

# “Earned Value Analysis carried out in Real Estate Construction Industry”

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## ABSTRACT

According to the investment advisory report 2016 there are many no. of units i.e. flats which are not sold because they were worthless compared to the rate. An analysis including the land details, locality & neighborhood, area surrounding to it is taken in to consideration. Construction cost analysis, planning & estimating details are to be carried out & valuation is to be made for cost analysis. Studying of surrounding locality rate/ Square feet with amenities provided in the project for carrying out study to decide the cost of product. Once all things are planned the BOQ entries should be made in ERP i.e. Enterprise Resources Planning. EVR includes decision making process where a construction activity is in progress. In this project ERV is done by decision making, matching investments against objectives, asset allocation for individuals & institutions and balancing risk against performance i.e. by taking suitable & required decisions on time in order to avoid project delays & failure. In the project actual construction cost is worked out of the all amenities provided & analysis regarding Project inflow v/s Project Out flow is carried out. After all the result which will be shown in this project is the valuation done of asset in terms of cost using different skills, its value in terms of marketing, its execution along with portfolio management and the profitability of entire project. Use of sustainable construction theory GRIHA- Green Ratings for Integrated habitat assessment is being used to attract the clients in our project.

**Key Words-** Project Inflow/Outflow, Maximum amenities with low sellable cost to attract clients, Monitoring activities according to planned schedule.

## I. INTRODUCTION

The purpose of the study is to evaluate the importance of property or product owned by a company in the form of an asset. Previously owners had a problem of determining valuation regarding any property (land in this case) or product which was available with them but was of no use. Or if they tried to bring that product in to market there was a less or no value resulting in to tremendous loss or the owner had no idea how to make that product profitable. Harry Markowitz introduced MPT in a 1952 & classifies it simply as "Portfolio Theory," because "There's nothing modern about it." MPT assumes that investors are risk adverse, meaning that given two portfolios that offer the same expected return, investors will prefer the less risky one. Thus, an investor will take on increased risk only if compensated by higher expected returns. Conversely, an investor who wants higher expected returns must accept more risk. The exact trade-off will be the same for all investors, but different investors will evaluate the trade-off differently based on individual risk aversion characteristics. The implication is that a rational investor will not invest in a portfolio if a second portfolio exists with a more favorable risk-expected return profile – i.e., if for that level of risk an alternative portfolio exists that has better expected returns. Asset & portfolio management ensure minimization of costs over the life of that asset for providing, maintaining and operating assets to support service and program delivery at specified standards.

In order to prevent the hap hazard flow of money in which investors have no idea how much of still he will have to pay & up to when this study is useful.

## OBJECTIVE

1. The goal of asset management is to meet a required level of service in the most cost effective way through the planning, creation, acquisition to provide the best for present and future customers/communities.
2. The life-cycle approach is central to asset management by taking account of the total cost of an asset throughout its life. A better service, not a better asset, is a key indication of successful asset management.
3. Making use of Cost effective methods to reduce failure rates & use of Green products.
4. Comparing the Cash flow cycle of inflow/outflow & comparing the amenities provided with other projects in the locality.

## II. LOCALITY INVESTIGATION

Locality of Project Silver Stone Handewadi, Pune.

Project by Panama SunArch Developers: -  
Insights into Handewadi

Handewadi is a fast growing suburb in the Eastern part of Pune. The area now stands as a prominent locality, due to the development of nearby areas like Magarpatta and Amanora Park. Handewadi is one of the fastest growing localities and lies adjacent to numerous IT and BPO companies. TCS, IBM, Patni, Accenture, Honeywell, Zensar, John Deere and Mphasis are a few among them. The area has good internal roads and is well connected with other parts of city via the PMPML buses. Handewadi is connected to central Pune through the Pune-Sholapur Highway. Sasane Nagar Railway station is the nearest railway station. The locality has many malls located in and around the area such as Seasons Mall, Celio- Amanora Mall, Amanora Town Center where residents can go and shop. In this project rate according to specifications offered is very low i.e. **3950 Rs/sqft** as compared to the other projects. Amenities provided in the Project are: Rainwater Harvesting, Sewage Treatment Plant & RO Filter, ATM within the Premises, Utility Shops, and Ramps for Handicap Friendliness, Landscape Garden, Gazebos, Swimming pool.

Some of the other projects in the locality are

Fortune Siddhipriya a project by Fortune group located in Handewadi with very basic amenities and rate of **3900Rs/sqft**.

Godrejprana a project by Godrej Properties located in Undri chowk Pune with best amenities at rate of **5200Rs/sqft**.

INORA PARK a project by TATA VALUE HOMES Located in Undri-Pisoli with basic amenities at rate of **4200 Rs/sqft**.

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### III. METHODOLOGY

Study was completed in following stages

#### 1. Area Statement for Project as Tabulated in below.

**Table No - 1**

AREA STATEMENT PROJECT Silver Stone Phase II	
Proposed area for Landscape Garden+ Swimming pool +UGWT + Pump Room+ Children's play area + RO Filter	2206.58
Area for Club House + Open space	380.23
Area proposed for STP	154
Plot Area divided in Triangles including Shade Parking	9765
Total Plot Area	12505.8 m2
	3 Acres

#### Area (FSI) statement for DE & FG Buildings

Building	DE	FG
Height	44.3m	44.3m
Floor	P+14	P+14
Total Built-up Area	7472.24	7472.24
BALCONY AREA		
Permissible	1120.84	1120.84
Proposed	1114.64	1114.64
Washing Area	411.12	411.12
STAIRCASE AREA		
Regular	232.96	232.96
Fire	245.56	245.56
PASSAGE AREA	1121.1	1121.1
LIFT AREA	11.97	11.97
LMR ROOM	36.3	36.3
Permissible Terrace 20%	1494.45	1494.45
Proposed Terrace	807.59	807.59
Ground Coverage	663.76	663.76
Tenement no	138	138
Total Area	12546.32	12546.32

**Total Built up Area of Both Buildings = 296746Sqft**

In both Building's Odd & Even floors 2BHK No of flats 276.		
Carpet Area of Each flat 714.82		
Sellable = 714.82 x 1.35	965	Sqft

**Total Sellable Area of Both Buildings= 266340Sqft**

The inside Flat Amenities include-

Video Door Phone, Gas Detector line, all flush doors with laminate & Europa door locks, Legrand switch fitting, Pull able plumbing, Single dish cable with provision for Wifi & Easy dryer, Glass Partition in Bathrooms, Branded Sanitary- Grohe, Rocha.

#### 2. Construction Cost Detail Analysis according to the amenities provided in Project.

**Table No - 2**

Sr.	Structure	Rate/sqft	%
1	Excavation	29.40	2.13
2	Foundation	130.00	9.42
3	RCC	350.00	25.35
4	Brickwork & Plaster	270.00	19.56
5	Doors & Aluminum Windows	55.00	3.98
6	Flooring	80.00	5.80
7	Toilet, Dado	25.00	1.81
8	Kitchen	15.00	1.09
9	Waterproofing	26.00	1.88
10	Plumbing & Sanitary ware	80.00	5.80
11	Internal Electrical	120.00	8.69
12	Painting	35.00	2.54
13	Lift (Local make)	35.00	2.54
14	Grill & M.S. Steel work	30.00	2.17
15	Elevation cost	50.00	3.62
16	Miscellaneous	50.00	3.62
	<b>Total</b>	<b>1380.40</b>	<b>100</b>

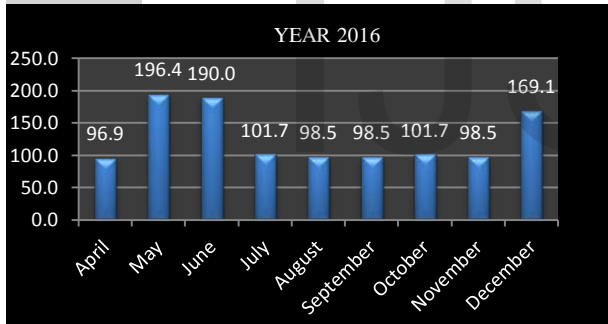
	Amenities	Rate/sqft	%
1	Swimming pool	7.94	9.0
2	Club house	27.81	31.5
3	Security system	1.99	2.2
4	RO Plant	5.16	5.8
5	Video phone	6.58	7.4
6	Solar water heater	10.73	12.1
7	Park & Equipments	18.11	20.5
8	Pipeline gas	0.00	0.0
9	Any Other	10.00	11.3
	<b>Total</b>	<b>88.32</b>	<b>100</b>

	Developmental works	Rate/sqft	%
1	Landscaping	9.00	9.78
2	External Electrical works	18.00	19.57
3	Roads	30.00	32.61
4	Compound walls	8.00	8.70
5	Bore well	5.00	5.43
6	Storm water drain	8.00	8.70
7	STP	7.00	7.61
8	DG Sets	4.00	4.35
9	Any Other	3.00	3.26
	<b>Total</b>	<b>92.00</b>	<b>100.00</b>

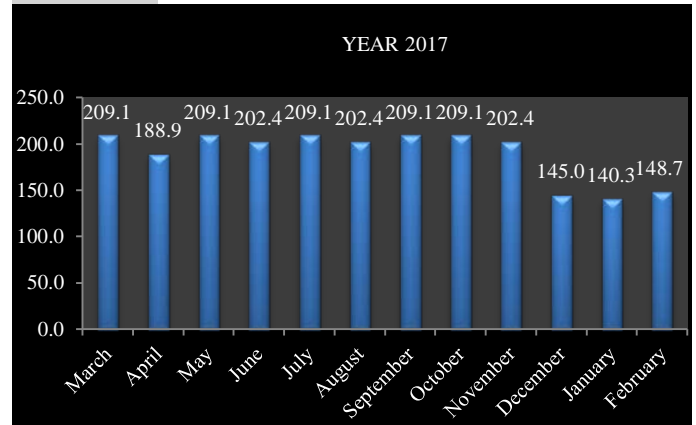
	Other	Rate/sqft	%
1	PMC / Staff Salary	90.00	48.61
2	Architect + RCC + Electrical+ Plumbing + Landscape Consultants	50.00	27.01
3	Fees for Approval & Deposits	35.00	18.90
4	Environmental approval	7.15	3.86
5	Any Other consultant / authority	3.00	1.62
	<b>Total</b>	<b>185.15</b>	<b>100</b>

	Heads	Rate/sqft	%
1	Structure	1,380.40	79.07
2	Amenity	88.32	5.06
3	Developmental works	92.00	5.27
4	Other	185.15	10.61
	<b>Total Cost of construction / SQ.ft =</b>	<b>1745.87</b>	<b>100</b>

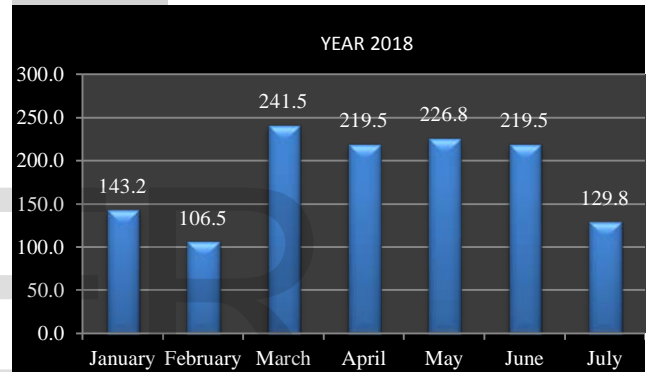
3. Flow of Construction cost per month from 1<sup>st</sup> April 2016 to 31<sup>st</sup> July 2018 i.e. 28 months in Lakhs.  
Bar Chart I



Bar Chart II



Bar Chart III



Month Wise Bar Chart Break-Up

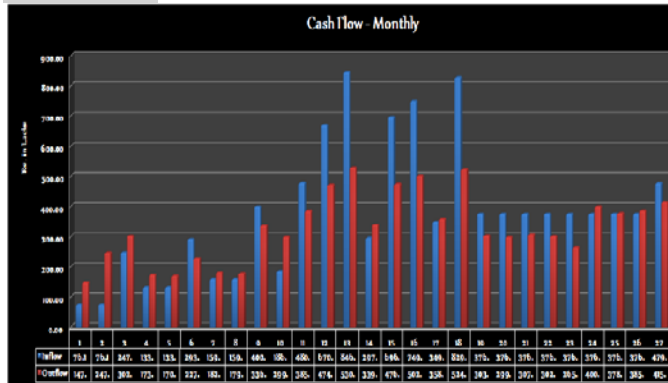
Monthwise BAR CHART & Cash Flow Forecasting																		
Sr. No	Calendar Year	Year 2016					Year 2017					Year 2018						
		April	M & J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S
1	Excavation in Ground + Dressings and Cleaning	7930774																
2	Structure upto Plinth Fill		Plinth															
	Cost in INR		35066980															
3	RCC Work																	
	Cost in INR																	
4	Brick Work - Plaster																	
	Cost in INR																	
5	Waterproofing Work																	
	Cost in INR																	
6	Electrical Work																	
	Cost in INR																	
7	Flooring - dado Work																	
	Cost in INR																	
8	Doors And Windows - grill																	
	Cost in INR																	
9	Plumbing And Sanitary																	
	Cost in INR																	
10	Painting ( Internal + External)																	
	Cost in INR																	
11	Installation Of Lift																	
	Cost in INR																	
12	Elevational Work																	
	Cost in INR																	
13	Miscellaneous Work																	
	Cost in INR																	
14	Amenities																	
	Cost in INR																	
15	Development Work																	
	Cost in INR																	
16	Other Work																	
	Cost in INR																	

Total Construction Cost involved in the Project =

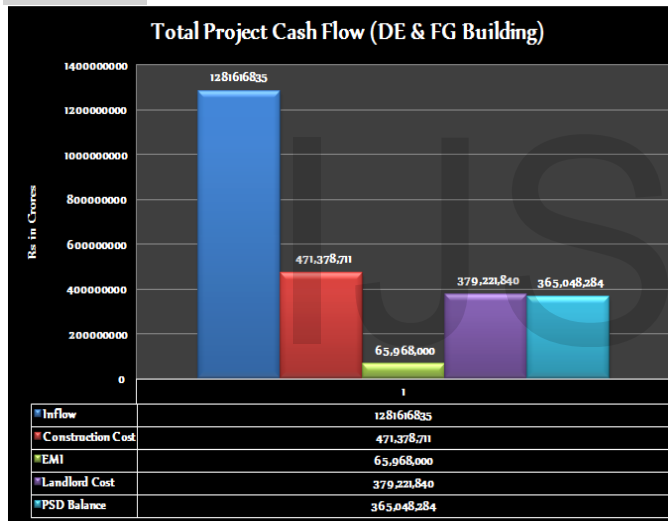
471,378,711Rs

4. Real Estate Sales & Marketing

Bar Chart IV



Bar Chart V



Conclusion Table:

Total Inflow Value after 28 Month's	1281616835
Construction Cost after 28 Month's	471378711
EMI Due after 28 Month's	65968000
Landlord Cost @36% of Inflow	379221840
Total Outgoings after 28 Month's	916568551
Balance Available with PSD after 28 Month's will be including agreement value.	365048284 Rs

References:

1. Investment Advisory Report 2016.
2. Earned Value Project Management- Fleming.
3. Company- Panama Group.

Table No. IV- Yearly Cash Inflow

Sr. No	Yearly Cash Inflow	Sales Target/Month = 10		
		YEAR 2016	YEAR 2017	YEAR 2018
1	Booking Amt 20%	67631336	90175114	52602150
2	Plinth Level 15%	51458625	68611500	37736325
4	2nd Slab 7%	24014025	32018700	17610285
6	4th Slab 7%	24014025	32018700	17610285
8	6th Slab 7%		56032725	17610285
10	8th Slab 7%		56032725	17610285
12	10th Slab 7%		56032725	17610285
14	12th Slab 7%		56032725	17610285
16	14th Slab 7%		56032725	17610285
17	Bricks work 5%		40023375	12578775
18	External Plaster 5%		40023375	12578775
19	Tiling 5%		40023375	12578775
20	Possession 1%		0	10520430
	Total Inflow Value / Month =	167118011	623057764	261867225
21	At the time of Agreement (Against the basic Value = 3811750)			Total Units- 276
i	Stamp duty @5%	190588		52602288
ii	Vat @1%	38118		10520568
iii	Service Tax @3.5%	133411		36821436
iv	Registration	30000		8280000
v	MSEB	100000		27600000
22	At the time of Possession or Completion			
i	Corpus fund @ 100Rs/Sqft	96500		26634000
ii	Maintenance for 2 years @50 Rs/Sqft	48250		13317000

Table no V

Sales Extra Cost Summary			
Garden facing flats cost = Rs100 Extra			
On each floor of DE & FG Building there are 5 flats on each floor facing garden.			
Total no of Flats = 140 & area of flat is 965Sqft			
140 X 100 X 965 = 13510000 Rs included in the sales inflow amount			
High Rise rate Table for cash inflow			
Floor no.	High rise rate	Unit/Rate/Area	Amount
5th	4000	20 x 50 x 965	965000
6th	4050	20 x 100 x 965	1930000
7th	4150	20 x 150 x 965	2895000
8th	4200	19 x 200 x 965	3667000
9th	4250	20 x 250 x 965	4825000
10th	4300	20 x 300 x 965	5790000
11th	4350	20 x 350 x 965	6755000
12th	4400	20 x 400 x 965	7720000
13th	4450	19 x 450 x 965	8250750
14th	4500	20 x 500 x 965	9650000
High rise cost included in cash inflow			52447750