

CRISIL Risk and Infrastructure Solutions Limited

Bangalore Development Authority

Construction of Affordable Housing at Byarathikane and Thanisandra

Pre-feasibility Report

April 2012





Abbreviations

Acronym	Definition
BBMP	Bruhat Bangalore Mahanagar Palike
BDA	Bangalore Development Authority
BMA	Bangalore Metropolitan Area
CAGR	Compounded Annual Growth Rate
CBD	Central Business District
CITB	City Improvement Trust Board
CRIS	CRISIL Risk and Infrastructure Solutions Limited
CRISIL	Credit Rating and Information Services India Limited
DDA	Delhi Development Authority
EPC	Engineering, Procurement and Construction
EWS	Economically Weaker Section
FAR	Floor Area Ration
FCF	Free Cash Flows
IRR	Internal Rate of Return
KTCP	Karnataka Town and Country Planning Act
LIG	Low Income Group
MHADA	Maharashtra Housing Area Development Authority
MIG	Middle Income Group
NPV	Net Present Value
ORR	Outer Ring Road
PPP	Public Private Partnership
PRR	Peripheral Ring Road



Acronym	Definition
SPC	Special Purpose Company
VGF	Viability Gap Funding



Contents

1. Executive Summary.....	1
2. Introduction.....	3
2.1 Project Idea.....	3
2.2 Approach and methodology.....	3
3. Sector Profile.....	4
3.1 Bangalore Development Authority	4
3.2 Key Issues	5
4. Project.....	6
4.1 Description of the Project.....	6
4.2 Description of the Site	6
4.2.1 Connectivity	7
4.3 Development Needs, Public needs & Planning Considerations	7
4.4 Best case studies	7
4.4.1 Public private partnership in affordable housing under Jawaharlal Nehru National Urban Renewal Mission (JNNURM)	7
4.5 Project Design.....	9
4.5.1 Surrender cum sale model.....	9
4.5.2 Build and surrender model.....	10
5. Market Assessment	11
5.1 Industry outlook.....	11
5.1.1 Affordable housing has huge demand potential with low supply	11
5.1.2 Affordable housing supply	12
5.2 Opportunities & Demand projections.....	12
6. Project financials	14
6.1 Cost Estimation.....	14
6.2 Revenue streams	14
6.2.1 Surrender cum sale model.....	14
6.2.2 Build and surrender model.....	15
6.3 Viability Assessment	15
6.3.1 Surrender cum sale model.....	15
6.3.2 Build and surrender model.....	15
6.4 Funding Available (Central/ state etc.) under various schemes	16



6.5	Ranking of options based on commercial viability	16
6.6	Discussions on the report	16
7.	Regulatory & Legal Framework	17
7.1	Applicable laws & Act and Legal Cover for the project	17
7.2	Legal & Regulatory framework.....	17
7.3	Key Issues	17
8.	Operating Framework	18
8.1	Indicative Project Structure.....	18
8.1.1	Surrender cum sale model.....	18
8.1.2	Build and surrender model.....	18
8.2	Recommended project structure.....	19
9.	Way Ahead	20
9.1	Project Development Framework.....	20
9.2	Procurement Plan.....	21
10.	Annexure 1 – Income statement for annuity model	22



List of Tables

Table 4-1: Housing categories and typical unit sizes	9
Table 4-2: Share of developer and BDA under surrender and share model	9
Table 6-1: Viability assessment under the build and surrender model.....	16



List of Figures

Figure 8-1: Proposed project structure for surrender cum sale model	18
Figure 9-1: Project development framework	20
Figure 9-2: Procurement plan for affordable housing projects	21





1. Executive Summary

Infrastructure Development Department proposes to strengthen the project development process in the Departments responsible for implementing Infrastructure Projects through Public Private Partnership (PPP). The PPP concept is relatively new and the implementing officers require necessary insight, orientation and assistance into the project development for effective marketing and implementation of the projects.

CRISIL Infrastructure Advisory, a division of CRISIL Risk and Infrastructure Solutions Limited (CRIS), has been appointed by the Infrastructure Development Department, Government of Karnataka to work closely with the Bangalore Development Authority for the assignment “Institutional Strengthening and Sector Specific Inventory for PPP Mainstreaming in Sectors”. Under this BDA has identified a set of nine projects for which pre-feasibility assessments are to be carried out. Construction of affordable housing units at Byrathikane and Thanisandra are two such projects for which pre-feasibility study has been conducted. This report presents the outcomes of the study for the two projects.

Besides its planning and layout development functions, of late, the BDA has also initiated the construction and allotment of affordable houses. These houses are developed by BDA and then are sold at nominal costs to the public through a “first come first serve” basis. However, so far, BDA has been developing these houses based on a Engineering, Procure and Construct format. The BDA has not explored any model through which private sector participation can be sought and BDA’s financial implications can be shared by the private sector partner.

Hence, it is proposed that the affordable houses be developed through a public private partnership (PPP) model.

The proposed sites have variable amounts of land available with BDA. The BDA has indicated that the total extent of land available would be close to 20 acres. In order to achieve economies of scale, we have assumed that the sites will be bid out in one package. We have developed the viability assessment for the two projects on a combined basis. The current report focuses on demonstrating the outcomes of executing these projects through private sector participation on either an annuity basis or a surrender and sale basis.

In the annuity model, the developer would develop the housing units and hand over the same to BDA for allotment. The BDA continues to allot the housing units according to its regular system of “first come first serve”. The developer would be a paid a fixed amount over the period of concession which would also include the operation and maintenance charges.

In the sale model, the EWS and LIG housing units are handed over to BDA entirely for allotment. The developer will retain the MIG I, II and III category houses and will sell them on his own.

The viability for both the alternatives has been explored and we recommend that the Surrender cum Sale model will be beneficial for the BDA.

Should the BDA opt for the surrender cum sale model, it is proposed that the project be executed through a Special Purpose Company where 75% of the equity will be brought in by the developer while BDA will bring 26% of the equity in the form of land. The EWS and LIG housing units handed over to the BDA will be allotted by the BDA through its current process of ‘first come first serve’ basis. The SPC will be free to sell the remainder of the units on its own.

Under the build and surrender model, the BDA shall enter into a concession agreement with the successful bidder and provide land free of all encumbrances to the developer. The developer shall



Bangalore Development Authority

develop the units according to the project execution plan and will surrender the developed units to BDA upon completion of the project.

The BDA, on its part, will initiate and manage the process of allocation to the customers who apply for such housing units. The BDA shall be free to determine the sale price of the units. The revenues accrued to BDA could be utilized to cushion the annuity outflow that BDA will have.

We have also outlined a way forward for the project. The most critical task for BDA would be the finalization of land parcels for developing the housing units. Once the land parcels are finalized, the BDA may appoint a transaction advisor to carry out a detailed feasibility for the project as well as to under bid process management.

A procurement plan has also been appended to the report. We are of the view that the entire process of appointment of transaction advisor can be completed in 4 to 6 weeks while the selection of the developer can be spaced over 15 months or so.



2. Introduction

CRISIL Infrastructure Advisory, a division of CRISIL Risk and Infrastructure Solutions Limited (CRIS), has been appointed by the Infrastructure Development Department, Government of Karnataka to work closely with the Bangalore Development Authority for the assignment “Institutional Strengthening and Sector Specific Inventory for PPP Mainstreaming in Sectors”. Under this BDA has identified a set of nine projects for which pre-feasibility assessments are to be carried out.

Construction of affordable housing at Byarathikane and Thanisandra are two of the nine projects that CRIS has been entrusted to study.

2.1 Project Idea

The Bangalore Development Authority has been designated as the Special Planning Authority for the Bangalore Metropolitan Area. As part of its mandate, the BDA has been developing layouts across Bangalore in order to streamline growth in the metropolitan area.

Of late, the BDA has also initiated the construction and allotment of affordable houses. These houses are developed by BDA and then are sold at nominal costs to the public through a “first come first serve” basis. However, so far, BDA has been developing these houses based on an Engineering, Procure and Construct format. The BDA has not explored any model through which private sector participation can be sought and BDA’s financial implications can be shared by the private sector partner.

The BDA now intends to develop these houses through private sector participation.

2.2 Approach and methodology

The broad approach and methodology followed for study of these projects has been depicted graphically below. Since there are no previous studies available for this segment, we have studied this project afresh:





3. Sector Profile

The city of Bangalore has witnessed very rapid growth. The city today is home to over 8.4 million people (2011 Census). The salubrious weather and the rapid concentration of economic activities in Bangalore have fuelled the growth of Bangalore. As one of the world's fastest growing cities, Bangalore is experiencing a steady growth in population.

Bangalore has been substantially affected by globalization and rapid urbanization over the last decade. The demand for services and quality of life is not confined to the central core or the erstwhile Bangalore Mahanagra Palike jurisdiction but spreads beyond into the peri-urban areas, the Metropolitan Area and outwards, into Bangalore Metropolitan Region. With the emergence of the Bangalore-Mysore Infrastructure Corridor, the Bangalore International Airport and the planned ring roads, urbanization has sprawled out.

Bangalore has incontestable advantages to develop into an international metropolis but at the same time faces significant constraints. The city is embedded in its history and depicts the greatness of a truly Indian city established before the invasions and colonization. It has a diverse set of activities, from silk to aeronautics, from clothing to information technology and is a gauge of dynamism and solidity of the city. Natural drainage, climatic advantage and the availability of water in the Cauvery basin are factors assisting in improving the quality of life.

3.1 Bangalore Development Authority

Bangalore Development Authority (BDA) is one of the premier urban planning and development agencies that oversee the growth of the city. The BDA came into being with effect from 6th January 1976 under a separate Act of the State Legislature viz. the BDA Act 1976. This Authority combined in itself the Planning functions of the City Planning Authority and the developmental functions of the erstwhile City Improvement Trust Board (CITB).

The key objects of the authority as per the BDA Act shall be to promote and secure the development of the Bangalore Metropolitan Area (BMA) and for that purpose the Authority shall have the power to acquire, hold, manage and dispose of moveable and immovable property, whether within or outside the area under its jurisdiction, to carry out building, engineering and other operations and generally to do all things necessary or expedient for the purposes of such development and for purposes incidental thereto.

The BDA performs the following functions:

- Planning

The Bangalore Development Authority is designated as the Planning Authority under the Karnataka Town and Country Planning Act, 1961. The planning functions in brief involve the following:

- ◆ Preparation of development plan for Bangalore
- ◆ Preparation of Scheme Plans
- ◆ Approval of Development Plans for Group Housing and Layouts
- ◆ Approval of building plans
- ◆ Other statutory functions under KTCP Act
- Development



In addition to the planning functions, the BDA envisages the following development functions:

- ◆ Planning and implementation of schemes to provide for Residential sites, Commercial sites, Industrial sites, Civic Amenity sites, Parks and playgrounds
- ◆ Construction of Commercial complexes
- ◆ Construction of houses for Economically Weaker Sections, Low Income Group, Middle Income Group, High Income Group
- ◆ Development of major infrastructure facilities

BDA has a jurisdiction of 1219 sq. kms which also includes the area under the jurisdiction of the Bruhat Bengaluru Mahanagar Palike (BBMP). As is evident from the set of functions for BDA, the BDA, apart from planning and regulation, also develops key infrastructure facilities like roads and other transportation infrastructure.

3.2 Key Issues

BDA has been investing significantly in developing the transport infrastructure for the area under its jurisdiction. However, the ever increasing size of population has put immense pressure on the demand for land for not only residential facilities but also for developing adequate transportation infrastructure. The limited resources available with BDA are most of the times not adequate to undertake improvements of existing transport infrastructure and development of new infrastructure facilities.

While the country is increasingly moving towards the public private partnership model in infrastructure facilities, BDA has had limited avenues to do so given the nature of infrastructure facilities it has been developing or improving. Hence the actual experience of BDA in developing infrastructure facilities through the PPP mode is very limited.



4. Project

4.1 Description of the Project

The project aims at developing affordable housing units on a sale basis to be allotted by BDA. Under the current framework, the BDA constructs these houses through the Engineer, Procure and Construct mode. There is no public private partnership model that has been tried thus far.

The BDA has developed housing through EPC contract with a deferred payment clause. In this the contractor is paid an upfront sum, a percentage upon completion of the project and some percentage after 1st and 2nd year of completion of the project. This model of EPC based project delivery means that BDA has to pay money upfront and has to allocate resources for the project.

Hence, it is proposed that the affordable houses be developed through a public private partnership (PPP) model either on an annuity basis or on a sale basis.

In the annuity model, the developer would develop the housing units and hand over the same to BDA for allotment. The BDA continues to allot the housing units according to its regular system of “first come first serve”. The developer would be a paid a fixed amount over the period of concession which would also include the operation and maintenance charges.

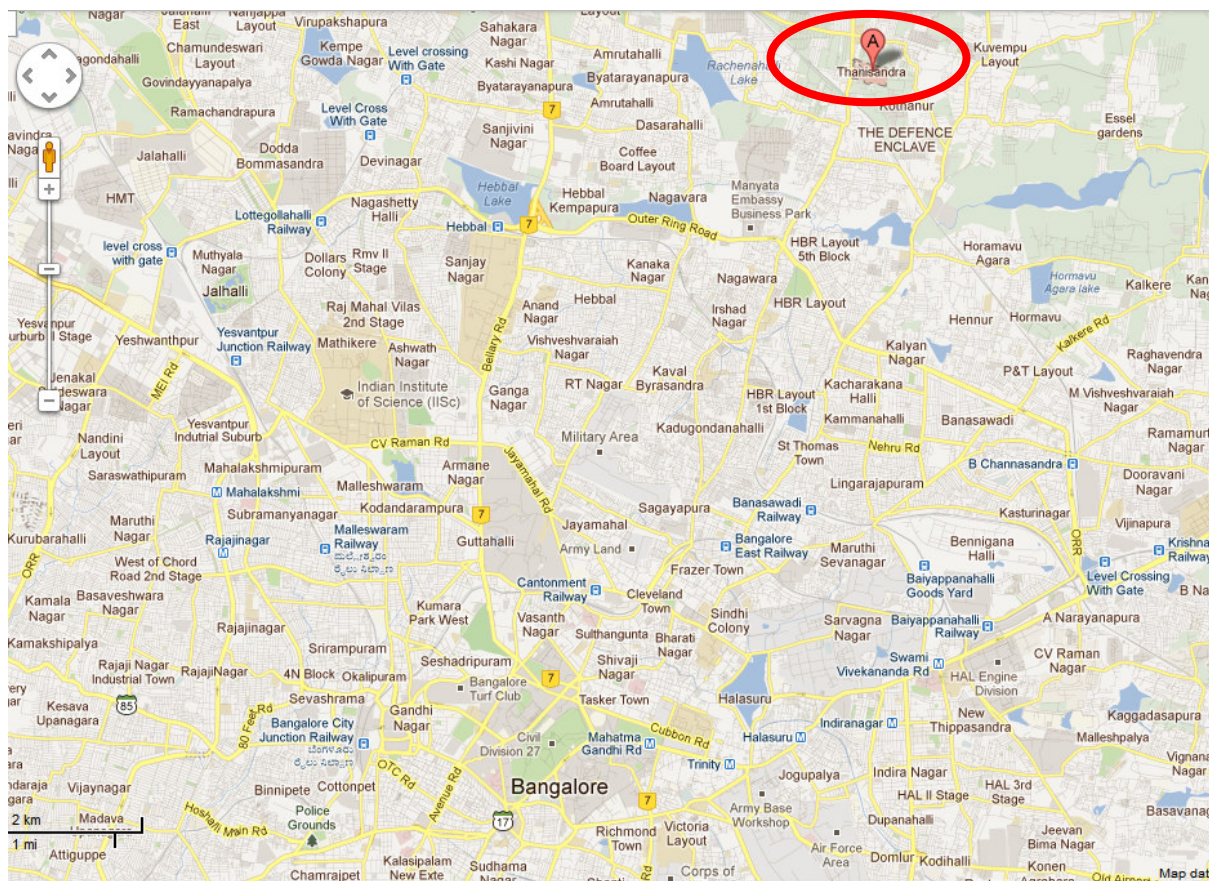
In the sale model, the EWS and LIG housing units are handed over to BDA entirely for allotment. The developer will retain the MIG I, II and III category houses and will sell them on his own.

4.2 Description of the Site

The Byrathikane and Thanisandra sites are located in the north eastern part of Bangalore. The sites are part of the Arkavathy layout which the BDA has been developing over the last few years. The Arkavathy layout is being developed in and around Jakkur in the north Bangalore region on roughly 1100 acres and encompasses around 16 villages.

Byrathikane and Thanisandra sites are close to the Defence Enclave and are adjacent to the P & T layout developed by the BDA. The sites are located adjacent to Sarapadle Road. The sites also have various institutional facilities available around them

The sites are well connected with the Thanisandra main road passing adjacent to the site and also a host of internal roads that have developed over time.



4.2.1 Connectivity

- **Road:** The site is well connected through the Thansandra Main Road which is directly connected to the outer ring road near HBR layout.
- **Rail:** The nearest railway station is at Yashwantpur which is approximately 17 kms away.
- **Air:** The sites are located at the distance of roughly 25 kms from the Bangalore International Airport

4.3 Development Needs, Public needs & Planning Considerations

Please refer to the section 5 on Market Assessment.

4.4 Best case studies

4.4.1 Public private partnership in affordable housing under Jawaharlal Nehru National Urban Renewal Mission (JNNURM)

The Pune metropolitan region, comprising Pune and Pimpri Chinchwad cities, is one of the fastest growing urban agglomerations in India. A major automobile and auto-ancillary hub and a well-known international education destination, it also ranks among the top IT destinations of India. Besides, the region has many industrial clusters housing industries focused on FMCG, engineering, agro-based technology.



The Pimpri-Chinchwad New Town Development Authority (PCNTDA), a key development authority of the PMR, is responsible for development of peri-urban, especially in its north. In line with the phenomenal growth of the region and its strident aspirations, PCNTDA has envisioned the development of an integrated township at Sector 12 spanning 53 hectares. Given the success of the Public Private Partnership (PPP) model in involving private sector participation for development based projects, PCNTDA proposed to develop the integrated township on PPP basis.

With this objective, PCNTDA appointed the consortium of CRISIL Risk and Infrastructure Solutions Limited (CRIS), Omkar Associates and Creations as project development consultants for the development of an eco-friendly affordable township at Bhosari, Sector 12. CRISIL's role was to undertake a detailed demand assessment, financial feasibility, project structuring and management of the bid process.

The concept

Keep in mind the PCNTDA's vision, CRIS designed integrated township such that it comprises housing units for the poor, affordable housing units for the general public, a primary health care centre, a hospital and a school.

As per the structure, the Developer shall construct 5040 housing units under the Basic Services for Urban Poor (BSUP) scheme of JNNURM. PCNTDA shall transfer the amount of grant sanctioned for developing these units under the JNNURM scheme to the developer. The remaining project cost of the BSUP units was to be financed by the developer.

In addition to this, the Developer shall also construct affordable housing units as per pre-specified specifications and hand over to PCNTDA free of cost. The developer shall also construction the physical and social infrastructure for the integrated township, thereby ensuring good road, adequate water supply, an efficient sewerage system as well as schools and hospitals. The project shall be developed in a manner such that it has minimum possible impact on the surrounding environment and is in harmony with nature. To this end, the developer shall undertake eco-friendly initiatives including rain water harvesting, use of solar power, environment-friendly materials and vermin-composting.

The project

The developer has to complete the BSUP housing units within 2 years and hand over to the PCNTDA. For the remaining portion of the land, PCNTDA shall execute a lease deed for 99 years with the developer. The lease rights shall be granted to the developer in phases, upon completion of milestones as defined in the project agreement. The main scope of work for the developer shall include:

- Master planning for the entire 53 hectares of land and construction of common physical and social infrastructure for the entire area
- Development, construction and marketing of 7.95 lakhs square meters of integrated real estate space
- Construction and handing over of 5040 housing units under the BSUP scheme of JNNURM on a separate layout carved out of the said land. PCNTDA will provide the developer the grant sanctioned by the Government of India for these housing units

Successful selection of private developer

With the objective of undertaking this project on a PPP basis in a transparent and objective manner, PCNTDA launched a three-cover Request for Proposal in June 2009. The bidding parameter was the constructed "Carpet Area" in "square meters" of affordable housing units that the bidder shall construct and hand over free of cost to PCNTDA.



The tender received good response from four interested bidders. Of the four bidders, two bidders were adjudged technically and financially capable and short-listed for the final stage. The bidder with the highest construction carpet area offered to PCNTDA was selected. The successful bidder quoted a carpet area of 130,599 square meters of affordable housing units.

Thereby, the PCNTDA derived a value of 7369 housing units (including 5040 BSUP units), a school and a hospital for the BSUP units; a school and hospital for the general public and development of public amenities.

Value addition to PCNTDA

In commercial terms, PCNTDA saved (i) Rs. 190 crores as the gap amount required to fund the BSUP scheme, (ii) Rs. 210 crores of construction cost of affordable housing units, and (iii) Rs. 100 crores on the development of physical and social infrastructure. In addition to this, PCNTDA shall receive an upfront payment of Rs. 50 crores from the successful bidder. The project structure also protects PCNTDA from cost escalation risks, valuation risks and engineering risks.

4.5 Project Design

For the two sites, the total extent of land (as indicated by BDA) is up to 20 acres. The FAR has been capped at 3 and this provides a total of 4000 houses. The typical house size assumed for each of the categories has been outlined below. We have not assumed High Income Group housing units for the purpose of this analysis.

Table 4-1: Housing categories and typical unit sizes

Housing category	Typical house size (sq ft.)
Economically Weaker Section (EWS)	450
Low Income Group (LIG)	550
Middle Income Group I (MIG I)	650
Middle Income Group II (MIG II)	820
Middle Income Group III (MIG III)	930

4.5.1 Surrender cum sale model

In this model, it is assumed that the developer would develop housing units and part of these housing units would be surrendered to BDA for allotment while part of the units would be retained by developer for sale. It is assumed that the developer and BDA would share the housing units in the following format.

Table 4-2: Share of developer and BDA under surrender and share model

Housing category	Typical unit size	Total Units	Share of developer		Share of BDA	
			Units	% of total units	Units	% of total units



Housing category	Typical unit size	Total Units	Share of developer		Share of BDA	
Economically Weaker Section (EWS)	450	1000	0	0%	1000	100%
Low Income Group (LIG)	550	750	0	0%	750	100%
Middle Income Group I (MIG I)	650	750	750	100%	0	0%
Middle Income Group II (MIG II)	820	750	750	100%	0	0%
Middle Income Group III (MIG III)	930	750	750	100%	0	0%
Total		4000	2250	56%	1750	44%

The developer will not be responsible for the operation and maintenance of the housing complex since it will be handed over to the residents’ association.

4.5.2 Build and surrender model

Under this model, the developer develops all 4000 units and surrenders them to the BDA. The unit sizes shall remain the same and the developer. The developer will be paid an annuity sum over the specified concession period. The ownership of the land will rest with BDA or may be transferred to the residents’ association. This is a working arrangement that the BDA will have to choose.

Under this model, the annuity outflow will require that BDA allocates the annuity amount in its budgetary provision every year until the end of the concession period.



5. Market Assessment

5.1 Industry outlook

The housing industry has shown strong growth in the past few years. Between 2006 and 2008, demand accelerated due to employment opportunities created by the information technology (IT)/information technology enabled services (ITeS) industry, growing population, urbanisation, rising incomes and increasing trend of nuclear families. Residential capital values catapulted as demand outstripped supply, with the bulk of the supply coming up in the premium category. However, the economic downturn of 2008 led to demand plummeting, resulting in developers holding huge inventories. A sizeable pent up demand for affordable housing, though, remained, which led to a substantial shortage in the mid-income and low income categories. In the fourth phase CRISIL Research expect the demand growth to revive and the industry to consolidate its position.

From 2012 to 2016, the number of households is expected to grow at a CAGR of 1.9 per cent vis-a-vis a growth rate of 2.4 per cent seen between 2001 and 2011. Households in urban areas will grow at a higher rate of 2.9 per cent (CAGR) during the 2012 to 2016 period as compared to the 1.4 per cent annualised rate of growth in rural households.

Hence, there is a huge potential demand for housing in India. Bulk of the demand is expected from the lower income group (LIG), middle income group (MIG) and economically weaker sections (EWS) for affordable housing. The government has launched various programmes to cater to the housing needs of these sections. Private real estate developers are also coming up with affordable residential projects in tier-II and tier-III cities as land is available at affordable prices in these cities.

5.1.1 Affordable housing has huge demand potential with low supply

We believe that for a house to be called affordable, the 'majority' of population within the city should be able to afford it. By majority of households, we mean 60 per cent of households in a city should be able to afford a house. This definition automatically implies that the bottom 40 per cent of households (termed as 'low-income category') would not be able to afford that house.

The top 20 per cent of the households (high-income category) within a city can afford to buy any house, located anywhere in the city. Excluding the high-income category, we are left with the 'mid-income' category of households, which we have considered as the target segment for affordable housing.

Economic slowdown has impacted income levels especially in the high-income population (top 20 per cent of earnings households), thus leading to substantial decline in demand for premium housing. The 'mid-income' category has seen relatively lower wealth erosion. Hence, we believe there is large pent-up demand in this category.

The mid-income category of households represent affordable housing units priced between Rs 8-18 lakh for Group I (G I) cities (four metros, Hyderabad, Bengaluru). Affordable housing for G II (Pune, Ahmedabad, Chandigarh etc) and G III (Ujjain, Meerut, etc) is Rs 7-16 lakh and Rs 4-9 lakh, respectively.

To achieve the goal of affordable housing for mid-income households, per square feet prices have to be less than Rs 3,600 in G I cities, assuming house area at 500 sq. ft.



The low-income category (bottom 40 per cent) of households is unlikely to afford a home offered by private developers. This population is not targeted by real estate developers as it is economically not viable to provide homes at such a low cost. Hence, state-run agencies like Maharashtra Housing Area Development Authority (MHADA) and Delhi Development Authority (DDA) cater to this section of population through their low-cost housing and slum rehabilitation programme.

Many builders have announced affordable housing projects to stimulate the demand for real estate and keep cash flows intact. However, most of the affordable housing supply in Tier-I cities has been developed on the outskirts, where rates are already low. Affordable housing projects at attractive locations (near CBD areas) are highly improbable because of high land prices.

Thus, considering the upcoming supply, to afford a housing unit for the mid-income category at current prices, the only viable options available are in the far suburbs. Only state-run agencies, with access to cheaper land, can provide affordable housing in main city areas. Besides, other factors like subsidised interest rates also affect affordability of individuals.

5.1.2 Affordable housing supply

CRISIL Research has examined the upcoming supply of affordable houses (as termed by developers). We have captured the supply details of projects launched/announced/planned by large developers termed as 'affordable'. The following are the key observations while analysing supply of affordable housing:

- Many builders have announced affordable housing projects to stimulate the demand for houses, which is witnessing a sharp slump since the last 12-15 months. The market for premium homes has almost dried up, with investors and consumers shying away from the real estate market in anticipation of price correction. Most of the affordable housing supply is still in the primary stages of planning. We believe few of them will materialise. Many developers have also started referring to their old projects as 'affordable', due to decline in prices.
- 'Affordable houses' are coming up or under construction in the far suburbs, or away from the major CBD/town area. Prices at these places were already low.

5.2 Opportunities & Demand projections

The emergence of a strong middle income segment post the 2009 slump in the real estate market has brought affordable housing to the forefront. A research on affordable housing states that the middle income population in Bangalore will require approximately 3.27 lakh housing units by 2012, which assuming an average unit size of 800 sq. ft. translates to approximately 262 million sqft of residential space¹.

Envisaging the rising demand for smaller, yet affordable homes with premium facilities, established builders in the city have announced projects on the outskirts offering homes in the price range between Rs 19 lakhs to Rs 40 lakhs. Improved connectivity linking these far flung locations to the city centre as well as the development of social infrastructure is creating attractive housing options for homebuyers. Areas where there is industrial activity are a good bet for affordable housing units because of the vast number of those employed in the industries here which make a potential market.

¹ This section draws heavily from an article published on www.magicbricks.com



Just as the IT parks propelled a walk-to-work culture, having affordable homes close to the places of work on the outskirts can make this concept work for another segment of the employed too.

North

Singularly driven by the sixlane road to the international airport, this zone is waking up to hectic real estate activity. Peenya, Jalahalli, Yelahanka, Sahakarnagar, BEML Circle, Devanahalli, and Doddaballapur Road will see affordable housing options in the range of Rs 20-25 lakhs. The Yelahanka – widened Doddaballapur Main Road and the Hennur – Banaswadi Road are potential locations for affordable housing options in the next two to three years given the availability of large land parcels here. Areas around Devanahalli up to Doddaballapur Road, about 40 km from the city centre, have options in the price bracket of up to Rs 20 lakhs. The upcoming hardware, logistics and warehousing, textile, IT and non-IT SEZs are slated to drive the boom for affordable residences. The Shivarama Karanth Layout has been earmarked along Phase I of the planned Peripheral Ring Road (PRR).

South

The Sarjapur Main Road leading to Sarjapur village, and the Sarjapur ORR is where most of the affordable residential property activity is centred around. The emergence of quality social infrastructure, with malls and international schools, has created a mix of both luxury and affordable residential options in the vicinities along these roads. Attibele is emerging as a catchment area with immense potential due to the presence of a couple of international campuses, and hence, the potential for housing. The option of owning a budget apartment is also available in localities near Kanakapura Road, Bannerghatta Road, Hosur Road, Anekal, Jigani, Begur, and Electronics City in the price range of Rs 25-40 lakhs. D Devaraj Urs Layout, S Nijalingappa Layout and K C Reddy Layout have been planned along Phase I of the PRR.

East

In the east, the Hoskote Industrial stretch on NH-207 is fast-emerging as a budget home belt. With Hoskote becoming a prime logistics and warehousing hotbed, this locality is expected to reign in more employment and hence the need for affordable residential units. Whitefield and Kadugudi are gradually seeing a spurt in budget residential clusters with established developers homing in on these locations for their affordable projects.

West

Mysore Road, Rajarajeshwarinagar, Kengeri, and Magadi Road are the areas where affordable homes are gradually springing up. Along the improved Tumkur Road stretch new industries are setting up base and hence will fuel the need for budget housing for those employed here. The Kempegowda Layout is slated to be a model one and will be self-sustained having both residential and commercial establishments. All amenities like parks, roads, playgrounds etc as well as educational institutions and healthcare facilities will feature in the layout making it on par with any other township. It is touted to be one of the biggest layouts and will span across 4,814 acres, including 12 villages between Magadi Road and Mysore Road on Phase II of the PRR.



6. Project financials

6.1 Cost Estimation

The estimated cost of construction for the 4000 units is Rs. 468 crores inclusive of all expenses. This cost estimate includes the following:

Cost Components	Cost (in Rs. Crores)
Cost of construction of housing units	389
Cost of construction of car parking units	27
Contingencies	12
Preliminary and pre-operative expenses	20
Upfront premium	0
Interest during construction	19
Total Project Cost	468

6.2 Revenue streams

6.2.1 Surrender cum sale model

For the surrender cum sale model, the revenue stream is largely from the sale of housing units by the developer. The BDA will also make revenues through allotment of housing units at nominal rates.

Particular	31-Mar-13	31-Mar-14	31-Mar-15	31-Mar-16
Percentage booking per annum (%)	10%	30%	30%	30%
Selling Price (Rs. per sq. ft)	2,500	2,800	3,100	3,300
Housing Area sold by the Developer (Advance Booking) (lakh sq. ft)	1.80	5.40	5.40	5.40
Revenue from the sale of Housing Units (Rs. lakh)	4,500	15,120	16,740	17,820
Revenue from the sale of Car Parking (Rs. lakh)	281	844	844	844
Total Revenue Realised by the	4,781	15,964	17,584	18,664



Particular	31-Mar-13	31-Mar-14	31-Mar-15	31-Mar-16
Developer (Rs. lakh)				
Phasing of Capital Cost (excluding Land Cost)	15%	65%	20%	0%
Capital Cost (Rs. lakh)	7,230	31,332	9,641	-
Free Cash Flows (FCF) (Rs. lakh)	(2,449)	(15,368)	7,943	18,664
Cumulative Cash Flows (CCF) (Rs. Lakh)	(2,449)	(17,817)	(9,874)	8,789

Thus the payback period for the developer would be the 4th year.

6.2.2 Build and surrender model

Under this model, the developer is paid an annuity by BDA over a specified concession period. The revenues, in form of annuity, accrued to the developer over the concession period have been placed at Annexure 1.

The base annuity accruing to the developer under various concession periods has been outlined below:

Concession Period	Base annuity (in Rs. Crores)
10 years	80
20 years	61.00
25 years	58.75

It is assumed that the annuity would be escalated by 5% every year.

6.3 Viability Assessment

6.3.1 Surrender cum sale model

Under this model, the internal rate of return for the project works out to be 25%. This IRR is based on the free cash flows available to the developer from the sale of the units allotted to the developer. The return period for the developer in the current financial assessment is spread over 4 years.

6.3.2 Build and surrender model

Under this model, we have evaluated scenarios for concession periods of 10, 20 and 25 years. The total annuity payable to the developer would be Rs. 8000 lakhs which will be escalated by 5% every year. We have also assumed that the project would be able to access both the central and the state



government viability gap funding (VGF) which will be to the tune of 40% of the project cost (20% from central VGF and 20% from state VGF). The outputs for the annuity model have been outlined below:

Table 6-1: Viability assessment under the build and surrender model

Concession Period	Project IRR	Equity IRR	NPV of Equity
10 years	14.35%	20.42%	154
20 years	22.06%	28.19%	5,550
25 years	22.69%	28.67%	6,499

It is evident that the most attractive proposition for the developer under the Build and Surrender model will be either 20 years or 25 years of concession period which will allows the developer to make reasonable returns on the project.

6.4 Funding Available (Central/ state etc.) under various schemes

The funding available from central and state government will be under the viability gap funding scheme. It is assumed that the developer would access both these funding mechanism and would be able to fund 40% of the project cost through funding available under these schemes.

6.5 Ranking of options based on commercial viability

Having assessed the projects under both the proposed models, we are of the view that the Build cum Sale model will be more beneficial for the BDA since it will not only get houses built free of cost, it will be able to generate revenues from the allotment of housing units allotted to BDA.

6.6 Discussions on the report

While we have developed the report and have provided recommendations based on our assessment of the projects, we would like to further discuss the recommendations with the Bangalore Development Authority officials and factor in their suggestions and recommendations as well.



7. Regulatory & Legal Framework

7.1 Applicable laws & Act and Legal Cover for the project

The BDA acts under the functions laid down in the BDA Act, 1976. Additionally, the development of affordable, in future, will also be impacted by the Karnataka Housing and Habitat Policy, 2009 which is currently in the draft form and will be formulated into a proper policy document soon.

7.2 Legal & Regulatory framework

Apart from the state government policies (which is currently in the draft form), there are currently no legal instruments that regulate the development of affordable housing. The BDA has been developing affordable housing units for the past few years under the BDA Act which empowers it to perform functions relating to systematic growth of the area under its jurisdiction.

7.3 Key Issues

The only issue that is likely to come up is the availability of unencumbered land with BDA for the execution of these projects. Currently, there is some confusion regarding the allotment of the land which is likely to be cleared upon soon.



8. Operating Framework

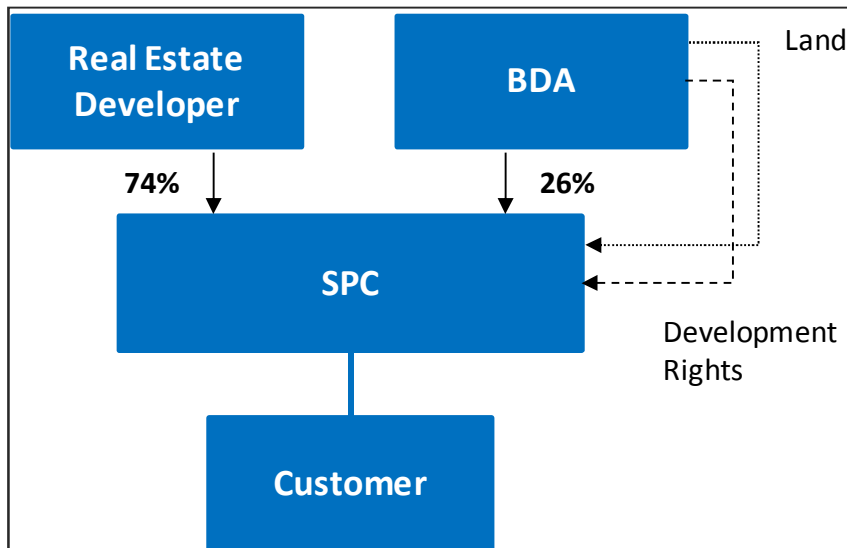
8.1 Indicative Project Structure

The project structure for the execution of the affordable housing projects has been discussed under the two proposed models of development.

8.1.1 Surrender cum sale model

Under this model, it is envisaged that the execution of the housing projects would be undertaken through a Special Purpose Company to be set up with a majority stake i.e. 74% being held by the developer and the BDA retaining a 26% stake which will allow BDA the Veto power. The BDA's equity in the SPC will be in the form of land while the developer will have to bring in the rest of the equity.

Figure 8-1: Proposed project structure for surrender cum sale model



Under this option, the BDA will transfer the land to the SPC. The SPC will develop the housing units and will hand over part of the units to the BDA who will then proceed to allot it at the rates it deems appropriate.

The remainder of the units will be retained by the SPC and will be sold to customers directly. The BDA shall not govern the prices at which these units are sold. The land which will vest in the SPC will eventually be transferred to the residents' association upon completion of the project.

Under this option, the BDA significantly de-risks itself from the actual construction of housing units as well as allotment of all the housing units.

8.1.2 Build and surrender model

Under this model, the BDA shall enter into a concession agreement with the successful bidder and provide land free of all encumbrances to the developer. The developer shall develop the units





according to the project execution plan and will surrender the developed units to BDA upon completion of the project.

The BDA, on its part, will initiate and manage the process of allocation to the customers who apply for such housing units. The BDA shall be free to determine the sale price of the units. The revenues accrued to BDA could be utilized to cushion the annuity outflow that BDA will have.

8.2 Recommended project structure

We are of the view that the best option for BDA would be to utilize the **Surrender cum Sale model**. This model practically frees BDA of bearing any cost of construction and also provides BDA with additional revenues through allotment of housing units allocated to it by the developer.

It is recommended that in order to realize the full benefit of this model, the BDA should identify two separate sites where the SPC will build the housing units in order to segregate the ones developed for BDA as well as the ones that the SPC shall retain.

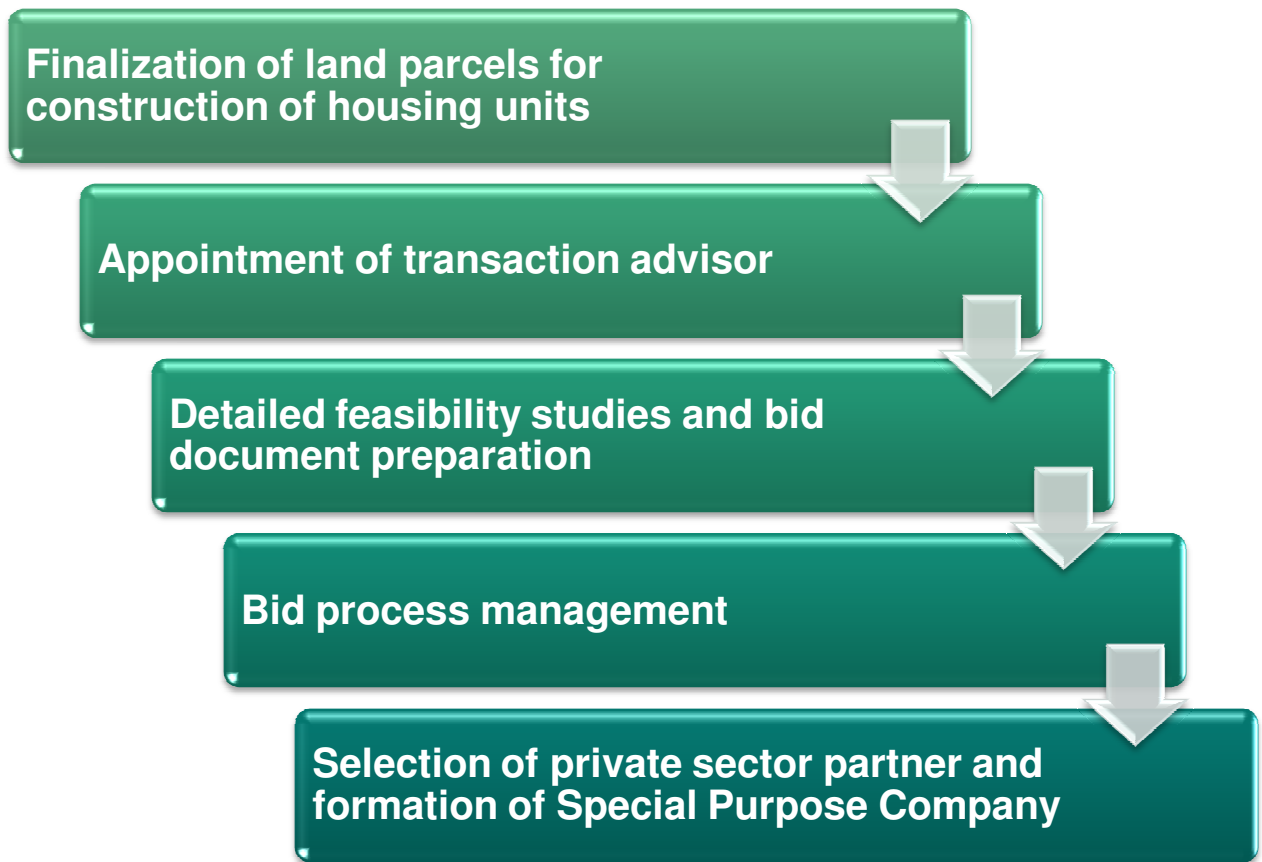


9. Way Ahead

9.1 Project Development Framework

The BDA should finalize two parcels of land on which the development of affordable housing units will be executed. Once these have been finalized, the BDA should appoint a Transaction Advisor who will conduct detailed feasibility analysis for the projects.

Figure 9-1: Project development framework



The transaction advisor should be appointed along with a technical partner to assess the technical feasibility of the project as well. The transaction advisor shall conduct detailed feasibility analysis for the projects and will finalize the project structure.

The transaction advisor shall then conduct the bid process for selection of private sector partner. Once the preferred bidder has been selected, the formation of the Special Purpose Company shall be initiated.

9.2 Procurement Plan

The first and foremost task for BDA will be to finalize the land parcels on which the housing project will be undertaken. While the land parcels are being finalized, the process of appointment of transaction advisor should be initiated. Once the transaction advisor is in place, detailed feasibility studies will be carried out. It is assumed that these tasks would be undertaken in parallel and can be completed within 4 weeks.

Figure 9-2: Procurement plan for affordable housing projects

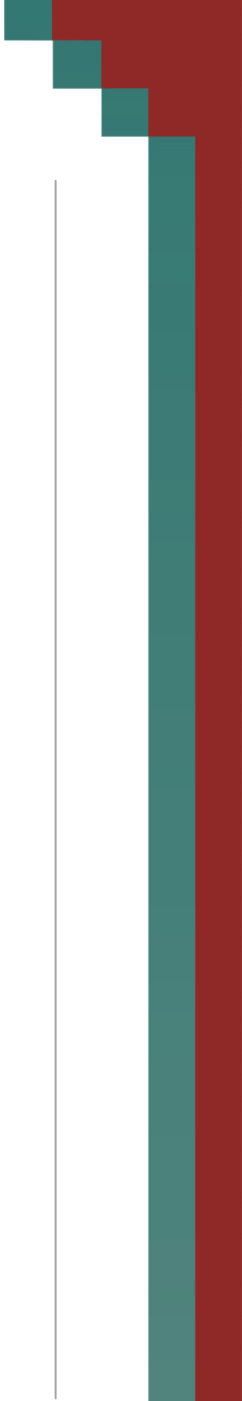
Activity	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18	W19	W20	W21	
Finalization of land parcels for housing projects																						
Appointment of transaction advisors																						
Detailed feasibility analysis and bid document preparation																						
Bid process management																						
Selection of preferred bidder and formation of SPC																						

The transaction advisor shall also develop the bid documents for the project and would conduct the bid process for BDA. It is assumed that the detailed feasibilities as well as preparation of bid documents will be completed within 6 weeks.

Once the bid documents have been floated, it is assumed that the process of selection of the preferred bidder would be completed within 8 weeks. This may be shortened or increased depending on the assessment of the transaction advisor.

Once the preferred bidder has been selected, the contract execution and formalities for formation of the SPC shall be completed within 2 to 4 weeks.

The current procurement plan is spread over 20 weeks which can be shortened depending on the time taken to appoint the transaction advisor, the time taken to completed feasibilities and preparing bid documents.



10. Annexure 1 – Income statement for annuity model

Concession Period (years)	31-Mar-13	31-Mar-14	31-Mar-15	31-Mar-16	31-Mar-17	31-Mar-18	31-Mar-19	31-Mar-20	31-Mar-21	31-Mar-22
Annuity	-	-	2,071	8,820	9,261	9,724	10,210	10,721	11,257	11,820
Total Revenues	-	-	2,071	8,820	9,261	9,724	10,210	10,721	11,257	11,820
Total O&M Expenditure	-	-	357	1,519	1,595	1,674	1,758	1,846	1,938	2,035
EBITDA	-	-	1,715	7,301	7,666	8,050	8,452	8,875	9,319	9,785
EBIT	-	-	1,328	5,735	6,100	6,484	6,886	7,309	7,752	8,218
PBT	-	-	889	3,977	4,349	4,890	5,512	6,155	6,818	7,504
PAT	-	-	845	3,184	3,482	3,915	4,414	4,928	5,459	5,425
Concession Period (years)	31-Mar-23	31-Mar-24	31-Mar-25	31-Mar-26	31-Mar-27	31-Mar-28	31-Mar-29	31-Mar-30	31-Mar-31	31-Mar-32
Annuity	12,411	13,031	13,683	14,367	15,085	15,839	16,631	17,463	18,336	19,253
Total Revenues	12,411	13,031	13,683	14,367	15,085	15,839	16,631	17,463	18,336	19,253
Total O&M Expenditure	2,137	2,244	2,356	2,474	2,597	2,727	2,864	3,007	3,157	3,315
EBITDA	10,274	10,788	11,327	11,893	12,488	13,112	13,768	14,456	15,179	15,938
EBIT	8,708	9,221	9,761	10,327	10,922	11,546	12,202	12,890	13,613	14,372
PBT	8,213	8,995	9,761	10,327	10,922	11,546	12,202	12,890	13,613	14,372
PAT	5,699	6,162	6,621	6,950	7,305	7,684	8,088	8,519	8,976	9,461
Concession Period (years)	31-Mar-33	31-Mar-34	31-Mar-35	31-Mar-36	31-Mar-37					
Annuity	20,216	21,226	22,288	23,402	18,513					
Total Revenues	20,216	21,226	22,288	23,402	18,513					
Total O&M Expenditure	3,481	3,655	3,837	4,029	3,188					
EBITDA	16,735	17,572	18,450	19,373	15,326					
EBIT	15,169	16,005	16,884	17,807	14,146					
PBT	15,169	16,005	16,884	17,807	14,146					
PAT	9,975	10,517	11,091	11,696	10,423					



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