LIASES FORAS

Liases Foras, founded in 1998, is the only non-brokerage real estate research company in India. Data and science form the core of our services, which range from providing market intelligence and risk advisory to lenders and mortgage companies, to providing development advice, best use, and valuations to developers, funds, banks and corporations.

We cater to a wide spectrum of clients including banks, HFCs, developers, funds, mortgage insurance companies, etc. and help them identify opportunities as well as associated risks in the market.

Our expertise lies in the area of real estate pricing with a strong focus on understanding the dynamics of price and analysing any underlying risks. We firmly believe that no matter how complex and ambiguous the real estate industry might seem, in reality, prices are governed by the laws of economic geography and urban economics.

Liases Foras is well acknowledged as a leading authority on real estate research and analysis, and many of our clients have benefited hugely from the robust database on real estate markets in India, that we provide. Our database is built using data collected since 2003 and as of today, covers over 62 cities across India.

Our deep-dive and comprehensive approach covers various dimensions of real estate behaviour and since we are a non-brokerage company, our advice and analysis is completely unbiased. We can therefore boast of offering not only an exhaustive database of real estate performance, but also advisory services that are unparalleled in the industry.

We have pioneered the science of self-generated real estate research to look beyond ‘market sentiment’ and counter misconceptions by relying on robust data, scientific theories and rational thinking.
We are proud to be a strategic partner of the highly diversified DMG Group. The group operates in 40 countries across the world and its revenue in 2014 was over USD 3 billion.

DMG is invested in a variety of spaces – from media and energy to land & property, and education as well. The group caters to both business and consumer audiences.

DMG information handles over 95% of the United Kingdom’s valuation workflow for lenders and much more in the real estate sector. Landmark UK (a subsidiary of DMGi) identifies and translates environmental and property risks into facts, insights and opportunities.

Using data and technology they deliver intelligence and solutions that enable informed decision-making. DMGi’s clients include banks, valuators, environmental professionals, lawyers, and architects.

DMGi Land & Property Europe, is an acknowledged leader in data analytics and workflow solutions to the commercial and residential property markets in Europe. It serves multiple customer segments through its leading brands including Landmark, Argyll, Quest, SearchFlow and On-Geo.
Liases Foras has, for almost two decades, strived to find answers behind the inefficiencies in the real estate sector. Our strength lies in real estate risk assessment, market research, due diligence and advisory services. We employ cutting edge analytics to deliver an array of data driven knowledge bytes and valuable, processed information that can be used to make key decisions.

From the days of only collating data, reporting and monitoring real estate supply, Liases Foras has transformed into a trustworthy think-tank and has taken research to new horizons.

THE EDGE

Analytics based on scientific rationale

Liases Foras has, for almost two decades, strived to find answers behind the inefficiencies in the real estate sector. Our strength lies in real estate risk assessment, market research, due diligence and advisory services. We employ cutting edge analytics to deliver an array of data driven knowledge bytes and valuable, processed information that can be used to make key decisions.

From the days of only collating data, reporting and monitoring real estate supply, Liases Foras has transformed into a trustworthy think-tank and has taken research to new horizons.

OUR CORE CAPABILITIES

With our real estate domain knowledge, largest data base and IT capabilities, we are the only one in this space to provide intricate valuation and mapping solution.

Largest Real Estate data.
Proven trends and predictive analytics.

Acclaimed experts with deep knowledge and understanding of real estate economics and geo-spatial behaviour.

IT & Tech capabilities to provide intricate real estate valuation and mapping solutions.

Over time, we have

- Decoded the science of property pricing. Our unique modelling system integrates key factors governing real estate pricing such as distance, economic density, surroundings and product (building or unit) to provide an accurate value of any property.
- Introduced sales velocity and price equations in our calculations, which address the critical gaps in real estate valuations.
- Emerged as a leading authority on the subject with the most structured database on real estate markets in India- covering over 56 census cities.
- Formulated Developers' Rating Tool — a model which measures on-ground performance and the capability of developers to meet their commitment to consumers.
- Established ourselves as a dependable source of advisory services and customised research to lenders and developers.
- Conceptualized the ‘Magnet Theory’ of future price projection.
- Launched India’s first ever real estate sensitivity index, RESSEX.
Liases Foras has a geographical coverage of more than 1,25,000 projects across India. As of today, we monitor more than 20,000 ongoing projects every quarter in over 65+ cities in India. We have tracked over more than 50 billion sq ft of residential, commercial and retail supply over time.

Data Collection Methodology
- Data is collected through primary survey.
- Mystery shopping techniques are adopted to assess availability, price and other details.
- Data is collected on a quarterly basis.
PRODUCTS

**CRYSTAL**
Crystal is a valuation workflow system which streamlines the interaction between lenders, valuators, and surveyors in carrying out valuations using automation and mobile devices.

**RESSEX**
Ressex, our online data interface, provides structured solutions to day-to-day questions pertaining to real estate markets and projects.

**DESKTOP VALUATION**
Desktop Valuation with Comparables, is a first of its kind, a web based valuation validation tool.

**DEVELOPER’S PERFORMANCE RATING**
Extensive analysis of on-ground performance of more than 9000 developers across 62 cities in India.

**BUSINESS INTELLIGENCE & RISK ANALYTICS**
With our razor-sharp analytics, we help banks, HFCs and corporates to identify the potential opportunity and underlying risks.

**DFS**
DFS is first ever online analytical tool to assess project viability.
CRYSTAL

Crystal is a valuation workflow system which streamlines the interaction between lenders, valuators, and surveyors in carrying out valuations using automation and mobile devices. Crystal have been integrated with our valuation re-validation products such as ‘Comparables’, that provides valuation comparable; ‘Ressex’ that provides micro market demand supply and risk matrices and ‘Property Science’ that provides automated valuation (AVM). Our data web consist of primary data registration data and secoundry data.

Crystal is a valuation workflow which is customisable as per the reporting standards of individual lenders.

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Advantage

- High quality of valuations
- Revalidation tools help mitigate risks and provides a second valuation
- Provides cost and time efficiency
- Can be configured as per user’s requirements

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Valuation Work Flow

1. Bank sends instructions to valuer
   Bank
   Valuer receives instructions from lender & allocates job to surveyor
   Valuer
   Approved by technical manager, the report is submitted the bank
   Approval
   Technical manager receives the report and validates valuation data
   Technical manager
   Surveyor using the Tablet/Mobile, fills the valuation forms, submits report to the technical manager
   Technical manager
   Site visit
   Surveyor views the calender/ alert and visits the site

Valuation Re-Validation

- Tracks status of application at every stage of valuation
- Online process based on secure panel network
- Establishes standardisation and creates a structured database of valuation for future analysis

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Our proprietary urban price setting regression model provides AVM

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Independent Non-broking Real Estate Research Company
Ressex, our online data interface, provides structured solutions to day-to-day questions pertaining to real estate markets and projects.

An organized and structured data source on real estate in India, RESSEX™ aims to fulfil the need for instant and continuous information on property trends and analysis. Such a product is not only novel in its concept, but also provides in-depth, scientific, fact-based overview of the real estate markets in India, along with independent, unbiased real estate research and analytics.

### Data & Coverage
RESSEX is built using data from 2003 onwards and covers over 95% of the primary supply across 62 cities in India. In the near future, we will capture data from over 100 cities in India, as part of our on-going project with the NHB.

### Methodology
Ressex adopts a bottom up approach wherein, individual housing units are aggregated to define buildings, buildings aggregate to define a neighbourhood, and neighbourhoods cumulatively define a city. Further more, each project is geotagged in order to ensure precision.

Data is collected through primary survey. Mystery shopping techniques are adopted to assess availability and price. Data is gathered through personal visits to the sites, rather than mere telephonic or desktop-based search. Data covers only primary ‘marketable supply’.
Ressex provides crucial trends which enables faster decision-making

Ressex dashboard will help you discover real estate trends and test your hypotheses, structured from macro level to micro level. Tools such as ‘map’, ‘matrix’ and ‘drill down’ will provide easy-to-follow business intelligence solutions.

Features include turning on and off various filters, or overlaying additional data to create customised info pages that can be downloaded in multiple formats – CSV, PDF or Image. In fact, Ressex allows you to analyse complex data with complete agility from macro level right down to the individual project level, combined with a highly interactive analysis.

### DATA
- Coverage of 55 Cities
- 70 Primary Data Points
- Registration Data
- Largest Coverage

### ANALYTICS
- Map & Matrix integration
- Performance Analytics
- Infrastructure overlay

### FLEXIBILITIES
- Drill Down
- Draw and Analyze tool
- Download PDF and Xls
- Compare and Nearby
Desktop Valuation, Valuation Comparable and AVM (Automated Valuation Model)

Desktop Valuation with Comparables, is a first of its kind, a web based valuation validation tool. It helps Banks/ HFCs/ NBFCs to validate the valuation, given by external agencies, thus mitigating the risk in the system. The tool compares the prices across Lisases Foras primary market data, registration data and data sourced from various property portals, to provide valuation solutions.

First of its kind concept, aims to fulfil the requirement of instant confirmation of the prevailing prices of a particular project or location across different sources of data available. It is a tool to authenticate the price point/range of the product across different data points.

A strong search tool search the comparable data based on the set rule across all datasets, viz

- Lisases Foras Data
- Secondary and Portals Data
- Registration Data

And offers the all the comparables available across all data points for the user to select. The options of selecting the median as well as direct comparable has been integrated.

How does AVM (Automated Valuation Model) work?

The Automated Valuation Model is a hedonic regression model simulating urban price setting of a city, depending on the quality grades of neighbourhood setting, products and surroundings, it provides the appropriate market value of the property.

It is based on our proprietary urban price setting theory. The study decodes that every city maintains a specific price setting (float) at any given point of time and the price of a property is governed by four fundamental factors such as distance, density, surroundings and products. Differentiation in these factors provides differentiating values of property, even though situated in the same distance.

A user has to just provide the details of the property, neighbourhood setting and surrounding features to get the value of the property. The accuracy of the valuation depends on how well you have defined the property. There are three versions of defining the property attributes, such as express, essential and pro.
DESKTOP FEASIBILITY SOLUTION

DFS is first ever online analytical tool to assess project viability. It is an analytical interface backed by granular data captured by Liases Foras through field survey on quarterly basis.

Desktop Feasibility Solution (DFS) uses a data driven approach to help you make spatially and economically viable decisions for your project. It uses real time data on projects and real estate trends in your catchment area and helps you make decisions in six easy steps.

The interactive analysis helps you answer questions like:

- How can you increase the market share and sales velocity for your project?
- How will changes in price (premium or discount) and product mix impact the sales velocity and your finances?

How will it help you

**Developer**

**Land Purchase:**
- Productive land price assessment
- Deal Structuring/Restructuring
- Financial viability of project

**Product Planning:**
- Re-validate your gut feel
- Re-validating your proposed product mix & price
- Identifying the best performing and ideal product for your site

**Competition & Inventory Analysis:**
- Competitive Project Mapping
- Achievable Market Share
- Market dynamics & prevailing velocity

**Quick assessment of financial potential:**
- Revenue Realization
- Cost & Profitability Assessment
- Price Sensitivity Analysis

**Construction Finance Company/Banks and HFCs**

**Deal Viability & Profitability Assessment:**
- Project Gestation
- Financial prudence
- Land price and construction cost re-validation

**Deal Viability & Profitability Assessment:**
- Sale & inventory trends in the catchment
- Achievable price & velocity (sales gestation) as per market dynamics

**Quick Proposal Evaluation:**
- Complete project feasibility of the project
- Product & price viability

You can assess the prevailing market dynamics & revalidate the assumptions of cash flow projections given by the prospective borrower/partner.
DEVELOPER’S PERFORMANCE RATING

An innovative rating model designed to assess developer performance

One of its kind analysis of on-ground performance of nearly 10,000 developers across India. The rating benchmarks past performance of developers against their future expected performance. This helps gauge whether the developer can meet his/her future expected performance, or is likely to default. As financial information of developers is hard to procure, the model uses the next best alternative- i.e. on-ground performance to determine results.

How will Developer Rating help you?

The Developer Rating model is built to address the following questions-

- Can the developer can meet his construction commitment based on current construction velocity?
- Is the developer generating funds from sales to meet the base construction cost?
- Are current sales good enough for future cash flows?
- Is there a tendency to delay or default on the developer’s part?

On-ground development is generally the first indicator of financial problems. It is therefore helpful to focus on tangible performance.

Fund Houses/ NBFCs

- Assess performance of the developers whom you are dealing with for the first time
- Identify the investment opportunity among developers/projects, based on your guidelines

Construction Finance

- Developer’s performance can be useful during the credit assessment of a proposal
- Quarterly monitoring of developers/projects
- Differential treatment of developers can be done based on the ratings determined

Mortgage Finance

- Quarterly monitoring of developers’ with large exposures
- Facilitates differential treatment of developers based on their ratings

Independent Non-broking Real Estate Research Company
Parameters for Assessment

The developer’s performance is calculated based on the overall performance of all his projects. Performance is mapped against the following parameters:

**Construction Velocity** - Whether at the current pace of construction, a developer can meet the set delivery deadlines. If not, then by what multiple does he need to increase his construction pace?

**Delays** - How much is the delay in the developer’s existing projects?

**Sales Velocity** - Are the sales good enough? Has the developer sold nearly 2.75% of the stock on a monthly basis in the last 12 months?

**Cash Condition** - Whether the cash generated from average monthly sales receipts of the last 12 months is good enough to meet the next month’s construction expenses. If yes, by how much do receipts exceed the expense; and if no, what is the percentage of shortfall?

These four parameters determine the probability of default on the execution side. Higher the score achieved, lower the probability of default in fulfilling their commitment.
BUSINESS INTELLIGENCE AND RISK ANALYTICS

With our razor-sharp analytics, we help banks, HFCs and corporates identify potential opportunities and the underlying risks. We weigh the prospects of top performing locations, developers, projects and new launches against the lurking risks of price correction, habitability and other market inefficiencies.

How will Business Intelligence and Risk Analytics help you?

With quarterly updated project level data, we help HFCs to strategise their lending operations and make informed decisions. The analytics would assist in the following ways:

- Identify target segments with respect to developers, project and locations
- Assist in policy framework
- Provide input for due diligence
- Provide leading indicators to plan future actions
- Assist in risk identification with respect to developers, locations and projects

With quarterly updated project level data, we help financial institutions strategise their lending operations and make informed decisions.

Business Intelligence

- Data to assess the best performing locations, developers and projects
- Data on new launches
- Provides rationale for resource allocation, budgeting and monitoring
- Scientific framework for developing efficient lending products

Risk Analytics

- Ascertaining the risk profile of developers and projects
- Identifying the risks related to location, products and markets with various tools such as Developers’ Performance Rating, Project Performance Rating and Location level LTVs
- Revalidation and monitoring of project level valuations

Management level Decision-making

- Provides in-depth analysis for management level decision-making
- Provides MIS on business penetration
**ADVISORY SERVICES**

**HIGHEST AND BEST-USE ANALYSIS**
Every structure belongs to its location and time. The analysis scans various options to find out the one which gives the highest/maximum development realisation.

**VALUATION ADVISORY**
Liases Foras offers transparent, scientific, data-driven and unbiased valuation solutions.

**URBAN PLANNING SERVICES**
We prepare City Development Plans outlining the vision and development strategy for unlocking land in a city.

**PREPARING A DESIGN BRIEF**
Extending beyond the best-use prognosis, we write uncluttered, contextual design briefs for Master Planners/Architects.

**CONSUMER SURVEY & PROFILING**
We specialise in the field of real estate-specific consumer surveys.

**PRODUCT VIABILITY STUDY**
This study is to ascertain whether the envisaged development and product plan of the developers are correct or risky.

**RISK REPORTS**
Risk Reports are carried out primarily to assess the state of the market and measure the price correction during oversupply scenario or default risks in the market.

**PORTFOLIO OPTIMIZATION STRATEGY**
Every structure has an opportunity cost. We analyse organisational functions, manpower and real estate assets to arrive at an optimal cost and an effective portfolio.

**LOCATION & ENTRY STRATEGY**
This study understands the growth patterns of a city and real estate developments, to arrive at an ideal location for projects and establishments.

**MARKETING STRATEGY**
Partnering with the developer to formulate a marketing plan keeping in mind the target audience, positioning, product and pricing.
ADVISORY SERVICES

Our advisory services are backed by exhaustive data and strong scientific rationale. The key features of our advisory services are:

**Scientific Framework**

We use high level of econometrics and tested regression models to assess viability of products and development mix, including pricing.

**GIS Integrated Data**

GIS enabled data forms the core of our multi-scalar feasibility studies, which allows for focussed investigations of land-use, demographics, and infrastructure-market dynamics.

**Balanced Financials**

Various viable options are explored through a discounting cash flow (DCF) model where the products, along with their gestation period in sales and achievable pricing are analysed in order to choose the best option that offers the highest returns in optimum time.
A structured approach to detailed project reports (DPR’s)

1. **Site Assessment**
   Physical survey of catchment area, land use analysis, infrastructure networks (present & future), transport connectivity, demographic profile and economic density.

2. **Market Dynamics**
   Micro/road level analysis of supply, demand, sales and other metrics of development profiles and product ranges in the catchment area.

3. **Price Determination**
   Prices of all products are derived through scientific theories. These prices can be used to determine optimum velocity of a project.

4. **Determination of Development/Product Mix**
   Development mix is calculated as per present and expected demand in the catchment area using ‘magnet theory’.

5. **Financial Analysis**
   The product mix is then financially tested to analyse the impact of RoE, IRR and equity invested. The analysis also involves testing of cost and revenue assumptions.
HIGHEST AND BEST-USE ANALYSIS

Our methodology involves analysing a site’s characteristics with prevailing market dynamics and deliberating various options to identify optimum development mix which would result in maximum realisation.

Detailed site analysis involves:

- Delving into broader dynamics of urbanisation patterns and circulation in relation to the subject site
- Detailed understanding of demographic distributions and neighbourhood and housing profiles
- Studying key business centres in the catchment area and understanding their degree of influence on the subject site
- Assessment of built-up potential on site, based on development control regulations (DCR)
- Identifying proposed infrastructure plans and recognising its impact on the site area
- Assessing social and physical infrastructure accessible from the site and carrying out potential need gap analysis.

Assessment of prevailing market dynamics

This involves:
Understanding prevailing and future potential of real estate markets for residential, commercial and retail sectors in terms of demand, supply, price movement and offtake percentages.

Evaluating current market offerings and expected market changes with respect to product size, product type, product configuration, ticket size, specification, amenities, etc.
Studying patterns of launches to determine the potential market share a project can achieve.

<table>
<thead>
<tr>
<th>Year</th>
<th>Project A</th>
<th>Project B</th>
<th>Project C</th>
<th>Project D</th>
<th>Project E</th>
<th>Project F</th>
<th>Project G</th>
<th>Project E</th>
<th>Project F</th>
<th>Wt Avg Share</th>
<th>Max Share</th>
<th>Catchment Sales (Mn sqft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>4.98%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>21.96%</td>
<td>11.18%</td>
<td>21.96%</td>
<td>1.99</td>
</tr>
<tr>
<td>2010</td>
<td>1.05%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.35%</td>
<td>6.54%</td>
<td>14.33%</td>
<td>1.78</td>
</tr>
<tr>
<td>2011</td>
<td>4.07%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>19.35%</td>
<td>13.98%</td>
<td>19.35%</td>
<td>1.85</td>
</tr>
<tr>
<td>2012</td>
<td>4.75%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15.60%</td>
<td>9.63%</td>
<td>15.60%</td>
<td>2.22</td>
</tr>
<tr>
<td>2013</td>
<td>-0.61%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18.41%</td>
<td>8.89%</td>
<td>18.41%</td>
<td>1.92</td>
</tr>
<tr>
<td>2014</td>
<td>3.30%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7.4%</td>
<td>6.9%</td>
<td>12.4%</td>
<td>2.07</td>
</tr>
<tr>
<td>2015</td>
<td>1.66%</td>
<td>1.18%</td>
<td>1.92%</td>
<td>0.83%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.55%</td>
<td>6.99%</td>
<td>5.06%</td>
<td>2.85%</td>
</tr>
<tr>
<td>2016</td>
<td>0.00%</td>
<td>0.51%</td>
<td>6.64%</td>
<td>1.63%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.56%</td>
<td>2.72%</td>
<td>1.66%</td>
<td>18.58%</td>
</tr>
</tbody>
</table>

Independent Non-broking Real Estate Research Company
Recommendation on development mix, pricing, amenities and specifications

With the help of data analytics, we identify ideal product mix, pricing, and sales absorption/velocity, to suggest the most productive price and requisite amenities. Our services include advice on:

- **Best development mix**
- **Product mix with sizes**
- **Price determination through algorithmic calculation**
- **Recommendation on requisite amenities and specifications**

### Financial Viability

Detailed cash flow analysis to ascertain the best performing option along with optimum timeline and phasing of development. Our financial modeling presents scenarios with different outright and lease rates, etc. Calculations include:

- **Total Cost & Revenue**
- **Monthly Cash Flow**
- **Peak Negative Cash Flow**
- **Equity & Debt Component**
- **Return on Investment**
- **Return on Equity**
- **NPV**
- **IRR**

#### % of Residential Mix

<table>
<thead>
<tr>
<th>% of Residential Mix</th>
<th>Carpet Area</th>
<th>Built Up Area</th>
<th>Total Built Up Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>EWS Housing, 1RK</td>
<td>4%</td>
<td>269</td>
<td>309</td>
</tr>
<tr>
<td>LIG Housing, 1 BHK</td>
<td>11%</td>
<td>377</td>
<td>433</td>
</tr>
<tr>
<td>1 BHK Type 1</td>
<td>15%</td>
<td>400</td>
<td>460</td>
</tr>
<tr>
<td>1 BHK Type 2</td>
<td>15%</td>
<td>450</td>
<td>518</td>
</tr>
<tr>
<td>2 BHK Type 1</td>
<td>20%</td>
<td>630</td>
<td>725</td>
</tr>
<tr>
<td>2 BHK Type 2</td>
<td>10%</td>
<td>700</td>
<td>805</td>
</tr>
<tr>
<td>2 BHK Type 2</td>
<td>5%</td>
<td>875</td>
<td>1,006</td>
</tr>
<tr>
<td>3 BHK Type 1</td>
<td>5%</td>
<td>840</td>
<td>966</td>
</tr>
<tr>
<td>3 BHK Type 2</td>
<td>10%</td>
<td>1,050</td>
<td>1,208</td>
</tr>
<tr>
<td>Villa</td>
<td>3%</td>
<td>3,000</td>
<td>3,450</td>
</tr>
<tr>
<td>Villa Type 2</td>
<td>3%</td>
<td>2,000</td>
<td>2,300</td>
</tr>
<tr>
<td><strong>100%</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Price

\[ y = 25691e^{-0.032x} \]

\[ R^2 = 0.8841 \]

#### % of Residential Mix Amenities

- **Residential Mix**
  - **Carpet Area**
  - **Built Up Area**
  - **Total Built Up Area**

#### Recommend requisite amenities and specifications

- **Gymnasium & Health Club**
- **Swimming Pool**
- **Children’s Play Area**
- **24 Hour Security**
- **Rain Water Harvesting**
- **Landscape Garden**
- **Games Room**
- **Multi-Level Lobby**
- **Games Courts**
- **Multipurpose Hall**
- **Jogging Track**
- **Yoga & Meditation**
- **Senior Citizens Area**
- **Skating Rink**
- **Party Lawn**
- **Spa & Jacuzzi**
- **Mini Theatre**
- **Library**
- **Squash Court**

#### Table: Financial Viability

<table>
<thead>
<tr>
<th>(Fig in INR CR)</th>
<th>W/O Reservations</th>
<th>Base Case (with reservations)</th>
<th>Dev. under Affordable Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Saleable (sq.ft)</td>
<td>8,281,114</td>
<td>9,291,609</td>
<td>10,349,063</td>
</tr>
<tr>
<td>Average Realisation rate($)</td>
<td>18,376</td>
<td>18,475</td>
<td>15,973</td>
</tr>
<tr>
<td>NPV</td>
<td>3,882</td>
<td>4,133</td>
<td>3,807</td>
</tr>
<tr>
<td>Peak Negative Cash flow</td>
<td>(263)</td>
<td>(276)</td>
<td>(314)</td>
</tr>
<tr>
<td>Additional NPV</td>
<td>-</td>
<td>251</td>
<td>(75)</td>
</tr>
<tr>
<td>Additional contribution</td>
<td>-</td>
<td>13</td>
<td>51</td>
</tr>
</tbody>
</table>
VALUATION ADVISORY

Liases Foras offers transparent, scientific, data-driven and unbiased valuation solutions. We assess the market viability of products and development mix, and carry out detailed financial analysis to ascertain best use.

Our valuation report provides comparable transactions that have taken place in the last six months, along with expected rental values and rental yield, which will help bankers check for the probability of price corrections, and thereby adopt a stringent process of validation.

VALUE PROPOSITION

- Database of more than 1.2 lakhs projects from primary and secondary market
- Over 60 cities data coverage
- Residential, commercial and retail supply updated on a quarterly basis
- We are pioneers in scientific research in real estate
- We provide valuations for diversified asset classes
- We are a non-brokerage, research-centric organization

Valuation Advisory

- Land Valuation
- Project Valuation – diversified asset classes
- Housing loan valuations
- Property valuations
- Rental Assessments
Our Contribution in the area of real estate valuations

Some of our contributions in the area of real estate prices and valuation include:

1. Introduced ‘Sales Velocity’- the missing dimension in real estate valuations

While property can be sold at any price, the time it will take to sell has a significant bearing on its valuation. By introducing sales velocity as the missing dimension in real estate valuation, especially in the DCF (discounted cash flow) method, risks of over valuation due to irrational increase in prices can be mitigated.

A high price does not necessarily mean high valuation. In fact, higher price sells slower, and as such the sales gestation is longer!

2. Urban Price Setting Model – Decoded the science of price of property

Our work in decoding the science of property pricing is aimed at bringing transparency in the area of property prices and valuation. Every city maintains a specific price setting at any point of time. Any change in price of a particular property alters this setting. The price of a property is governed by four fundamental factors: distance, density, surroundings and product.

The Urban Price Setting model is a simulation model that provides accurate market valuation of any property (old, new, good or bad) in any city in India.

3. Developed Magnet Theory of Future Price Projections- predicts development and prices

The magnet theory describes that spatial mobility (polorisation) to a specific region depends on the internal magnet (attractiveness), of the region and how economic hubs have their influence to the region.

These internal magnets have been derived as a product of built-up area densities integrated with income index of demographics (also referred as economic densities). This provides a powerful relative index representing attractiveness of the locations. A location with higher index represents higher attractiveness.

The study finds that real estate prices are highly correlated with the economic densities of demographics. The measurement of the prospective economic densities caused by the improvement in the connectivity and changes in the intensities of economic hubs, carried out on a timescale provides projected prices and their growth patterns.
Our urban planning services include in-depth analysis of demographic patterns, land use studies, built up area density, available physical and social infrastructure; gaps between present demand and supply in sectors of housing, water supply, roads, street lights, schools, hospitals, etc.

We provide advice on city investment plans, priority of investment needed to implement planning visions and alternative financing strategies.

PREPARING A DESIGN BRIEF

In addition to best-use studies, we prepare uncluttered, contextual design briefs for planners and architects.

Our objective is to communicate clearly to architects and planners about the product, development mix and target consumers, while maintaining a balance between ‘vision’ and economic prudence.

Apart from making recommendations based on local laws and DCRs, we offer planning and design solutions that would ensure a vibrant built environment.

Our recommendations are drawn from extensive case-study research of successful international and national examples.
We specialise in the field of real estate-specific consumer surveys. The data we collect includes demographic profiles which reflect the desire and ability of potential customers to purchase property in a particular neighbourhood.

We also conduct psychographic profiling of potential buyers. People buy products that suit their personality, which is linked to their lifestyle choices, preferences and attitudes. Profiling can help you tailor your marketing strategies to effectively reach out to appropriate consumers. An extensive questionnaire is prepared based on the objective of the study. Stratified sampling, random sampling or systematic sampling methods are adopted, depending on the research requirement. Our research methods include online surveys, primary surveys or focus group discussions.

We follow to main approaches while conducting surveys:

**CONSUMER SURVEY & PROFILING**

**How will consumer profiling help you?**

- Understanding consumers with respect to their income, age, household size, number of children and education.
- Understanding their dependence on socio-economic infrastructures
- Understanding consumer psyche in terms of preference and choices

**Who is the consumer?**

- Income, age, household size
- Spouse working
- Children's education

**What are they purchasing and what are the influencing factors?**

- Developer
- Location
- Product
- Demography
- Psychographic

- Work Place/School/ Market
- Spatial Context

Independent Non-broking Real Estate Research Company
PRODUCT VIABILITY STUDY
To ascertain the viability and risks involved in any proposed development. The overall objective is to analyse the competition and validate the envisioned product-mix. Our study would involve:

- Assessing market dynamics of specific product mix in a specific region and its diffusion in the micro-market
- Demand and efficiency study of product offerings
- Quality and profile of competitive projects in the catchment
- Assessment of optimum price points to arrive at base feasible selling rates
- Identifying absorption capacity and offtake velocity (i.e., how much time a project will take to get consumed)

RISK REPORTS
Risk reports are prepared to assess the state of the market and measure the possibility of price corrections due to oversupply or other risks in the market. Our approach involves:

- Studying market dynamics and price behaviour.
- Analysing market trends in relation to demand, supply and price movements.
- Establishing scientific connection between price patterns and geographies.
- Offtake velocities, market efficiencies, affordability and prevailing price metrics are studied to ascertain the fair price and gaps (if any), using which prevailing rates and scope of corrections can be determined.

PORTFOLIO OPTIMIZATION STRATEGY
Every structure belongs to its space and time, so it is associated with an opportunity cost. Keeping in perspective the overall business objectives, our strategy focuses on various organisational goals, employee functional requirements and more importantly, the real estate assets to arrive at an optimum cost effective real estate portfolio. This is likely to translate into further streamlining of operations, personnel efficiencies, heightened branding and overall cost savings.

Our advisory services will help you identify and resolve the complexities of business operations, workforce efficiencies and real estate to arrive at an optimal real estate portfolio.

Our study follows a two pronged approach to arrive at an ideal portfolio.

Optimal Real Estate Portfolio would offer:

- An effective work environment
- Enhanced branding
- Operational flexibility and scalability
- Cost effectiveness
- Risk Mitigation
- Efficient Portfolio
OUR TEAM

120+ Professionals with real estate domain knowledge, data analytics and tech capabilities. The team consists of Architects, Planners, CAs, MBAs, Engineers and Surveyors.

CONSULTING TEAM

PANKAJ KAPOOR
(MRICS, MBA)
MD & FOUNDER
20+ years of experience in the field of valuation, consulting and risk analytics. He is an acclaimed expert in analysing and predicting real estate market trends in India. Pankaj is best known in the industry for bringing in scientific approach and for developing reliable market database.

CONSULTING TEAM:

AKASH BANSAL
(MRICS, MBA)
National Head Consulting
12 years of experience in multi-disciplinary research, consulting and valuation, business plan formulation, urban planning

NAIMUNNISA KHAN
(B.Arch, M.Plan)
9 years of experience in architecture, urban planning and real estate consulting

SANDIP KUMAR
(B.Arch, M.Plan)
7 years of experience in architecture, urban planning and real estate consulting

DHAVAL PARSANA
(B.Arch, M.Plan)
8 years of experience in architecture, urban design, urban planning, project management and real estate consulting

ASHISH PODDAR
(MBA)
11+ years of experience in real estate and investment banking, valuation and research

DICKSON PINTO
( CA)
13 years of experience in accounts and finance

BHUSAN ADAVADE
(Market Intelligence)
13+ years of experience in real estate market intelligence across India

RAVI KHANDELWAL
(Market Intelligence)
10 years of experience in on-ground real estate market intelligence across India

IT & PRODUCT TEAM

SAMIR OZA
CTO, MBA IT
12+ years of experience in IT solutions

ARUL RAJ
MCA
(Project Manager)
12+ years of experience in IT solutions and data architecture

AMIT SHIRSHATH
BE, MBA
(Head Data Management)
5+ years of experience in data analytics & architecture. Six Sigma Green Belt certified

HIMANSHU PAREEK
MBA, B.Tech(CSE)
(GIS/MIS Expert)
7 Years of experience in GIS data modelling and spatial data analytics

SALES AND CLIENT ENGAGEMENT

VARTIKA VINAY
(Business Head - Banking)
13+ years of experience in banking, commercial real estate and business development.

TANVI GOYAL
(Head - Client Engagement)
5+ years of experience in consulting, data analytics and client servicing
## Financial Institutions & Banks

<table>
<thead>
<tr>
<th>HDFC</th>
<th>AXIS BANK</th>
<th>State Bank Of India</th>
<th>BAJAJ FINSERV</th>
<th>IIFL</th>
<th>RELIANCE</th>
<th>IMCG</th>
<th>XANDER</th>
<th>ADITYA Birla Group</th>
<th>TATA CAPITAL Home Loans</th>
<th>L&amp;T Financial Services</th>
<th>IDFC</th>
<th>Deutsche Bank</th>
</tr>
</thead>
</table>

## Government Agencies

| NATIONAL HOUSING BANK | MHADA | VUDA | MSRTC |

## Developers

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<thead>
<tr>
<th>Peninsula Land</th>
<th>Essar</th>
<th>Joy</th>
<th>Mahindra Lifespaces</th>
<th>Rustonjee Cane Home</th>
<th>Marvel</th>
<th>RAHEJA Universal</th>
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## Consulting Firms

| PwC | KPMG | DARASHAW | Airtel | National Geographic | University of Miami | CNBC |

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For more information logon to www.liasesforas.com
How has the real estate industry received contributions and innovations of Liases Foras? How do our clients benefit from our research and products? Hear it from them, right here.

**TESTIMONIALS**

Pankaj Kapoor is undoubtedly the best and most honest property researcher in India.

**Sriram Kalyanaraman**
Managing Director and Chief Executive, National Housing Bank

We are working on a complete revamp of Residex and we are likely to come up with revamped Residex over next three years’ horizon. NHB is also working on two more indices which include rental index and building and construction material index. We have roped in the realty research firm Liases Foras for providing us inputs.

Renu Sud Karnad
Managing Director, HDFC Ltd

Ressex (an online real estate market database platform conceptualised by Liases Foras) is going to be one of the most pertinent and useful indices for the whole industry and in particular for us. From a banker’s perspective, Ressex will be an invaluable aid in gauging growth areas as it provides trends on price, inventory, sales, efficiency, etc. It will allow the financing institution to arrive at reliable conclusions on variables such as affordability, potential market appreciation, and project viability.

Niranjan Hiranandani
MD, Hiranandani Constructions

I was happy and pleasantly surprised to see the intensive work put into the study in respect of Growth Pattern and Future Outlook of MMR. In the coming decade the need for such reports will grow since the funding requirements can become large and the risk profile will increase.