the 40 m² apartments, as per the discussions with the residents. They also mention that the present residents (tenants in most cases) are one income category higher than the original allottees.

5.2 PRESENT VALUE OF THE ASSETS

The units were originally sold at Rs.80,000 to Rs. 221,000 for the 3 categories whereas present market rate for the same is approx. Rs. 200,000, 350,000 and 550,000 respectively. Coming to the rental values, the smallest unit of 18 sq.m. fetched a rent of Rs. 400/month in 1993, which has gone up to Rs. 1200 per month in the year 2000/ The rent includes maintenance charges levied by the association.

5.3 MIX OF INCOME GROUPS IN THE SCHEME

Income group mix is not very much liked by the residents. The residents of 18 and 25 sq.mtrs. tenements interact with each other well whereas residents of 40 sq.mtrs. tenements keep themselves independent and celebrate all their events in isolation. It is generally observed in Navi Mumbai that income mix in a condominium is not appreciated19.

5.4 INTERNAL SPACES OF THE TENEMENTS

The utilisation of space within the units is very efficiently arranged with lot of storage space. The WC and bath are accessed by a small passage in each of the three types leaving the main multipurpose room free for activities. However, the reactions of the residents are divided about this. While those on the ground floor are very happy with the internal arrangement of units and the possibility of extension of their daily chores into the front and rear common areas. But those on the upper floor do not have this opportunity and feel very confined in their tiny dwellings. The space below the staircase is sold at the same rate as the rest of the tenement area and this created some unhappiness to the residents.

5.5 SEMI-PRIVATE OPEN SPACES

It is observed that several income generating activities were going on utilising the outdoor space. Interestingly the staggering of twin units has created the back-to-back space in such a way that while a narrow common passage is left free of any activity, the staggered niches provide

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19 CIDCO constructed tenements up to 1987 with its in-house capacities and certain practices such as not mixing the income groups in a building and certainly not in a condominium were observed. These practices were well appreciated by the residents whereas design of housing schemes under the DRS by external consultants brought-in several new design practices most of which are rejected by Navi Mumbai residents. These are elaborated elsewhere in this report.
excellent scope for extending the household chores. The front staggered space, however, is utilised for meeting people and planting trees.

5.6 OPEN TERRACE SPACES

An interesting and much debated component of this scheme is provision of terraces at the roof level accessible only through the tenement on the upper floor. Normally the roof terraces are common and their cost is loaded to all the tenements of a building sharing it. However, in this case, since the access to the roof terrace is only through the upper floor tenements, it is thought fit not to leave it as common property and hence the terrace rights are given away to the upper floor residents at a nominal cost of 10% This, over a period of time resulted in a feeling of total ownership leading to unauthorised construction of semi-permanent nature. Thus the incremental use of space open or built up, is available to the residents of Sector-26.

5.7 PUBLIC OPEN SPACES

The recreation grounds within each condominium are today well taken care of by the associations. Nature and status of development of each one reflects the abilities and priorities of the residents it serves. The common open space is fenced and maintained by the Municipal Corporation and is accessible to all who wish to use it.

5.8 COMMUNITY FACILITIES

Several smaller plots are reserved in the layout for locating social facilities at a future date. These are independently accessible by the vehicular roads. However, except a temple, no other amenity has come up till date.

5.9 ADDITIONS AND ALTERATIONS TO THE TENEMENTS

Generally none on the ground, but thee are unauthorised additions on the roof terraces which seem to be of temporary nature. The upper floor residents have done this and counter any complaints by mention of CIDCO allotting them roof terraces. It is feared that if they attain a permanent status the structure may not withstand the same.

5.10 CONDOMINIUM ASSOCIATIONS

The condominium associations, registered under the co-operative act, are functioning very effectively. The governing body is elected every year and only owners of the tenements are permitted to contest. The condominium associations are observed to enforce strict discipline on maintenance/usage of the common areas on the ground, conversion of building-uses to non-residential, use of condominium office space20, sale of individual apartments, and entry of hawkers into the condominiums, and levying the maintenance charges for common services.

The condominium sizes vary between 78 tenements and 220 tenements. While larger condominiums generate more user-charges and hence are in a position to maintain common facilities better and add additional features, the residents feel that condominiums of 100 tenements and below are ideal for cohesion and dispute-free environment.

An interesting feature observed in Sector-26 is existence of a Federation of condominium associations. The federation, though not operational much as on date, looks after amenities common to all the condominiums and also lobbies for policy concerning the scheme area with

20 There were demands from the residents for permitting conducting businesses such as coaching classes etc. in the office room, which is large enough for that purpose. But the associations have not entertained such requests so far.
CIDCO and the Municipal Corporation. The members of the Federation are elected from among the elected members of the condominium associations. A structure like this Federation is not generally observed in Navi Mumbai in other CIDCO constructed mass housing schemes whereas condominium associations are a necessary part of each scheme.

5.11 MAINTENANCE OF CONDOMINIUMS AND COMMUNITY ASSETS

There are two sources of revenue for maintenance of the condominiums, the monthly maintenance charges and the transfer charges levied each time an individual apartment is sold. Each condominium contains a mix of 18, 25, and 40 sq.m. tenement categories. Generally, maintenance charges for common services are levied in proportion to the respective areas of tenements, but a few condominiums now levy uniform charge for all tenements irrespective of the areas. The present charges are Rs. 215 per tenement per month where uniform and Rs. 190, 205 & 230 for the three categories where levied proportionately. This includes water consumption charges. The transfer charges\(^2\) are Rs. 9,000 to 12,000 for the various tenement types. When major exterior repairs or exterior painting are to be carried out, a separate charge is levied on the residents. The associations claim a maintenance payment rate of over 95%.

5.12 OVERALL IMPRESSSION OF THE RESIDENTS

The residents generally have no complaints about the manner of allotments, amenities provided or level of maintenance by the condominium associations. A minor concern is that public transportation by bus is not available to Vashi railway station, which is more than 2 kms away. However, Turbhe railway station being commissioned in the next few months will be within walking distance from the scheme area and residents are eagerly awaiting this event. Most of the children from the scheme area attend schools located in Vashi itself and the school buses come to the scheme area to pick up the children. Water availability in the scheme area is adequate as overhead tanks provide continuous water supply for 24 hours.

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\(^2\) This is in addition to levy of transfer charges by CIDCO ranging between Rs. 16,000 and 25,000. Thus, an additional source of income is available to the associations.

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6. IMPACT OF THE PROJECT

6.1 QUANTITATIVE IMPACT

Sector-26 of Vashi forms only a small part of the overall demand registration scheme launched in 1987 and completed in 1993 by CIDCO. It is important to examine the impact of DRS as a concept for sustainability and the lessons it offered.

6.1.1 Delivering housing in great numbers

The DRS delivered about 25,000 ready-to-move-in dwelling units in a period of six years since registration, and two and a half years since letters of intent were sent to prospective buyers, though very much behind the schedule. It was an attempt to match the supply with total demand. In a single scheme, it contributed over 10% of today’s Navi Mumbai’s population. About 50% of the houses were for LIG, 37% for MIG and the remaining 13% for the HIG. The occupancy rate of CIDCO constructed tenements improved with these houses (Annexure-3). The tremendous success of the scheme is manifested by the fact that despite the time delay and cost escalation, there was general acceptance by the beneficiaries. The houses were handed over in early 1993 when the property prices in Mumbai were among the highest in the World and Navi Mumbai competed with prominent suburbs of Mumbai in terms of property price. The allotted cost of the houses was about one half of the market rate at that time. It is very interesting that despite this factor, in the scheme studied in sector-26 of Vashi, very few houses have actually changed hands, but are rented out by the original owners. The asset value of these houses is well retained by the owners. In Navi Mumbai, the ready built houses demonstrated higher occupancy rates and better retention of intended beneficiaries.

6.1.2 24 hours water supply

Navi Mumbai project was initiated on the premise of 24 hours water supply, underground sewerage and its treatment, efficient storm water drainage system and adequate electric supply. CIDCO is responsible for providing all services except electricity in Navi Mumbai. In view of these objectives, it was anticipated that the city will have tapped water supply round the clock and hence the houses built up to 1987 did not provide overhead water tanks. However, this could not be ensured due to incomplete water resource development. For the first time, accepting the reality, the DRS houses were provided with ground reservoirs with pump houses and overhead water tanks. CIDCO confined its role to providing adequate water pressure and quantity to fill the sumps under ground. The water supplied to each condominium is metered and the associations include the water charges as part of the monthly maintenance charges. Though the cost of water storage and pumping is higher than a continuous tapped supply, it ensured 24 hours water supply.

6.2 QUALITATIVE IMPACT

6.2.1 Choices to beneficiaries

By definition, demand registration schemes first register the demand and then fulfil the same. The DRS of Navi Mumbai also offered the choice of location (node) and accommodation size (area) to those who registered with CIDCO. Except in a few cases where the choice was not available, in a most cases the beneficiaries could get a house of their choice. However, the design of the house and the carpet areas of the houses varied greatly, particularly in the architect-designed schemes. Thus beneficiaries compared the various aspects of the designs of
the architect schemes with those of the developers and felt cheated. It is only after a half decade of living in the houses, that they began to appreciate the community open spaces provided in the architect schemes.

### 6.2.2 Registration of co-op housing societies

The schemes registered the condominiums for the first time as co-operative societies for effective control of the condominiums over the individual defaulters. CIDCO has contributed to the speedy registration of the societies, by appointing a co-operative sub-registrar in its office premises. Otherwise the condominiums had to go to Thane city, which is about 25 kms away. The result is not only the condominium associations today, but also the existence of federation of associations in sector-26 of Vashi. For the first time again, CIDCO has built readily condominum offices within each condominum and this helped immediate consolidation of the offices. Today the condominiums have withstanded the pressure of severe demand for use of the office space for running business by the households.

### 6.2.3 Involvement of consultants

For the first time again, reputed architects designed the schemes and project management consultants supervised construction of the schemes. The quality control at site was to be ensured by both the consultants. However, it is observed that the consultants did not necessarily agree with one another and ultimately good contractors ensured quality control. Despite the presence of both the consultants, some contractors ran away leaving the projects in the middle of construction programme, and CIDCO had to reappoint new contractors to finish the houses. This has also contributed to the cost escalation and delay. However, the architectural consultants brought variety, aesthetics and community open spaces in the schemes.

### 6.2.4 Mix of Income-groups

One aspect that offered lessons after the DRS experience is the building-wise income group mix. Before DRS, CIDCO followed a pattern of income-group wise condominiums, which resulted in smooth sharing of maintenance costs. However, in DRS different income groups were not only mixed in each condominium, but each building also contained a mix of income groups. However, the reaction of occupants to this experiment was extreme. Where there is a mix of LIG and HIG in the same buildings, both the occupants wished to return the houses and demanded houses in schemes that did not mix income groups. It was a social resistance from both lower and higher income groups. This offered a lesson that segregation or mix of only two adjacent income groups is well appreciated.

Cross-subsidisation of land within each project

The component of land price was made affordable to all in the DRS schemes due to the cross-subsidy element. While the loading for the smallest tenement was only 25% of the reserve price, the HIG tenements were loaded 200% of the reserve price. This eliminated the need for direct subsidies by the public agency.

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22 While the cost is based on the built-up area of the house, different designs offered different carpet areas. Particularly the architect designed schemes offered far less carpet areas as compared to the others, and caused a grievance. This was due to the liberal common spaces such as staircases, passages, internal passages etc.

23 The condominium concept itself is not new in Navi Mumbai. But earlier the condominiums were registered under the Maharashtra Apartment Ownership Act.
6.3 SOCIAL IMPACT

6.3.1 Provision of social amenities

The demand registration schemes were composite, with all social facilities and public amenities accommodated along with the houses. The basis for calculation of the same in each scheme was the size of population in each. At times, they also included amenities lacking in the immediate and previously existing neighbourhood. The design brief supplied by CIDCO ensured both the above and is generally conformed with. The amenities generally included schools, play grounds for school and for general public, plots for places of worship, health facilities, electric sub-stations, daily bazaars\textsuperscript{24}, service and large shops, etc. The actual facilities developed over a period of time as and when the demand arose and made the community living enriched.

6.3.2 Role of Condominium associations

The condominium associations play the role of decentralised asset managers. They also play cultural role and bring physical and social cohesion to the new population living in each condominium. The associations fiercely compete with one another in maintenance.

\textsuperscript{24} For vegetables, fruits, fish & meat, flowers, public telephone & milk booths, pan shops, small eateries etc.
7. SUCCESS AND RISK FACTORS

While it is very evident as to the success factors of the scheme, the risk factors may need further elaboration.

7.1 DEMAND REGISTRATION

For the first time in India, demand was registered for public housing scheme on such a massive scale. The demand could have been of unmanageable scale also. Had the entire registered demand of 55,000 houses remained till the end, delivering the same would have been a tremendous task. Out of the 55,000 only about 25,000 waited for the houses.

7.2 HIRING CONSULTANTS

The organisational capacity to deliver 25,000 houses was complemented by hiring consultants. Hiring consultants in such large numbers posed a risk of too much of variety and differential results. Particularly the architect designed schemes were experiments in mass housing by many. Some of them had ten variations in each category of housing (such as 18 m2 type) with marginal area difference and made it very tough for the allotment. Due to their inexperience at handling accurate information in such large scale, the estate information was faulty at times, which created litigation later. At the time of writing this report, CIDCO is still attending consumer court cases filed against CIDCO in view of this certified negligent information. Since no special staff was available to deal with this task of co-ordinating with and verification of information certified, the manpower in CIDCO was under tremendous work pressure. As a result it was observed that the consultants have altered the designs and at times tenement locations at site due to various reasons, which was not reflected accurately in the final certification. The end result was hardship to the buyers and litigation for CIDCO. In-house staff with great care verifies post-DRS schemes in CIDCO by external consultants.

Assuming that there would be many more eligible households, more schemes were designed between 1987 and 1990 and the architectural consultants appointed for the same. Three schemes designed by the consultants had to be abandoned later due to lack of final demand for the same. However, as per the conditions of contract, these consultants had to be paid 70% of the professional fees up to the services rendered for pre-implementation stages. The DRS experience helped CIDCO modify the terms of payment in future schemes where consultants are hired for mass housing schemes. The most recent consultants are paid only 50% fees in the pre-implementation stage (only 10% before the demand is established through marketing efforts). This also made them more attentive during the implementation stage. The scale of fees is also modified to make it inversely proportional with the number of tenements.

7.3 COST ESCALATION

The work of DRS houses was executed by inviting competitive offers from pre-qualified contractors/developers and the work was awarded on the basis of lowest quotation. The works were executed using conventional construction methods (except for few elements of buildings in the prefab schemes) and the contracts included standard cost escalation clause. The works were awarded between 1989 and 1990 and the period of completion for the package comprising of 800 to 1500 tenements ranged from 2.5 to 6 years with average period of 4 years. Cost of tenements on completion ranged from Rs. 3173/sq.mtr. to Rs. 5950/sq.mtr. with the average being Rs. 3980/sq.mtr. The escalation of about 21.80% was paid on work done as compared to the estimated costs of 1991.

A clause in the registration booklet mentioned that booking was open for both hire-purchase and outright schemes up to 70 sq.mtrs. tenements, but with preference to those who register for
outright purchase. It was further mentioned that after registered the demand for hire-purchase, a scheme will be submitted to HUDCO for financing the same, and if any of the scheme so submitted are not accepted by HUDCO, the registered applicants of such schemes would be given the choice of opting for an outright purchase and if not found acceptable, the registration money would be refunded. There was a final clause that the estimated cost of the tenements would be worked out and informed after the works are awarded to the contractors. Accordingly, the estimated costs were informed to the prospective customers in the letters of intent sent in August-September 1991 but the increased costs were passed on to them in late 1992 causing great hardship.

However, the experience of DRS provided guidelines for future mass housing schemes where fixed time frame and no cost escalation clauses were introduced.

7.4 **Change in Eligibility Criteria**

The eligibility conditions at the time of registration of demand were production of relevant income certificate and having no other house in Navi Mumbai. However, in 1989 Government of Maharashtra brought in a new condition that all public housing in Maharashtra should be allotted to only families with a minimum 15 years stay in the State of Maharashtra. This new rule made about a third of the registered applicants ineligible.

7.5 **Earlier Lesson Not Put into Practice**

CIDCO had already provided over 75,000 built-up tenements or serviced sites before the demand registration scheme. The built housing was mostly by the in-house designs with a few designed by reputed architects. These tenements also offered great variety in design such as income group mix in condominiums (not appreciated by the residents), provision of terraces (causing problems to those living in floors below) etc. All these tenements were studied by a Committee appointed by CIDCO for examining the weaknesses in architectural/planning designs and the features contributing to the poor quality of construction/maintenance. However, the recommendations of this study are not considered seriously while going for such massive housing scheme of DRS especially with the risk of being designed by consulting architects with varied ideas. The architects were also not briefed on maintaining uniform area ranges, designing to ensure a minimum carpet area and built up area ratio, uniform method of calculation of built up area of tenements, necessary consumption of permissible FSI on residential condominium plot area, and such other aspects. The consultants were not sensitive to the value attached to maximising usable carpet area within the tenement as compared to the good community open spaces created outside their homes. All these lacunae resulted in too much of variety and left the buyers dissatisfied in the end.

There was also no serious attempt at documenting the problems encountered while executing DRS housing schemes on the basis of a) demand registration concept, b) appointing architectural and project management consultants, and c) need for simple and standardised type designs in view of the estate problems faced.
8. REPLICABILITY

CIDCO delivered over 75,000 dwelling units in both built-up form and as serviced sites before the experience of DRS. These as well as the DRS schemes offered immense lessons for future mass housing schemes. The lessons from each form of EWS/LIG housing scheme and the improvements in a new mass housing scheme under construction are listed below.

8.1 PROVISION OF HOUSING FOR THE EWS/LIG IN NAVI MUMBAI - THE LESSONS FROM PAST EXPERIENCE

8.1.1 Sites and services schemes prior to budp

These were for EWS/LIG, at prime locations and the entire schemes were only for target income groups (not composite including higher groups). The plots sizes were relatively large with ready-to-move in small dwelling units on them, which also had potential for further legal incremental additions. After 20-25 years, today the property values are at least ten times higher and higher income groups & commercial use have taken over these dwelling units. This has displaced the poor and also created traffic problems due to high vehicle ownership among the higher income groups.

Lessons: Locations to be near the work centres but not along the main roads, composite schemes for cross-subsidisation at project level itself.

8.1.2 Sites and services schemes under the World Bank financed budp

These were small plots ranging between 21 and 32 sq.mtrs and were either partially built with core units or only fully serviced sites. The sites were generally very close to the major employment centres. While 60% of the plots were to be for the targeted EWS/LIG, the rest were for high-income groups and commercial purpose to cross-subsidise the smaller plots. The layouts were arranged in such a way that their respective locations fully justified the differential pricing pattern (high priced plots along the wider peripheral roads and so on). The layout arrangement and the less glamorous partial construction ensured retention of the intended beneficiaries to a large extent. The schools, community centres and daily markets were built as part of the scheme making them integrated and self-sustained projects. However, wherever serviced plots are allotted without construction thereon, the incidence of higher income groups taking over is observed to be very high. The grouping of beneficiaries as housing co-operatives for collective construction made it even easier for higher income groups to take over.

Lessons: Better to go for non-glamorous packages close to employment centres, composite schemes for internal cross-subsidisation, provide cost-efficient layouts, low entry costs, permit scope for incremental additions to structures.

8.1.3 Built housing schemes

The EWS/LIG units among the built housing units generally range between 18 and 25 sq.mtrs. The accommodation is single multi-purpose room with or without a kitchenette and separate bath and WC. The have the bare minimum accommodation and have no incremental potential. Since there is no subsidy on the construction component, the costs are high making entry less easy. However, the channelisation of HUDCO loans by CIDCO by providing tenements on hire-purchase basis in the early schemes made it easy for the target groups to possess these units. In later years since 1990, the increased opportunities for raising housing finance by the individual households together with the simplified procedure by CIDCO as well as the finance institutions have made it possible to acquire these units on outright purchase basis.
Lessons: Manageable condominium sizes and separate for each income group (but equal access to common facilities like open spaces) for easy estate management, designs to permit cost effectiveness, perhaps levy of a one time maintenance fund which can be handed over to the condominium associations, and registration as co-op societies to ensure better control on absentee owners and transfer of properties.

8.1.4 The Demand Registration experience

While the prospective buyers registered their demand for a given node, houses were constructed in several schemes spread over the node, each with a specific market potential. The consulting architects have used their imagination and created several variations in the area of each category of dwelling unit. They also provided terraces and courtyards in several schemes, the cost of which is recovered by CIDCO from the customers. The variables were location within the node, area of the unit, extra chargeable spaces, percentage of usable area, mix of income groups (mix of LIG and HIG in the same building at different levels caused tremendous resistance), level of amenities provided in a given scheme, and the user friendliness of the unit designs. In some cases, the accommodation size certified by the consultants was found to be inaccurate leading to estate problems. All these aspects caused tremendous unhappiness and invited numerous complaints leading to legal battles in consumer courts from 1993 till date. However, since the houses were delivered at a time when the property prices in Navi Mumbai were at their highest making the final price of allotment about one half of the prevailing market price, the houses were accepted.

Lessons: Choose easily accessible locations, standardised tenement sizes, provide only what is promised, deliver within the committed time frame, freeze the prices without escalation.

8.2 Improvements in the New “Gharkul” Mass Housing Scheme – 2000

Since 1996, the housing market has been heavily affected. Fortunately the present market demand is for smaller built houses for ready occupation. The prospective buyers are generally occupiers and those who really need a house for self-occupation. The housing finance market is offering immense choice to individual households and thus the search is on for ready-to-occupy houses. In the fallen housing market scenario, the private developers have become unreliable and less trustworthy. The buyers are LIG and MIG from the salaried class and hence are extremely cautious. Thus the demand for public housing units of smaller areas, such as those built by CIDCO still has ready market.

In 1990 CIDCO launched a programme of construction of about 5,000 housing units every year. To begin with two housing schemes of about 1000 units each were started in two different parts of Navi Mumbai. In view of the less market potential for housing units, procedural simplification, better & sustained advertising methods and user-friendly attitude prevailed. Gharkul is one such scheme of 1152 tenements and 6 area types offering the buyers choice. A renowned architect was hired by CIDCO to design the scheme. The project was marketed through extensive campaigning aimed at main job centres employing low-income staff, including NGO offices. Thus it was aimed at working class for whom credit was available through housing financing agencies. Procedures were simplified and the booking was kept very flexible. The entire workforce in CIDCO office was motivated to help the project attain its objectives. The size and design of the scheme are also kept flexible to meet the demand.

For the first time, proof of eligibility criteria was not required to be submitted by way of documents. A simple affidavit by the applicant was sufficient. The proof will be required to be produced only if there is any doubt in the case of an individual applicant.

8.2.1 Characteristics of the project
Land is priced at RP and the construction cost is controlled through better contractual conditions to make the house affordable. Beneficiaries could directly come to CIDCO office with minimum documentation and book the tenements of their choice on first come first served basis. Housing financing agencies were requested to be available in CIDCO’s office with their booths to lend instant loan to the buyers (single window system). 10% of the cost of the tenement is paid at the time of booking and the remaining amount will be recovered in 6 instalments over 18 months so that the costs are spread out for the beneficiary (Payment made easy): Six types of tenements (27 to 41 sq.mts.) are accommodated to suit the varied requirements of the households. These include small tenements with terraces for future expansion (Choices made available). Depending upon the response for the 1152 tenements, the project size will be increased and the tenement designs will also be changed accordingly (Expandable scheme). All community amenities are planned in the scheme such as schools, community centre, shopping, markets for daily needs, public playgrounds etc. (a complete scheme).

The innovative marketing and finance mechanisms are expected to continue for all the schemes and help achieve better customer relations.
### ANNEXURE 1: GLOSSARY OF ACRONYMS USED IN THE TEXT OF THE REPORT

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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<tr>
<td>Apex</td>
<td>A body at the highest level of any activity/function</td>
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<tr>
<td>APM</td>
<td>Agriculture Produce Market</td>
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<tr>
<td>BUA</td>
<td>Built-up area (construction area)</td>
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<td>BUDP</td>
<td>Bombay Urban Development Project</td>
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<tr>
<td>CIDCO</td>
<td>City &amp; Industrial Development Corporation</td>
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<td>DNSP</td>
<td>Draft National Slum Policy</td>
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<td>DRS</td>
<td>Demand Registration Scheme</td>
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<td>EWS</td>
<td>Economically Weaker Section</td>
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<tr>
<td>GOI</td>
<td>Government of India</td>
</tr>
<tr>
<td>GSS</td>
<td>Global Shelter Strategy</td>
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<td>HDFC</td>
<td>Housing Development Finance Corporation</td>
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<td>HIG</td>
<td>High Income Group</td>
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<tr>
<td>HDFC</td>
<td>Housing &amp; Urban Development Corporation</td>
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<tr>
<td>INDIAN EXPRESS</td>
<td>A leading National daily newspaper in India</td>
</tr>
<tr>
<td>KK</td>
<td>Koparkhairane (a node in Navi Mumbai adjoining Vashi)</td>
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<tr>
<td>LIG</td>
<td>Low Income Group</td>
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<tr>
<td>m</td>
<td>Metres</td>
</tr>
<tr>
<td>MIDC</td>
<td>Maharashtra Industrial Development Corporation</td>
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<td>MIG</td>
<td>Middle Income Group</td>
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<td>NCU</td>
<td>National Commission on Urbanisation</td>
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<td>NHP</td>
<td>National Housing Policy</td>
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<td>NGO</td>
<td>Non Governmental Organisation</td>
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<td>NHB</td>
<td>National Housing Bank</td>
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<tr>
<td>NM</td>
<td>Navi Mumbai (formerly New Bombay)</td>
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<td>NMMC</td>
<td>Navi Mumbai Municipal Corporation</td>
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<td>PG</td>
<td>Play Ground</td>
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<td>RP</td>
<td>Reserve Price</td>
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<td>SSS</td>
<td>Sites &amp; Services Scheme</td>
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<td>UN</td>
<td>United Nations</td>
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<td>United Nations Development Programme</td>
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<td>UNPF</td>
<td>United Nations Population Fund</td>
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<td>WC</td>
<td>Water Closet</td>
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ANNEXURE 2: INCOME GROUP WISE COMPOSITION OF POPULATION IN NAVI MUMBAI

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<thead>
<tr>
<th>Inc.Grp</th>
<th>1987 Income</th>
<th>%Pop</th>
<th>1995 Income</th>
<th>%Pop</th>
<th>2000 Income</th>
<th>%Pop</th>
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<td>&lt;1250</td>
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<td>&lt;2000</td>
<td>3</td>
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<td>LIG</td>
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<td>MIG</td>
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<td>2651-4450</td>
<td>34</td>
<td>5001-10000</td>
<td>35</td>
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<td>HIG</td>
<td>&gt;3500</td>
<td>6</td>
<td>&gt;4450</td>
<td>42</td>
<td>&gt;10000</td>
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Source: Socio-Economic Surveys of Navi Mumbai households conducted by CIDCO
### ANNEXURE 3: SOCIO-ECONOMIC CHARACTERISTICS OF NAVI MUMBAI POPULATION

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<td>94.35</td>
<td>96</td>
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<td>Percentage of migrants</td>
<td>69</td>
<td>66</td>
<td>50</td>
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<tr>
<td>No. of females/1000 males</td>
<td>840</td>
<td>848</td>
<td>Not recorded</td>
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<td>Average family income</td>
<td>2,112</td>
<td>3,740</td>
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<td>Monthly income of EWS category</td>
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<td>&lt;1,250</td>
<td>&lt;2,000</td>
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<tr>
<td>% of population in EWS category</td>
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<td>2</td>
<td>3</td>
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<tr>
<td>Percentage of resold houses</td>
<td>Not recorded</td>
<td>Not recorded</td>
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<tr>
<td>Average Family size</td>
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<td>3.68</td>
<td>4.05</td>
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<tr>
<td>Average size of majority houses</td>
<td>30 (65%)</td>
<td>16-35 (59%)</td>
<td>&lt; 52 (67%)</td>
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<tr>
<td>% Of ownership houses</td>
<td>33</td>
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<td>Occupancy rate-CIDCO houses</td>
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<td>89</td>
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<td>Occupancy rate-in private houses</td>
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<td>Average years of stay in NM</td>
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<tr>
<td>Reason for moving to NM</td>
<td>43% easy owner</td>
<td>43% easy owner</td>
<td>43% easy owner</td>
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<td>Average earners/family</td>
<td>1.24</td>
<td>1.24</td>
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<td>Working population</td>
<td>32.8%</td>
<td>33.15%</td>
<td>63%</td>
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<tr>
<td>% workers working in NM</td>
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<td>65</td>
<td>65</td>
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<tr>
<td>% of working pop owning vehicles</td>
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<td>% Families with telephones</td>
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<td>Happy with infrastructure</td>
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<tr>
<td>Happy with education &amp; amenities</td>
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<td>% of non-work trips to Mumbai</td>
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<tr>
<td>Public transportation for work</td>
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<td>Walk/bicycle to place of work</td>
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<td>Walk/bicycle by students</td>
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Source: Socio-Economic Surveys of Navi Mumbai households conducted by CIDCO
ANNEXURE 4: NODE & INCOME GROUP WISE DISTRIBUTION OF TENEMENTS
CONSTRUCTED BY CIDCO IN NAVI MUMBAI

Summary Statement

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<thead>
<tr>
<th>Year</th>
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Detailed Statement

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### Table: Issues and Opportunities for the Provision of Serviced Land and Credit for Progressive Housing

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<th>New Panvel</th>
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**Case study – India – Sector 26**

### Case study – India – Sector 26

**ACT Consultants and GRET. Issues and Opportunities for the Provision of Serviced Land and Credit for Progressive Housing. Feb. 2001.**

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Source: Project Reports of various nodes by CIDCO
ANNEXURE 5: MUMBAI MASTER PLAN – LOCATION OF THE PROJECT
ANNEXURE 6: LAYOUT PLAN– LAND USE
ANNEXURE 7: LOCATION OF PROJECT AREA – VASHI NODE – SECTOR
ANNEXURE 8: HOUSING SCHEME IN SECTOR 26

Housing Scheme in Sector-26 of Vashi, Navi Mumbai

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>When Constructed</td>
<td>1980</td>
</tr>
<tr>
<td>Promoter</td>
<td>City &amp; Industrial Development Corp.</td>
</tr>
<tr>
<td>Scheme Area</td>
<td>5.75 HA.</td>
</tr>
<tr>
<td>Total No. of Dwelling Units</td>
<td>6900</td>
</tr>
<tr>
<td>No. of Residential Condominiums</td>
<td>8</td>
</tr>
<tr>
<td>Dwelling Units in Each Condominium</td>
<td>75 to 250</td>
</tr>
<tr>
<td>Height of Buildings</td>
<td>G+1 Storeys and G+2 Storeys</td>
</tr>
<tr>
<td>Area of Each Dwelling Unit</td>
<td>18.16 to 30.86 Squares</td>
</tr>
<tr>
<td>Area Under Residential Condominiums</td>
<td>3.26 HA. (40.09%)</td>
</tr>
<tr>
<td>Area Under Amenities</td>
<td>1.25 HA. (15.97%)</td>
</tr>
<tr>
<td>Area Under Open Spaces</td>
<td>1.4 HA. (18.20%)</td>
</tr>
<tr>
<td>Area Under Roads</td>
<td>0.54 HA. (6.32%)</td>
</tr>
</tbody>
</table>
ANNEXURE 9: MASS HOUSING SCHEME – CONDOMINIUM A

MASS HOUSING SCHEME

condominium no. A
sector 26, vashi A-1 to A-20
new bombay.

<table>
<thead>
<tr>
<th>1. CONDOMINIUM PLOT AREA</th>
<th>3267 sq mts</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. NO. OF BUILDINGS</td>
<td>20</td>
</tr>
<tr>
<td>3. NO. OF FLOORS</td>
<td>4</td>
</tr>
<tr>
<td>4. TOTAL NO. OF FAMILY UNITS</td>
<td>78</td>
</tr>
<tr>
<td>5. TOTAL BUILT-UP AREA</td>
<td>1611 sq mts</td>
</tr>
<tr>
<td>6. TOTAL FAMILY UNIT AREA</td>
<td>1235 sq mts</td>
</tr>
<tr>
<td>7. TOTAL COMMON BUILT-UP AREA</td>
<td>316.64 sq mts</td>
</tr>
</tbody>
</table>

GROUNDFLOOR PLAN

11.0 M WIDE ROAD

SOCIAL SERVICES PLOT

SERVICE SHOP

PARKING

RECREATION GROUND

18 m² UNITS
25 m² UNITS

THE SMALLEST WITH 78 HOUSES
ANNEXURE 10: MASS HOUSING SCHEME – CONDOMINIUM C

MASS HOUSING SCHEME

condominium no. C
sector 26, vashi G-65 to C-15
new bombay.
ANNEXURE 11: PLAN OF HOUSES

Twins units of 25 m² area each

Twins units of 18 m² area each
ANNEXURE 12: PLAN OF HOUSES

3 units of 40 m² area each
ANNEXURE 13 : PHOTOGRAPHIES OF HOUSES

Slide A1 : Scheme view showing utility station
Slide A2 : Happy home association name plate
Slide A3 : Association Office – view from approach road
Slide A4 : General Scheme view
Slide A5 : View from Back Lane
Slide A6 : Approach Road to the Scheme
Slide A7 : Front view of twin unit
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