

Valuation of

Real Estate

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Chapter-1 Valuation of Real Estate

Valuation is an art of judgment based on experience and relevant statistical data to forecast the value of a property at present.

Cost, Price and Value

Definition of Price

Price is the amount of money paid by the buyer to the seller in exchange for any product and service. The amount charged by the seller for a product is known as its price, which includes cost and the profit margin. For example- If you buy a product for Rs 250, then it is the price of that product.

Definition of Cost

Cost is the amount incurred on the inputs like land, labour, capital, enterprise, etc. for producing any product. It is the amount of money spent by the company in the manufacturing of a product. For example- If a company manufactures shoes, then the expenses incurred on raw materials, salaries, rent, interest, taxes, duties, etc. determines the cost of the product.

Definition of Value

Value is the usefulness of any product to a customer. It can never be determined in terms of money and varies from customer to customer. For example- If you are going to a gym by spending 1000 bucks a month, the output seen is worth the expense, then it is the value that you create for a gym, regarding the service being offered there. Here the worth is its value.



Meaning	Price is the amount paid for acquiring any product or service.	Cost is the amount incurred in producing and maintaining something.	Value is the utility of a good or service.
Ascertainment	Price is ascertained from the consumer's perspective.	Cost is ascertained from the	Value is ascertained from the user's perspective.

		producer's perspective.	
Estimation	Through Policy	Through Fact	Through Opinion
Impact of variations in market	Prices of product increase or decrease.	Cost of inputs rise or fall.	Value remains unchanged.
Money	It can be calculated in terms of money.	It can also be calculated in monetary terms.	It is not calculated in terms of money.



- Types of Value

Theoretical value – mathematical value worked out for the property

- Economic value - is a measure of the benefit that an economic actor can gain from either a good or service & is generally measure in terms of currency.
- Social and Cultural value-
- Aesthetic value
- Political value
- Religious Value

There are several types and definitions of value sought by a real estate appraisal. Some of the most common are:

- **Market Value** – This is the estimated value for which a property could exchange between a buyer and seller. This type of transaction is most often one done with open knowledge between two parties regarding the property's value.
- **Investment value** –This is the value an investor may purchase a property for and if oftentimes higher than a market value.

- **Insurable value** –is the value of real property covered by an insurance policy. Generally it does not include the site value.
- **Actual Cash Value/Actual Value/Cash Value:**
- This is a term used in the insurance industry to describe the amount of compensation the insured would recover in the event of a loss. It considers an item’s condition and depreciation and is synonymous with replacement cost less depreciation.
- **Fair Market Value:**
- Fair market value is defined in Treasury Regulation §1.170A-1(c)(2) as, “The price at which property would change hands between a willing buyer and a willing seller, neither being under any compulsion to buy or to sell and both having reasonable knowledge of relevant facts.” Treasury Regulation §20.2031-1(b) expands upon this definition to say that, “Fair market value is not to be determined by a forced sale . . . nor is the fair market value of an item to be determined by a sale within a marketplace other than that in which the item would be most commonly sold to the public. . . taking into consideration the location of the item where appropriate.
- **Liquidation Value:**
- This is a type of market value that depends on the reason for the liquidation such as the distribution, division, sale or conversion to cash of personal property, business assets or inventory by settlement, agreement or legal process. Liquidation values assume there is some amount of duress in making the sale. It may be based on an orderly liquidation value if a period of a few months is available to make the sale or a forced liquidation value if the sale must take place usually in under 30 days.
- **Market Value:**
- Market value is defined by the International Society of Appraisers (ISA) as the most probable price that a buyer will have to pay and that the seller is most likely to receive, for an item of property within the defined marketplace at a particular point in time. There are several kinds of market value used for different types of appraisals including forced liquidation value, orderly liquidation value, salvage value, scrap value, marketable cash value, actual cash value, net value, value in use, or value in place.



- **Marketable Cash Value:**

- This is the amount that would be netted by the seller of an estate after all costs associated with the sale such as advertising, commissions, transportation, and photography were deducted. It is used by the IRS to value items sold in an estate as opposed to property held or bequeathed which is based on fair market value.

- **Net Value:**

- This is a term typically used in divorce cases to indicate the market value of marital property less any encumbrances such as liens or debt or expected selling costs that would serve to reduce the property's market value.

- **Replacement Cost:**

- Replacement cost is an insurance term meaning the amount of money one might be expected to pay to replace a property that was destroyed, stolen or damaged. Replacement cost is further subdivided into replacement cost new, replacement cost new less depreciation, replacement cost used (or comparable), reproduction cost, production cost and buyer's cost.

- **Salvage Value:**

- Salvage value is a type of market value and is the amount that could most probably be obtained by dividing the property into its component parts and sold separately as is.

- **Scrap Value:**

- This is a type of salvage value in which even the component parts have no value except for the materials from which they were made.

- **Value in Use:**

- This is the value of property taking into consideration the extent to which the property contributes to the personal needs, satisfactions or requirements of the owner. It generally increases the value of the property based on it having some unique use or meaning to its present owner.

- **Value in Place:**

- This is the value of property taking into consideration the extent to which the property contributes to the success of an enterprise. Examples might include a printing press or stove hood that might not have significant value were they not "in place" but would represent a tremendous loss should they become damaged while in place.



- Basic elements of Value - Marketability, Utility, Scarcity, and Transferability

Here are 4 essential elements to consider when determining the value of real estate

S.T.U.D. Elements of Determining Real Estate Value

1. Scarcity: How scarce is the property, and how many similar properties are currently on the market for sale? Is it in Delhi, or is it Kolkatta? Is it beachfront, Princeville, or a less desirable neighborhood? When a property is scarce, investors are faced with conducting their own cost-benefit analysis. If a property is in high demand but low supply, it will likely be expensive.

2. Transferability: Does the property have a marketable title that can be transferred? Are there liens on the property that won't clear easily? Will the title company insure it, and can you get a loan on the property?

3. Use (Utility): What is the highest and best use of the property? What is the land zoned for that would maximize and produce the greatest net return over a given period of time? One of the highest and best uses of a property is using it as a vacation rental. On the Island of Kauai, we have only 3 "Resort" neighborhoods in which vacation rentals are legally allowed without obtaining a Transient Vacation Rental license: Princeville, areas of Kapaa, and Poipu. Some properties on Kauai, outside of these designated areas, have "grandfathered" this entitlement, which adds significant value to the property.

4. Demand: Who is the Buyer and why do they want it? How many people would want that property because of the other 3 factors? I always ask myself, "Who will be the Buyer when I want to sell it?" Some factors that have a tendency to affect demand are population, demographics, government, employment, and wage levels. On Kauai, tourism is the greatest factor in driving demand.

How the Different Elements Interact

Analyzing the S.T.U.D. elements are essential in determining the value. It can be very helpful to have a realtor guide you through the process and help analyze how the different elements interact. For example, a property may be scarce, but if it has limited utility, there will be limited demand for it. To have utility value, real estate should have the ability to provide shelter, income, amenities, or whatever use is being sought.

Scarcity is the present or anticipated supply of a property in relation to the demand for it. Utility creates demand, but demand, to be effective, must be implemented by purchasing power. Otherwise, a person desiring a property cannot acquire it.

Real estate cycles cause fluctuations in the four elements of value. For example, when interest rates increase, fewer buyers are able to qualify for loans. This in turn reduces demand for real estate. This may lead to an over-supply of properties for sale (or a lack of scarcity).

- Factors affecting Value - Physical, Economic, Legal and Social

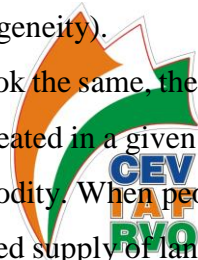
Physical Characteristics

Real estate has three physical characteristics that give land some inherent value. These unique characteristics are not present as a group in other types of property. Only real estate has this combination of physical attributes and, as a result, they have the ability to affect value. As we discuss the three physical characteristics of real estate, note how they often intertwine with the four value characteristics.

Uniqueness

Uniqueness is a physical characteristic of real estate referring to the fact that *each piece of land, each building, and each house is said to be a different piece of real estate*. No two are exactly the same (also called no homogeneity).

Even if two houses or two buildings look the same, they are said to be different because of their location. Since more land cannot be created in a given location, this uniqueness leads potential buyers to view land as a scarce commodity. When people want to build in a certain area, they must compete with others for the limited supply of land in that area. Value is derived from this perceived scarcity due to uniqueness.



Immobility

Immobility is a physical characteristic of real estate referring to the fact that *it can't be moved from one place to another*. This is an equal benefit or detriment to all parcels of real estate in the same general area. This immobility of land helps its value in a good market, since other land can't be moved in to take away potential customers (as can be done with other products), but it can also hurt land value in a bad market. Note that customers are somewhat immobile as well. It's impossible to move a house and land from Boston to Chicago where there's a buyer, and usually a person in Denver won't buy a house in Atlanta if that person's job can't move too.

Indestructibility

Indestructibility is a physical characteristic of real estate referring to the concept that *it can't be destroyed*.

Thus, real estate is said to always have some minimum value by virtue of its existence. Land is not consumed, nor does it wear out like other goods. But the actual and perceived utility of land can be affected by the marketplace or other forces. Land always has the potential to be useful, but its usefulness, and hence its value, can change over time.

However, the land itself can move or change shape by natural forces, for example:

- Erosion, which is the wearing away of soil due to the action of wind, water, or other forces
- Accretion, which is the addition to land, such as through deposits by water of sand or silt

Property-Specific Factors Affecting Real Estate Value

There are additional factors to consider when valuing a specific piece of property. More or less in their order of importance, these are: Highest and best use, location, substitution, conformity, contribution, and depreciation.

Highest and Best Use

Highest and best use is *the use that is physically possible, legally permissible, most economically feasible, and maximally profitable or productive*. To expand on this:

- **Physically possible** means that any potential use must conform to the size, topography, shape, and other physical characteristics of the subject property.
- **Legally permissible** refers to uses that are not forbidden by zoning or other government regulations as well as uses that are not prohibited by any deed restrictions or other covenants.
- **Economically feasible** refers to the ability to get the best dollar return out of the property without overspending on acquisition and improvements.

Highest and best use may be the most important property-specific factor that an appraiser considers before making a determination of value. As you can see from the comprehensive definition, a number of factors contribute to this determination. Of course, with most houses this isn't necessary since they're in the middle of residential Neighbourhoods. Highest and best use becomes a vital consideration, though, when examining vacant land or land that has changed zoning since the original structure on it was built.

Highest and best use is such an important and complex topic that entire real estate and appraisal courses are taught on it. For our purposes here, it's important to understand the basic concept. If a house sits on a widened street and is surrounded by commercial buildings, it's very likely that land would be more valuable if it were also put to a commercial use. We must consider other parts of the definition, as well. That is, the zoning laws must permit the intended use and

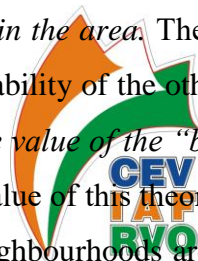
the owner must be able to build the proposed structure on the land. All of these factors must be considered when valuing a piece of real estate.

Location

Location is *the exact position of a piece of real estate*. Location can be talked about with respect to a given Neighbourhoods, and even within the Neighbourhoods itself. It's easy to understand that homes in a growing, popular, and prosperous Neighbourhoods are more highly sought after and valued than those in other Neighbourhoods. It's also important to recognize, though, that each individual home's location within that Neighbourhoods affects its value. A home on a corner lot, next to the park, or on a cul-de-sac would usually have a higher value than that same home sitting next to a railroad track

Best” and “Worst” Homes

An important corollary to the concept of location is the **effect of surrounding homes** on valuation. There are technical terms often used to describe this concept, but you only need to understand the theory. Basically, the theory is that *the value of the “worst” home in a given area is increased by the other homes in the area*. The value of this theoretical “worst” home can only go so low, because the desirability of the other homes in the Neighbourhoods keeps it from falling too far. Conversely, *the value of the “best” home in a given area is decreased by the other homes in the area*. The value of this theoretical “best” home can only go so high, because if the other homes in the Neighbourhoods are less expensive, people that can afford this “best” home will be attracted to other Neighbourhoods



For example, if each of the homes in a Neighbourhoods average \$200,000, a run-down home in that area, that may only command \$120,000 in another area, is helped by the fact that people will pay more than that in this particular Neighbourhoods. The reason being is that they anticipate a higher value for the investment they make by improving the property.

Conversely, in another Neighbourhoods where the average home price is Rs.70,00,000, a much larger-than-average home with a swimming pool and other amenities, that would command Rs.1, 50, 00, 000/ in another area, is hurt by the fact that people who can afford this home probably want to live in a Neighbourhoods with homes closer to that average price, and they may fear a lower future resale value in the less expensive area.

Substitution

Substitution says that *an informed buyer will not pay more for a home than a comparable substitute*. Although each home is said to be unique, there's a price point beyond which a buyer

won't select a particular home. Of course, no one really knows what that point is until trying to sell a home for too much, with no resulting sale. The theory of substitution can also be applied to items within a home.

When an appraiser determines the value of a fireplace in an area where most homes don't have one, the appraiser must take into account that a buyer is not going to pay more for that home than for a similar home plus the cost of adding a fireplace. In other words, if a fireplace costs \$2,500 to add to a typical home in the area, an appraiser can't justify adding much more than that to the value of a home.

Conformity

Conformity says that *a particular home achieves its maximum value when surrounded by homes of similar style and function.* This applies to Neighbourhoods as well. Neighbourhoods as a whole are more desirable when there is a general similarity in utility and value for all homes in it. This relates to our best/worst home scenario.

Most people want to live in areas with like homes. A home that stands out as being too different from the rest is worth less than that same home would be if it were in a different, more homogeneous Neighbourhoods.

If too many homes stand out as different, the Neighbourhood's desirability is hurt, as well.

Economic Factors Affecting Real Estate Value

When considering broad economic factors, the law of **supply and demand** says that for all products, goods, and services, *when supply exceeds demand, prices will fall and when demand exceeds supply, prices will rise.* This has a very important role in real estate because of the inherent difficulties in adjusting supply and demand.

Because of the lag time for market forces (e.g., construction companies) to respond to supply and demand situations, there are often buyer's markets and seller's markets.

Buyer's Markets

A **buyer's market** is a situation in the housing market when *buyers have a large selection of properties from which to choose.* This may be due to population shifts away from an area, overbuilding by construction companies, or bad economic conditions like a plant closing. A buyer's market can be neutralized if some sellers pull their homes off the market. But a glut is a glut, and usually there's downward pressure on real estate values. When more homes are available, the increased supply tends to keep home values lower. Often, in this situation, a buyer is in a position to negotiate for a lower price or more favorable terms of sale.



Seller's Markets

A **seller's market** is a situation in the housing market when *sellers can choose from a large number of buyers who are looking for houses in a particular area*. This may be due to people moving into an area, little building by the construction industry in response to a prior oversupply, high construction costs for labor or materials, good economic conditions like a new plant opening, or lower interest rates. When fewer properties are available, the lower supply (relative to the demand) tends to keep home values higher. Often in this situation, a seller is in a position to stay closer to the original asking price or negotiate favorable terms.

During the lag time for market forces to respond, a supply and demand imbalance can have a real impact on the value of a house, positively or negatively. If the subject home's value is higher than expected because of a housing shortage in the area, this would likely be mentioned in the appraisal. Conversely, an appraiser may have to justify lowering a home's appraisal value because of a temporary glut in the market due to, for example, the closing of a major company that has hurt the economic base of an area. The real estate market is said to be in **balance** when there are *slightly more homes available than buyers*. This keeps real estate prices in check and curtails the impact of people putting their homes for sale at a higher price to test the market. In fact, the market will determine if the price is too high.

Highest and Best Use Value : The reasonable, probable and legal **use** of vacant land or an improved **property**, which is physically possible, appropriately supported, financially feasible, and that results in the **highest** value

Real Property: Real property is land and any property attached directly to it, including any subset of land that has been improved through legal human actions. Examples of real properties can include buildings, ponds, canals, roads, and machinery, among other things. In land law, where the term is most commonly used, real property also entails the right of use, control, and disposition of the land and its attached objects.

Rights and Interests in Real Estate:

Types of ownerships:

1. Free Hold Property: A freehold property is one, where the owner/society/residents' welfare association owns the building and the land that it stands on outright, in perpetuity. A freehold land is generally bought through an auction or lottery. The completed project, thus, will include the cost of the land incorporated in the final cost of the units.

A freehold property, hence, is any real estate that is legally 'free from hold' of any entity other than the owner. The owner of such a property has the right to use it for any purpose, in accordance with the regulations of where it is located. The [sale of a freehold property](#) requires significantly lesser paperwork, as it is not necessary to request authorisation from the state. However, this also means that a freehold property is more expensive to purchase than a leasehold property.

Rights of the owners of freehold properties

There are no restrictions on the right of an owner of a freehold property to transfer it further and it can be inherited. There is no encumbrance to the absolute title of the property and it can be transferred, by registration of a sale deed. When you purchase a freehold property, you also own the land it was built on, along with the house itself. If the property is an apartment, the home owner becomes a shareholder in the property. You have the right to live in the house as long as you wish and you can also make changes to it.

While most houses in India are sold as freehold properties, apartments are also sometimes sold on lease. However, this is gradually changing, as buyers feel more confident in purchasing a property that is freehold.

Advantages of buying a freehold property

- Property owners do not have to pay annual ground rent.
- You are in charge of maintaining the freehold property and do not have to depend on anyone else.
- Complete ownership rights of the property, with no restrictions to transfer it further.
- More stable, as compared to a leasehold property and more likely to increase in value in the long run.

2. Lease Hold Property: However in case of leasehold property , ownership rights are divided between two parties viz. Lessor and Lessee . Hence we may say that it amounts to dual ownership. In case if property is subleased, there will be three parties holding interest in the same property, viz. Head Lessor, Lessee and Sublessee. Value of their respective rights will depend on lease terms , conditions and covenants.

3.00 Under section 105 of Transfer of Property Act, LEASE is defined as : Transfer of a right to enjoy such property, made for a certain time, express or implied or in perpetuity, in

consideration of a price paid or promised, or of money, a share of crops, service of any other thing of value, to be rendered periodically or on specified occasion to the transferor by the transferee, who accepts the transfer on such terms.

3.10 Lease contracts is executed between Land Owner (Transferor) and Land Tenant (Transferee). Land owner is called the 'Lessor' where as land tenant or the land occupant is called the 'Lessee'. Sometimes the property is sub leased. In such a case, land occupant is not called Lessee but is called 'Sub Lessee'. Price paid (Consideration) is called 'PREMIUM' and the money to be rendered is called " Lease Rent" or Ground rent.

Rights of different interest holders in leased property are as under :-

Lessor : He is the owner of the land or land with building. He gives away possession (Transfers) of his property for use of tenant (Lessee), on rent and on certain terms and conditions. Lessor holds right to receive ground rent and right to reversion of land.

Lessee : He is the tenant of the property of Lessor. He holds occupational and developmental interest in leased out property, in accordance with the terms and conditions set out in the lease agreement. Lessee has right to erect buildings on plot and right to receive rent from such buildings.

Sub Lessee : Sometimes under lease agreement rights are given to Lessee to sub let the property to third person. This sub tenant is called Sub Lessee. Main Lessor in such a case is called Head Lessor. Right of Sub Lessee is similar to Lessee i.e. to erect building and to receive rent from the building erected on the plot.

There are basically four types of lease.

- | | |
|---------------------|--------------------------|
| (i) Building lease. | (ii) Occupational lease. |
| (iii) Sub Lease. | (iv) Lease for Life. |

Building Lease : This type of leases are most common in which open land is

given on lease for construction of a building. Lease period may be 30 years, 40 years, 60 years, 99 years or 999 years. Lease period of 99 years or 999 years is called 'Perpetuity' (For ever) OR Perpetual lease. In this type of lease (Building leases) , ground rent for land usage is paid by Lessee to Lessor and rent from occupants of the building erected on the plot is received by the Lessee (Land tenant).

Many a times, in addition to annual ground rent, Lessor takes initial premium

from the Lessee. This is like an advance lease rent for full period of lease. Annual lease rent in such cases is reduced correspondingly. In Government agency lease, such as M.I.D.C./ G.I.D.C. lease, full premium amount is initially charged and annual lease rent is fixed at token sum of Rs.1/- per year only. However in private leases total rent is bifurcated in two parts. Advance rent (Initial premium) and annual rent.

Some of these leases have a provision or clause for renewal of lease period for the second term. If first term is for 99 years, it is renewed for further term of 99 years at revised rent or same rent. In some other lease, there is a clause which requires surrender of building constructed on the plot by the Lessee to the Lessor, free of cost, on maturity of lease. Value of rights of Lessor and Lessee would all depend on these clauses and terms of lease.

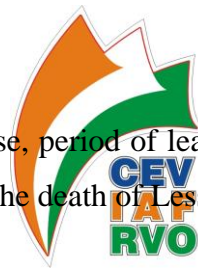
Occupational Lease : This lease is for use (Occupation) of land and building

together. Building is erected by Lessor on the land owned by him and then it is leased together for occupation of Lessee. Ownership of land and building are both with the Lessor . Occupational lease can also be in form of leasing of ownership flat, ownership office or ownership shop which belong to lessor but is leased to lessee for occupation. This type of lease is very common in all cities of India. Lease of ownership premises are rented out for short term period of 3 years, 5 years or 10 years. There is generally a provision of increase in rent after one year or two years interval. In India these types of leases are less for residential premises due to fear of Rent Control Act. Flat owner prefers to give flats for occupation on leave and license basis which is under Easement Act and no occupant can claim protection under Rent Act. However some flat owners do grant occupational lease (Company lease) of

flats to reputed limited companies. Occupational lease of the commercial premises is very common in all parts of our country. It is normally under Transfer of Property Act.

Sub Lease : In this type of lease, Lessee has right to sub-let property as per terms of lease agreement. Lessee therefore grants sub-lease for a period which is one year less than period of main lease. If main lease is for 99 years period, sub-lease period will be fixed at 98 years . Again lease rent fixed under sub-lease is always more than the lease rent payable by Lessee to the Head Lessor under principal lease. Profit rent benefit is enjoyed by the Lessee. Under sub-lease, possession of property is with Sub Lessee only, yet there are three parties interested in the total value of the property viz. Head Lessor, Lessee and Sub Lessee. Value of rights of each one will depend on rental value and terms of principal lease and sub-lease.

Lease for life : Under this type of lease, period of lease is directly linked (co-terminus) with the future life span of the Lessee. On the death of Lessee the lease comes to an end. This type of lease is not common in India.



Terms – Conditions – Covenant : There is always a clause in all types of lease

that if Lessee commits a breach of any of the terms and conditions of the lease, the lease would be determined (terminated) by the Lessor immediately i.e. before maturity date of lease. It is therefore necessary for a valuer to study various types of terms and conditions normally provided in lease document.

Some of the important terms and conditions normally stated in lease agreement are as under :-

Lease Term : Date of commencement and date of termination of lease.

Renewal Clause : Date of notice for renewal, first term in number of years and renewal period if any, and provision of revision of rent for renewal.

Amount of Rent : Fixed Annual Rent or monthly rent or ground rental i.e.increased rental after fixed period of intervals, say 10 years or 20 years.

Lessor's Covenant : Responsibility of land tax payment to the Government.

Lessee's Covenant : Payment of building tax, building insurance, repairs and upkeep of property, timely payment of lease rent.

Right for Assignment : Right to sub-lease the property, on condition or without any condition.

Restrictive Covenant : Not to alter building or change user of the land.

Vesting Back Land Clause : This is a very important clause Under this clause it is provided that the Lessee would, on maturity of the lease period, demolish the building erected on the Lessor's plot and would handover possession of open vacant land back to the Lessor . Many leases provide that on maturity of the lease the lessee would hand over or return land to the Lessor along with the building free of cost to the Lessor . There could be a provision that the Lessee would surrender back land with building to the Lessor but Lessor will be required to pay mutually agreed amount (Depreciated cost of building) to the Lessee for the building.



Depending upon lease conditions, value of interest of Lessor and Lessee would change.

Value of Lessor's interest in property normally consists of two parts.

- (a) Capitalised value of ground rent income for unexpired period of lease.
- (b) Present value of the right of reversion of the property (Land or land with building) at the expiry of lease period.

Value of Lessee's interest in the property may consist of one or two parts.

(a) Capitalised value of net rental income receivable from the building, for unexpired period of lease. As Lessee would lose the building on maturity, provision for recoument of capital invested in building should also be made by selecting dual rate table.

(b) If the plot is not fully developed but is underutilized, in such a case, the Lessee would also hold interest equivalent to the present worth of the unutilized FSI land.

Value of right of Lessor Or value of right of Lessee are both worked out by Income Approach i.e. by application of Investment Method or Rental Method of Valuation.

The basic principle operating behind the Investment Method is that the property is capable of generating Income for long time in future owing to its durability and the Prudent Investor in the Real Estate Market desires a reasonable return on his capital Investment in an Immovable property. Thus there is a direct relation and link between annual income from the property and the Capital Value of the property. This is the basis of Investment Method of Valuation of the property.

Types of occupancy in Real Estate – Different types of occupancy in real estate are:

- Residential Occupancy
- Educational Occupancy
- Institution for care Occupancy
- Health Care Occupancy
- Business Occupancy
- Mercantile Occupancy
- Industrial Occupancy
- Storage Occupancy
- Assembly Occupancy
- Hazardous Occupancy
- Garages Occupancy
- Utilities Occupancy
- Miscellaneous



Annuities

Annuity: it is an annual income. An annuity is a contract for income payable at regular intervals and at specified amounts.

Capitalization: *Capitalization* is any method used to convert an income stream into value. There are two primary income capitalization methods: *direct capitalization and yield capitalization*. (A *capitalization rate* is any rate used to convert an estimate of future income into an estimate of market value.

Direct Capitalization is a method used to convert an estimate of a single year's income expectancy into an indication of value in one direct step. Dividing the income estimate by an appropriate rate or by multiplying the income estimate by an appropriate factor converts the income stream into an estimate of value. In essence, direct capitalization expresses value as a relationship between income and a rate or multiplier. The direct capitalization technique employs capitalization rates and multipliers extracted from comparable sales. Yield and value changes are implied, but not directly identified.

How to derive value by direct capitalization will be discussed in detail in Lesson 9 (Multipliers – Derivation and Valuation) and Lesson 12 (Valuation of Property using Overall Rates).

Yield Capitalization is a capitalization method used to convert future benefits into present value by discounting each future benefit at an appropriate yield rate. The future benefits may also be discounted by developing an overall capitalization rate that explicitly reflects the investment's income pattern, value change, and yield rate. As such, this method is also known as the *discounted cash flow* (DCF) model. The yield rate represents the multi period rate of return that an investor would expect when investing in the property given the risk of the income stream. Yield capitalization explicitly considers the size, shape, and duration of the income stream and any change in the value of the property. Future income is discounted using the present value factors .

Rate of Capitalization:

The capitalization rate, often just called the cap rate, is the ratio of Net Operating Income (NOI) to property asset value. So, for example, if a property recently sold for Rs.1, 00, 00, 000 and had an NOI of Rs.10,00,000 then the cap rate would be $\text{Rs.1, 00, 00, 000} / \text{Rs.10, 00, 000}$ or 10%.

$$\text{Capitalization Rate} = \frac{\text{Net Operating Income}}{\text{Value}}$$

Years' Purchase:

This is the present value of a right to receive ₹.1 @ the end of each year to n years at 'i' compound interest.

Sinking Fund : This is the annual sum required to be invested at the end of each year in order to accumulate to ₹.1 in 'n' years at 'i' compound interest.

It is the fund which is built up for the sole purpose of replacement or reconstruction of a property when it loses its utility either at the end of its useful life or becoming obsolete. □ The fund is regularly deposited in a bank or with an insurance agency so that on the expiry of period of utility of the building, sufficient amount is available for its replacement. □ The calculation of Sinking Fund depends upon the life of a building as well as upon the rate of interest and it is generally calculated on 9/10 of the cost of construction as the owner will get 10% as scrape value of the building when the life of the building is over.

Redemption of Capital: Redemption refers to the right of a mortgagor in law to **redeem** his or her **property** once the debt secured by the mortgage has been discharged.

Reversionary Value : It is present consideration for the full value of land obtainable after the specified period is over.

For Eg. Let life of building = 30 yrs. Present value of land =50000 The person interested will get the said Rs 50000 after 30 yrs has passed. Now if he wants its value at present then he gets Rs 15500 which if invested at present in some securities at 4% compound interest will amount to Rs 50220 in 30 yrs.

- Construction and use of Valuation Tables

1. To find the amount to which Rs.1/will accmulate at the end of a given term at compound interest.

$i =$ Interest per annum on Rs.1/

Then Rs.1/ invested now will accumulate to $(1+i)$ at the end of first year.

The amount of Rs.1/ at the end of 2nd year will be

$$= (1+i) + i(1+i)$$

$$= 1 + i + i + i^2$$

$$= 1 + 2i + i^2$$

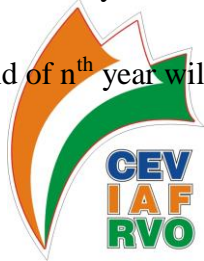
$$= 1 \times (1+i)^2$$

Similarly the amount of Rs.1/ at the end of 3rd year will be $= 1 \times (1+i)^3$

Similarly the amount of Rs.1/ at the end of nth year will be $= A = 1 \times (1+i)^n$

Similarly the amount of Rs.1/ at the end of nth year will be $= A = 1 \times (1+i)^n$

Similarly the amount of Rs.P/ at the end of nth year will be $= A = P \times (1+i)^n$



2. Present value of Rs.1

We know the amount of Rs. P/ at the end of nth year will be $A = P \times (1+i)^n$

$$\text{Or } P = \frac{A}{(1+i)^n}$$

If the amount after n years is Rs.1, i.e. $A=1$,

$$\text{Then (Present Value) } P = \frac{1}{(1+i)^n}$$

It means present value of Rs.1 , which one will get after n years at $i\%$ is $\frac{1}{(1+i)^n}$

Example1: A man purchases a land having an area of 4800 m² at Rs.20, 000/ m². He then subdivides it into plots. The net area after provision for roads and other services is 4032

m². If he expects a return of 8% on his investment and all subplots are likely to be sold in a span of 3 years, at what minimum price should he sell all the plots without any loss?

Sol.: Initial investment $= 20,000 \times 4800 = \text{Rs.} 9,60,00,000/$

Amount of Rs.1 will accumulate at 8% in 3 years $= (1 + 0.08)^3 = \text{Rs.} 1.26$

Cost of land to the purchaser $= 1.26 \times \text{Rs.} 9,60,00,000/$

$= \text{Rs.} 12,09,60,000/$

Net Area for sale $= 4032 \text{ m}^2$

Sale price of sub plot $= \frac{120960000}{4032} = \text{Rs.} 30,000/ \text{m}^2$

Example2: An investor has the right to receive Rs.25, 00, 000/ from a property after a period of 9 years. Assuming the rate of interest as 8%, find out the rate at which investor will be ready to relive his future right over the property.



Sol.: We know present value of Rs.1 $= \frac{1}{(1+i)^n}$

So present value of Rs.25, 00,000 $= \frac{1}{(1+i)^n} \times 25,00,000$

$= \frac{25,00,000}{(1+0.08)^9} = \text{Rs.} 12,50,622/$

- Example3 :**

What amount must be invested now at 8% to accumulate to ₹.1 in 7 years' time?

We know $PV = \frac{1}{(1+i)^n}$

$= \frac{1}{(1+0.08)^7} = \frac{1}{1.713} = 0.583$

Example 4 : A man has a right to receive ₹.100 in 12 years' time. What is the present value of this right, assuming that capital could be invested at 7.5% compound interest?

$$\begin{aligned} \text{We know PV} &= \frac{1}{(1+i)^n} \\ &= \frac{1}{(1+0.075)^6} = \frac{1}{2.381} = 0.419 \end{aligned}$$


Present value of Rs.1=0.419

Present value of Rs.100=0.419×100= Rs41.90

3.3 THE AMOUNT OF ₹.1 PER ANNUM

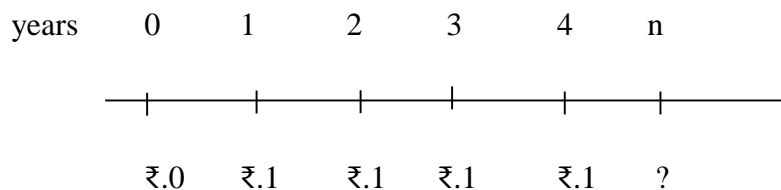
- This is the amount to which ₹.1 invested at the end of each year will accumulate @ i compound interest in n years.

- Formula:



$\frac{A - 1}{i}$	or	$\frac{(1+i)^n - 1}{i}$
-------------------	----	-------------------------

- The above formula can be explained if Rs.1 will be invested at the end of each year @ i interest for n years as follows:



Years	Amount @ the end of year n
1	₹.1
2	₹.1 + (1+i)
3	₹.1 + (1+i) + (1+i) ²
4	₹.1 + (1+i) + (1+i) ² + (1+i) ³
N	

The total amount is the geometrical progression (GP) and at the end of 'n' years GP is used as follows:

$$S = \frac{a(r^n - 1)}{r - 1}$$

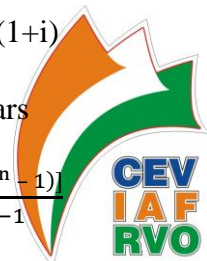
where a = ₹.1

r = ₹.1(1+i)

n = Years

So for ₹.1 per annum $S = \frac{1[(1+i)^n - 1]}{1+i-1}$

$$= \frac{[(1+i)^n - 1]}{i} = \frac{[A - 1]}{i}$$



Where $A = (1+i)^n$

• **Example: Amount of ₹.1 per annum**

a) Calculate the amount of ₹.1 per annum for 3 years at 6% compound interest.

$$S = ₹.1 \text{ per annum} = \frac{[(1+i)^n - 1]}{i}$$

$$= \frac{[(1.06)^3 - 1]}{0.06} = 3.183$$

b) ₹.100 is invested at the end of each year in a bank giving 6.5% compound interest. To what amount will this accumulate after 20 years?

$$S = ₹.1 \text{ per annum} = \frac{[(1+i)^n - 1]}{i}$$

$$= \frac{[(1.065)^{20} - 1]}{0.065} = 38.83$$

For ₹.100, accumulation will be = $38.83 \times 100 = \text{Rs.}3883/$

- c) **A property owner is able to save Rs.5000/per year from the net income of his property and he invests this amount each year to earn an interest at 7%. Find the amount which will be available at the end of 18 years.**

$$S = ₹.1 \text{ per annum} = \frac{[(1+i)^n - 1]}{i}$$

$$= \frac{[(1.07)^{18} - 1]}{0.07} = 34$$

For ₹.5000, accumulation will be = $34 \times 5000 = \text{Rs.}1,70,000/$

The sum invested is $₹.5000 \times 18 = ₹.90,000 /$ & remaining $\text{Rs.}1,70,000/ - ₹.90,000 / = \text{Rs.}80,000/$ is interest

- d) **A person takes property on perpetual lease at an annual ground rent of Rs.2,40,000/. The property remains unproductive for a period of 5 years. If the lessee wants to dispose off the property after 5 years and if the rate of interest is 6%. Find out the minimum premium to be demanded by the lessee to obviate the loss.**

$$S = ₹.1 \text{ per annum} = \frac{[(1+i)^n - 1]}{i}$$

$$= \frac{[(1.06)^5 - 1]}{0.06} = 5.64$$

For ₹.2,40,000, accumulation will be = $5.64 \times 2,40,000 = \text{Rs.}13,53,600/$

- e) **A developer purchased a low lying land for Rs.90,00,000/before 5 years and he has to incur further expenditure of Rs.5,00,000/ year for 3 years for developing the site. Find out the total cost of investment to the developer, if he expects a return of 14% on his capital**

$$S = ₹.1 \text{ per annum} = \frac{[(1+i)^n - 1]}{i}$$

$$= \frac{[(1.14)^6 - 1]}{1.14} = 3.44$$

For ₹.5,00,000, accumulation will be = $3.44 \times 5,00,000 = \text{Rs.}17,20,000/$

Initial investment = $\text{Rs.}90,00,000/$

Total Investment = Rs.90, 00, 000/+ Rs.17, 20, 000/= Rs.1,0 7,20,000/

3.4 ANNUAL SINKING FUND (i.e. S)

- This is the annual sum required to be invested at the end of each year in order to accumulate to ₹.1 in 'n' years at 'i' compound interest.
- ASF is the reciprocal of amount of ₹.1 per annum, means amount if invested at the end of each year will accumulate at compound interest to Rs.1

$$Ic = \frac{1}{S}$$

$$= \frac{1}{\frac{[(1+i)^n - 1]}{i}}$$

$$= \frac{i}{[(1+i)^n - 1]}$$

It should be noted that object of investment is

- To get income in the form of interest
- To make provision for security of this capital



- **Example: Annual sinking fund**

- The owner of a house anticipates that he will need to provide a new staircase in 10 years' time at an estimate cost of ₹.7000. If capital can be invested at 8% compound interest. What amount should be invested annually to meet his future estimated cost?**

$$Ic = \frac{i}{[(1 + i)^n - 1]}$$

$$\frac{0.08}{[(1+0.08)^{10} - 1]} = 0.069$$

So that the Annual Sinking Fund to provide ₹.7000 is;

$$0.069 \times ₹.7000 = ₹.483$$

- b. A free hold property giving a net income of Rs.1,00, 000/ annum was purchased by an investment of Rs.2, 00, 000/. It was estimated that income will continue for 30 years and at the end of this period investor have to spend Rs.15, 00,000/ on the property to maintain the income. Find out the amount of annual sinking fund required to be set aside from the income to provide for this future expenditure. Assume 3% rate of interest on the sinking fund instalment

$$Ic = \frac{i}{[(1 + i)^n - 1]}$$

$$\frac{0.03}{[(1+0.03)^{30} - 1]} = 0.021$$

So that the Annual Sinking Fund to provide ₹.15,00, 000 is;

$$0.021 \times ₹. 15, 00,000 = ₹. \underline{31, 528/}$$

- c. A person purchased a factory shed for Rs.2, 40, 00,000/ and he expects a net return of 12% on this investment. He leased out the property for a period of 40 years, and it is expected that at the end of this period, investor has to spend Rs.24, 00,000/ on the property, in order to maintain the income. What is the amount he has to set aside from the income per year for this expenditure at 2.5% rate of interest? What is true return on his capital?

$$Ic = \frac{i}{[(1 + i)^n - 1]}$$

$$\frac{0.025}{[(1+0.025)^{40} - 1]} = 0.015$$

So that the Annual Sinking Fund to provide ₹.24,00, 000 is;

$$0.015 \times ₹. 24, 00,000 = ₹. \underline{36, 000/}$$

$$\text{Net Annual Return} = 0.12 \times ₹. 2,40, 00,000 = \text{Rs.} 28, 80,000/$$

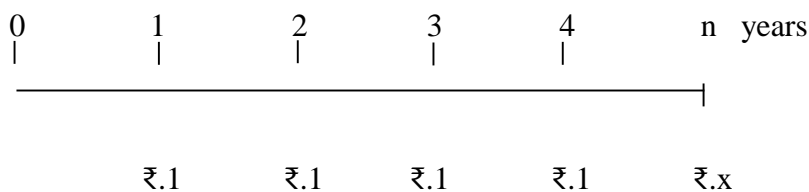
True annual return = Rs.28, 80,000/ - ₹.36, 000/ = Rs.28, 44, 000/

True return on capital = $\frac{2844000}{24000000} \times 100 = 11.85\%$

3.5 YEAR'S PURCHASE (i.e. YP)



- This is the present value of a right to receive ₹.1 @ the end of each year to n years at 'i' compound interest.



- The above diagram shows ₹.1 p.a. invested @ each year until n years. Say this amount is ₹.x, this amount will be multiplied by PV of ₹.1 i.e.

PV of ₹.1 pa = Amount of ₹.1 pa × PV of ₹.1

$$= \frac{[(1+i)^n - 1]}{i} \times \frac{1}{(1+i)^n}$$

$$= \frac{[(1+i)^n]}{i \cdot (1+i)^n} - \frac{1}{i \cdot (1+i)^n}$$

$$= \frac{1}{i} - \frac{1}{i(1+i)^n}$$

$$= \frac{1}{i} \left(1 - \frac{1}{(1+i)^n}\right)$$

$$\mathbf{Y.P. = \frac{1}{i} \left(1 - \frac{1}{(1+i)^n}\right)}$$

- **Example: Years' Purchase (i.e. YP)**

a) A landlord will receive ₹.10000 per annum rent from his tenant for the next 20 years. Assuming 8% compound interest, what is the capital value of the income?

$$\mathbf{Y.P. = \frac{1}{i} \left(1 - \frac{1}{(1+i)^n}\right)}$$

$$\text{YP for 20yrs @ 8\%} = \frac{1}{0.08} \left(1 - \frac{1}{(1+0.08)^{20}}\right) = 9.818$$

So that capital value of ₹.10000 per annum is = ₹.10,000 × 9.818 = ₹.98,180/



3.6 YEAR'S PURCHASE IN PERPETUITY

- This is the present value of the right to receive ₹1 at the end of each year in perpetuity @ i compound interest.

We Know $Y.P. = \frac{1}{i} \left(1 - \frac{1}{(1+i)^n} \right)$

If the no. of years increase the value of PV decrease as n approach perpetuity

- If the no. of years increase the value of PV decrease as n approach perpetuity.

<u>Years</u>	<u>$\frac{1}{(1+i)^n}$ @ 10%</u>
1	0.90909
50	0.00852
100	0.00007

So if n is very large, $\frac{1}{(1+i)^n} \cong 0$

Therefore, $Y.P. = \frac{1}{i} (1 - 0)$

So Y.P. in perpetuity = $\frac{1}{i}$



- **Example: Year's Purchase in Perpetuity (YP in perpetuity)**

A is the owner of a freehold interest in a shop yielding a net income of Rs.25000 per annum. Assuming 7% compound interest, calculate the capital value of A's interest.

$$Y.P. \text{ in perpetuity} = \frac{1}{i}$$

$$YP \text{ in perpetuity at } 7\% \text{ p.a} = \frac{1}{0.07} = 14.286$$

So, capital value = 25000 x Good apaintfb

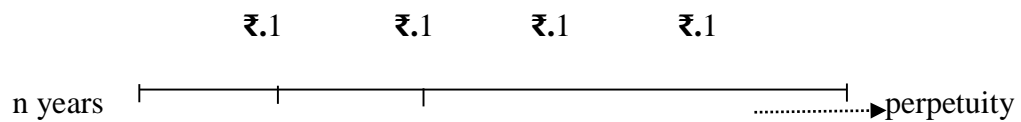
$$14.286 = \underline{\underline{\text{₹.3,75,150}}}$$

3.7 YEARS PURCHASE OF A REVERSION TO A PERPETUITY.

- This is the present value of a right to receive ₹.1 at the end of each year in perpetuity at i compound interest but receivable after the expiration of n years.

- Formula:

$$\text{YP reversion to perpetuity} = \frac{1}{i(1+i)^n} \quad \text{or} \quad \frac{1}{Ai}$$



- YP perp shows the amount invested @ the end of each year till perpetuity after its reversionary.



- Therefore;

$$\text{YP in reversion to perpetuity} = \text{PV} \times \text{YP Perp}$$

$$= \text{PV} \times \frac{1}{i}$$

$$= \frac{1}{A} \times \frac{1}{i}$$

$$= 1$$

- Example:**

Dr Aisyah will receive the full rental value of ₹.36,000 per annum. Presently she let her house at a rental of ₹.24000 pa for 7 years with an interest of 8%. Value the interest of Dr Aisyah.

TERM

Net Rental 24,000 pa net

(x) YP 7 years @ 8%

i.e. PV of Rs.1 for 7yrs @8%

$$= \frac{1 - \frac{1}{A}}{I}$$



$$= \frac{1 - \frac{1}{(1+0.08)^7}}{0.08} = 5.20 \quad 124,800$$

REVERSION

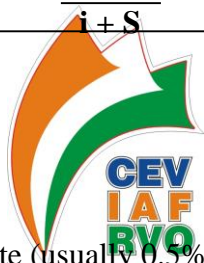
FRV 36,000

So,

$$Y.P = \frac{CV}{\text{Income}}$$

$$Y.P = \frac{M}{M(i + S)}$$

$Y.P = \frac{1}{i + S}$



- i is known as Remunerative Rate (usually 0.5% - 1.5% above FH – (Inferior))
- S is known as Accumulative Rate (Bond @ 3%)
- **Example:**

Find the CV of an income receivable for 5 years at ₹.2,000 pa net, assuming a rate of return @ 7% pa & SF @ 3%

Net Income


₹. 20,000 pa

(x) YP for 5 yrs @ 7% & 3%

$$= \frac{1}{i + S}$$

$$= \frac{1}{i + \left(\frac{i}{A-1} \right)}$$

$$= \frac{1}{i + \left(\frac{i}{(1+i)^n - 1} \right)}$$

$$= \frac{1}{0.07 + \left(\frac{0.03}{(1.03)^5 - 1} \right)}$$


$$= \frac{1}{0.07 + 0.1886}$$

$$= \frac{1}{0.258}$$

3.87

CV ₹. 77,400

- **Urban Infrastructure and its influence on Value of Real Estate**

Infrastructural development is one of the most important factors which influence real estate prices in India. The presence of roads, airports, flyovers, malls and bus terminals and other

facilities in the vicinity of the property, helps in value escalation of the same.

It is a known fact that connectivity is one of the most important requirements for investors looking towards purchasing land or property. This leads to the concept which explains a rise in the valuation of property which is well connected to entertainment hubs, medical facilities, educational institutions, retail markets and business centers, along with other day to day facilities.

- **Real Estate Market and its characteristics:**

Some of the best real estate investments provide a steady source of monthly income, while also growing wealth through long-term asset appreciation. Real estate investments, therefore, are rather unique compared to many other investments.

Understanding the unique characteristics of real estate investments will help you formulate a profitable strategy to take advantage of these unique features, while also avoiding possible pitfalls inherent in real estate investing.

Here are 6 unique characteristics of real estate to keep in mind.

#1 Durability

Real estate investments can be extremely durable and build multi-generational wealth.

Unlike other investments that have fixed maturities, there is no fixed maturity for a real estate investment. You can sell it in a few days if you see a good opportunity, or you can hold it for decades. Many of the most profitable pieces of real estate in American cities have been held for several decades, and some of the profitable real estate in Europe has been held by the same trust or family for centuries.

#2 Lack of Transparency

Some markets, such as stocks and commodities, are regulated to be as transparent as possible. Investors have access to real-time market information, and are able to make immediate changes to their portfolio.

Real estate works very differently. When an investor buys a property, there is a risk that the seller is withholding information, or that the seller is unaware of problems.

Therefore, research and inspections are important when buying real estate. And if you buy a property sight unseen, such as at auction, be sure to take the higher risk into consideration when making an offer.

#3 Heterogeneity

Location, location, location. All real estate is local, with every property being unique in terms of location, physical structure, and financing.

As a result, investors can leverage local knowledge of a community to acquire and manage a highly profitable portfolio of real estate investments. This is why the most successful investors have a team in each geographic area of their real estate investments, because of the heterogeneity of real estate.

#4 Illiquid

Real estate is considered illiquid because it can't be easily sold without a substantial loss in value.

Even if you are flipping houses, it takes a substantial amount of time to purchase, rehab, find a buyer, and close. And if you own rental income with tenants leasing a property, it can take much longer.

The lack of liquidity is a good thing, though, when it comes to investing in real estate. The illiquidity of real estate contributes to making it a stable, appreciating asset class for long-term investors.

#5 High Startup Costs

The costs of acquiring real estate investments are higher than many other types of investments. Typical costs include purchase and closing costs, rehabbing, and financing.

The old adage, "it takes money to make money" applies to real estate investing. But, the reward is high in the form of cash flow and profits.

Like illiquidity, the high cost of acquiring a real estate investment is one reason property investing can be so profitable. The costs limit the number of investors in this asset class, and therefore add to stability and long-term appreciation.

#6 Investment Vulnerability

Risks associated with real estate makes investing in this asset class very profitable for savvy investors who have a proven plan for success.

Real estate investments can be fluid at times, and change as cities and neighborhoods change. Therefore, real estate is not a hands-off static investment, but one that requires constant attention.

The best investors either personally manage their investments, or hire an expert team to locate, rehab, and manage real estate investments on their behalf.

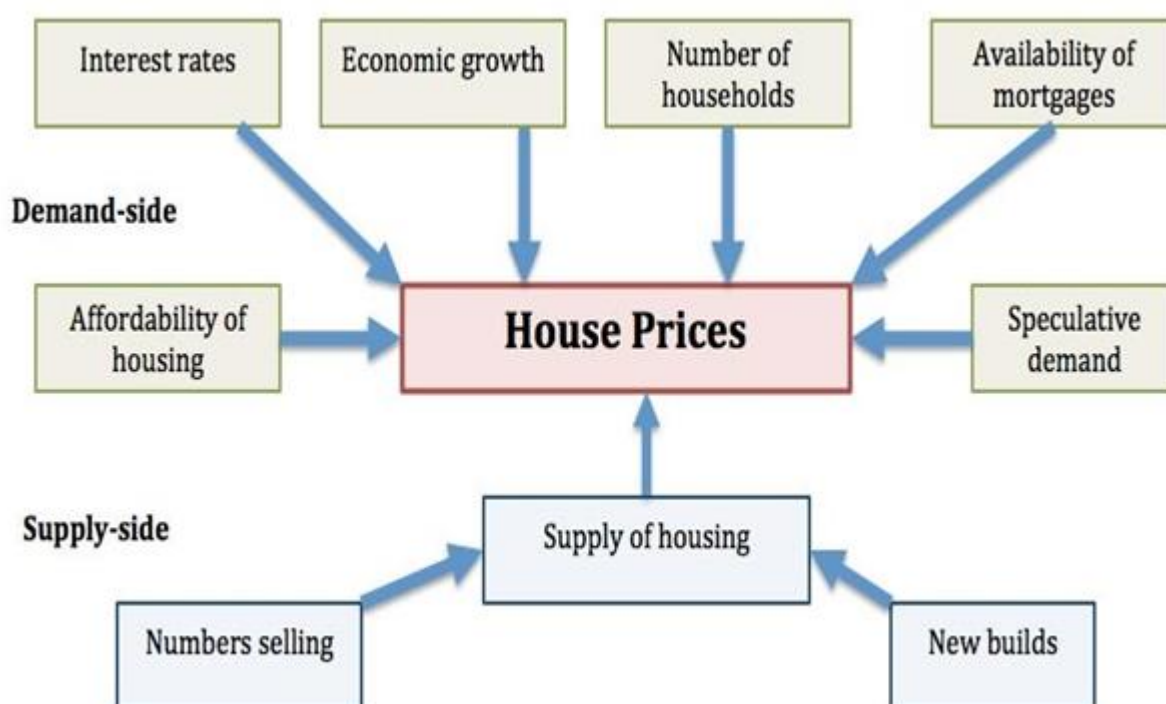
Take Away

Real estate investments have unique characteristics that enable smart investors to make a great deal of money.

- **Factors influencing Demand and Supply Schedule in Real Estate**

Factors affecting supply and demand of Real Estate

In summary.



Demand-side factors

1. Affordability. Rising incomes mean that people are able to afford to spend more on housing. During periods of economic growth, demand for houses tends to rise. Also, demand for housing tends to be a luxury good. So a rise in income causes a bigger % rise in demand.

2. Confidence

Demand for houses depends on consumer confidence. In particular, it depends on people's confidence about the future of the economy and housing market. If people expect prices to rise, demand will rise so people can gain from rising wealth. In a boom, demand for houses rises faster than incomes as seen in the graph above.

3. Interest Rates

Interest rates play a big factor in determining the cost of mortgage interest repayments.

The majority of Indian homeowners still prefer to take out variable mortgage rates (unlike the continent where fixed rate mortgage deals are more common). Therefore any change in the base rate by the R.B.I. will immediately affect the mortgage interest payments. This is a major factor in determining the affordability of housing. Mortgage payments take a high % of people's personal disposable income. (

When interest rates reached 15% in 1992, demand for housing collapsed, causing a large fall in demand for housing. The relatively low-interest rates of the 90s and 2000s encouraged more to buy a house.

However, in 2008-09, interest rates were cut to 0.5%. Even though interest rates were very low, demand also remained low. This was because, other factors were reducing demand for housing – like the recession and prospect of rising unemployment.

4. Population

The population in India is growing at a very fast pace

A very important factor. It is not just the number of people but demographic changes. e.g. growing number of single people living alone has led to increasing demand for houses.

The demand for housing doesn't just depend on the population but also the average size of a household. Certain social and demographic factors are causing a rise in the number of households (faster than the population increase). These demographic changes include issues such as:

age of people leaving home

- Increased life expectancy, leading to more single old people
- Divorce rates, – increasing number of single-parent families.

5. Mortgage availability

Another factor that determines the effective demand for houses is the willingness of banks to lend mortgages. If banks give mortgages with bigger income multiples, then the effective demand for houses is greater. The willingness of banks to lend mortgage finance can vary depending on the strength of the interbank lending sector.

6. Economic growth and real incomes. Rising incomes enable people to afford bigger mortgages and encourages demand for housing. In boom times, demand for housing grows rapidly suggesting demand for houses is income-elastic

7. Cost of renting.

If the cost of renting rises, then households will make greater efforts to try and buy a house as buying a house through mortgage becomes relatively cheaper. The Indian housing market has been buoyed by expensive renting costs, which encourages buy to let lenders and encourages households to stretch their budget as much as possible to get on the housing ladder.

Factors affecting supply

- The number of new houses being built.
- Planning restrictions on the use of land. A big issue in the India is planning restrictions and limitations on building on green-belt land
- Local opposition to new home builds. There is widespread opposition to building new houses as local communities usually prefer to live in smaller villages without increased congestion.
- The profitability of building new houses. This is dependent on the demand for houses and prices. In a boom, builders are usually keener to build more. Falling house prices can lead to a restriction in supply.

Aside from the above, there is also something to be said about the effects of RBI policies that foster a shift from more secure and dependable assets such as bonds into less-dependable and riskier assets such as stocks and real estate. Driven by a search for yield and higher returns, investor demand for housing (whether by direct ownership, such as an individual purchasing a home to let) or by a corporate mechanism (such as a Real Estate Investment Trust that purchases a large number of homes to rent) also influences supply, demand and pricing

dynamics by keeping a portion of potential for-sale inventory off the market for an indeterminate period of time.

- **Investment in Real Estate**

A smart investment has the potential to change our lives, providing us sufficient funds to live our dreams. Today, most of us have an investment portfolio comprising of a number of investments, be it stocks, gold, bonds, government schemes, etc., but one of the most underrated or ignored investment in recent times remains to be real estate. Given the huge economic boom in most Indian cities, the average income has increased, providing us added incentives to invest for the future and real estate could be the ideal investment choice for you.

Real Estate and Its Importance

Kingdoms have fought battles over land for centuries, leaving no stone unturned in order to win that priceless property. While kingdoms might not exist today, the truth remains that the demand for land hasn't changed, with everyone vying for a share of what's available. Given the fact that prime real estate never loses demand or value, investing in it can be a great move, offering returns far higher than traditional investment options. Owning a home is the dream of everyone, and fulfilling this dream can not only give you emotional satisfaction but also monetary joy. Given the shortage of land in cities across the country, purchasing even a small flat can offer you returns, either in the form of rental income or by selling it for a profit.



Points to Consider Before Investing in Real Estate

It is possible for someone who has no prior real estate experience to get carried away by the lure of profits and invest in real estate which offers no returns. Real estate investment comes with certain risks and a beginner should keep the following points in mind before spending his/her hard earned money.

- **Stay Patient** – Buying a property is a time consuming affair, with most genuine property transactions taking a few days to be complete. While a number of real estate firms offer to complete formalities overnight, the fact remains that exhibiting patience can help you land a good deal. Jumping the gun can see you pay more for the property, or purchase one which

doesn't live up to your expectations. Also, sellers can delay projects, which could see your investment not offering any returns for a certain period, checking your patience.

- **Research The Property** – Doing your homework before you step out to look for a property is critical today. With a number of projects coming up, it can be confusing to choose the right real estate, for sellers are typically known for sweet talking buyers. The amenities on offer, the history of the construction company, the materials used, the area a property is located in can all play a role in determining the returns you get on your investment. Failing to research before buying could see you regret later, negating your investment.
- **Check The Papers** – The papers of a property are perhaps the most important factor one should consider, for it is possible for someone who is not acquainted with the real estate industry to get scammed into buying a property with fake papers. Buying a property without clear titles can lead to long drawn court cases or litigations, which essentially nullify the investment. All property papers should be checked by legal experts to authenticate them, for failure to do this could see you purchasing a property which could be mired in controversy. A number of times people sell properties below market rate, which should alert you, for such properties could have litigations or internal issues with the owner.
- **Check Market Rates** – Most local governments provide a guidance value to help investors know the rate of a property. Knowing the market rate can help you track local trends, ensuring that you don't get scammed into paying a higher amount than what a property deserves. Researching market rates and working out developments could help you extrapolate the returns you could expect in the future.
- **Talk To Neighbours** – Talking to the neighbours is a good idea which most of us tend to ignore. This can help you get a first-hand perspective of how things are in a locality, helping you narrow down any problems or areas which could dilute an investment. Talking to them can also help you know the current market rates and see how the area has developed and the scope for future development. Given the fact that neighbours aren't salesmen trying to sell you the property, one can get a clear picture of the real estate they intend to buy.
- **Calculate Your Finances** – It is important to calculate the finances you have in order to ensure that you meet certain goals. While it is easy to get loans from banks, calculating the interest and other factors is crucial.



- **Remain Positive** – It is important to stay positive while executing a real estate deal, for there are bound to be times when deals don't fall into place. Remaining calm and composed while interacting with property sellers can help you get additional benefits.
- **Negotiate** – Negotiations are a key aspect of the Indian real estate system, as everyone is looking for a deal which will make them richer. Knowing the art of negotiation can help you save a lot of money and get additional freebies like parking spaces, furniture, etc.
- **Consider The Risk Factor** – Real estate investments are typically safer than other investments, but that doesn't mean they are totally risk free. Legal hurdles and property disputes are extremely common in India and one should ensure that the property they are interested in is clear and minus the hassles.

Owning a property can be the smartest move given the changing dynamics of our times, and keeping these simple points in mind can point a beginner towards the right path to investing in real estate.

- **Green Building Concepts**



What is Green Buildings?

A green Building uses less energy, water and other natural resources creates less waste & Green House Gases and is healthy for people during living or working inside as compared to a standard Building. Another meaning of Green Structure is clean environment, water and healthy living. Building Green is not about a little more efficiency. It is about creating buildings that optimize on the local ecology, use of local materials and most importantly they are built to cut power, water and material requirements. Thus, if these things are kept in mind, then we will realize that our traditional architecture was in fact, very green. Today, we have forgotten that how to make natural environment, instead copying it from developed countries.

Buildings are a major energy consuming sector in the economy. About 35 to 40% of total energy is used by buildings during construction. The major consumption of Energy in buildings is during construction and later in lighting or air-conditioning systems. This consumption must be minimized. Possibly, this should be limited to about 80-100 watts per sqm.

Introduction

We have heard of climate change. The air is getting warmer - summer comes sooner in most continents including Europe and America. Sea level is rising, - Maldives is sinking. Rivers like the Amazon, the Nile, the Danube, etc, are drying or recede several meters every year. But it's not just happening elsewhere but also happening in India. The glaciers feeding water for the Ganga are melting faster than it should. It means the Ganga could dry up in another about 60 years or so. This would leave over 50 million people thirsty who are living on the banks.

Mangrove forests of Sunderban are the world's most prosperous group of 104 Rainforest Islands. However, it appears that these very unique islands are likely to be wiped out from earth's map very soon or over the period of time. In fact, 15% of Indian side Sunderban and 17% of Bangladesh side of Sunderban Island are already submerged in the ocean. Now the threat of submerging is looming large on Sagardeep, the 4th biggest of the existing island. It is also on this Island, that the annual Mela of Gangasagar is held and visited by Millions of pilgrims every year. This is all because of the generation of Green house gases (GHG) and sea level is rising.



A third of all Carbon Dioxide emissions produced are absorbed in the oceans. Carbon dioxide dissolved in ocean water becomes a corrosive acid which kills sea life. Thus fish catches are falling. That would leave hundreds of coastal communities hungry.

The coal is burnt in electric power plants, which is a major source of the CO₂ generation and it is doing all the damage - melting the glaciers, poisoning the sea, disrupting the monsoon etc. Alternate source of Energy like Renewable energy - from the sun's rays, wind, seas' waves & geo-sources - is clean, doesn't release CO₂ and is not hostage to a resource that will die out. In India, we are blessed with a tropical sun, fast winds and thousands of miles of sea coast. Renewable energy is thus the answer for all these ills. Similarly, building Industry is producing second largest amount of Demolition Waste and GHG (almost 40%). Buildings have major environmental impacts over their entire life cycle. Resources such as ground cover, forests, water, and energy are depleted to construct and operate buildings. Resource-intensive materials provide the building envelope and landscaping add beauty to it – in turn using up water and pesticides to maintain it. Energy-consuming

systems for lighting, space conditioning and water heating provide comfort to its occupants. Hi-tech controls add intelligence to 'inanimate' buildings so that they can respond to varying conditions, and intelligently monitor and control resource use, security, and usage of fire systems etc. in the building. Water is another vital resource for the occupants, which gets consumed continuously during building construction and operation. Several building processes and occupant function generate large amount of waste. These all are polluting the environment and increasing (GHG).

Climate Change and Its Effect

Climate is changing fast globally because of increased energy consumption and thus increase Green house gases (GHG) like CO₂. This gives rise to global Warming. The World produces about 0.6 tones / year / per capita CO₂. India is the 5th largest producing GHG. This impacts the climate change resulting in:

- Water stress and reduction in the availability of fresh water due to potential decline in rainwater.
 - Threats to agriculture and food scarcity
 - Shifts in area and boundary of different forest and threat to biodiversity with adverse implications for forest dependent activities.
- Sea level rising on costal areas and effect on agriculture & habitation.



Green Building Concept and Architecture Planning

To have Green Building Concept, we should look after the following:

1. Optimum use of Energy or power
2. Water conservation
3. Solid and Water Waste management, its treatment and reuse
4. Energy efficient transport systems
5. Efficient Building System Planning etc.

If all Buildings in urban areas were made to adopt green Building concepts, India could save more than 8400 MW of power which is enough to light half of Delhi or 5.5 lakh homes a year according to estimates by TERI. A green building depletes very little of the natural resources during its construction and operation. The aim of a green building design is to minimize the demand on non-renewable resources and maximize the utilization efficiency of these resources when in use and utilization of renewable resources.

Building Planning should minimize the use of building materials and optimize construction practices and sinks by bio-climatic architectural practices; use minimum energy to power itself for the use of equipment and lighting and air-conditioning and lastly maximize the use of renewable sources of energy. It should also use efficiently waste and water management practices; and provide comfortable and hygienic indoor working conditions. It is evolved through a design process that requires all concerned –the architect and landscape designer and the air conditioning, electrical, plumbing and energy consultants – to work as a team to address all aspects of building including system planning, design, construction and operation. Thus, enhance the positive impacts on the environment.

Architects & planners should start thinking green in the planning of Buildings. Integrating living & vegetation with architecture is fast gaining popularity around the world and now a new term "Vegitecture" has been coined for it and it is becoming common. Thus the Architect may think to bring concrete jungles to green jungles through "Vegitecture". This is similar to the scenario shown in figure here.



The Architect can use large windows with Double glass system. The glazed trapping will act as insulating layer of air between the two layers of glass. One of these layers of glass filters and disperses light and heat without reflecting it back outside the building. The air conditioning system will also be less intensive because the double glazing system insulates the building. Further, hollow fly ash bricks can be used in walls during construction. This will also provide good insulating properties apart from using waste materials.

Contribution of Concrete towards Green House Gases

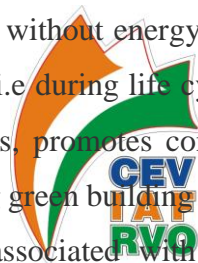
Among the primary concrete making materials, the emission of CO₂ is largely attributable to cement production. It is estimated that modern cements contain on an average of about 84% Portland cement clinker and the clinker manufacturing process releases about 0.9 ton of CO₂ per ton of clinker. The Concrete Industry World wide consume more than 3.5 billion tons of cement, so the carbon contribution of this industry is obviously quite large. Thus minimizing concrete consumption through innovative architecture and structural designs is one way to save

on the use of cement. Another way is to use smart concrete mixture proportioning approach. This can be done through following approaches:

1. Minimize concrete consumption through innovative architecture and Structural Design methods.
2. Use smart concrete mixture or i-crete as proportioning approach to save on cement in concrete mix.
3. Consume less Cement in concrete / mortar mixtures.
4. Consume less Clinker in Cement making by adding Pozzolana like fly ash or GGBFS in Cement or Concrete.

Characteristics of Green Building

Building construction and its upkeep for livable conditions requires huge energy in lighting, air-conditioning, operation of appliances etc. Green Building i.e. energy efficient building is the one which can reduce energy consumption by at least 40% as compared to conventional building. The cost of constructing energy efficient building is estimated to be 15 – 20% higher as compared to conventional building without energy efficiency. However, this is more than compensated over the period of time i.e during life cycle cost and operation & living. Using green building materials and products, promotes conservation of non renewable resources internationally. In addition, integrating green building materials into building projects can help reduce the environmental impacts associated with the extraction, transport, processing, fabrication, installation, reuse, recycling, and disposal of these building industry source materials.



Green Building Products and Materials

Building and Construction activities worldwide consume about 3 billion tons of raw materials each year. Using green building materials and products promotes conservation of dwindling non renewable resources. In addition, integrating green building materials into building projects can help reduce the environmental impacts associated with the excavation, extraction, transport, processing, recycling and disposal of these building industry source materials. Green building materials are composed of renewable, rather than nonrenewable resources and are environmentally responsible because impacts are considered over the life cycle period.

Depending upon project-specific goals, an assessment of green materials may involve an evaluation of one or more of the following parameters:

- a. Resource efficiency
- b. Energy efficiency
- c. Affordability
- d. Possible Recycling of Material and Waste generation
- e. Water conservation
- f. Effective Indoor air quality

A) Resource Efficiency: It can be accomplished by utilizing materials that meet the following criteria.

Resource efficient manufacturing process: Products manufactured with resource-efficient processes including reducing energy consumption, minimizing waste (recycled, recyclable and or source reduced product packaging) and thus reducing greenhouse gases.

Local availability: Building materials, components and systems found locally or regionally will save energy and resources in transportation to the project site.

Salvaged, refurbished, or remanufactured: It avoids the material from disposal and renovating, repairing, restoring, or generally improving the appearance, performance, quality, functionality or value of a product.



Durable: Materials that are longer lasting or are comparable to conventional products with long life expectancies.

B) Energy Efficiency: It can be maximized by utilizing materials and systems that meet the various criteria that help reduce energy consumption in buildings and facilities as indicated above.

C) Affordability: It can be considered as the cost for the building product when life-cycle costs are comparable to conventional materials or as a whole it is within a project-defined percentage of the overall budget.

D) Possibility of Recycling of Material and resultant Waste Generation: It should satisfy the following:

Recyclable Content Products with identifiable recycled content and minimum waste generation, including post use content with a preference for post consumer use content should be considered.

Reusable or recyclable Select materials that can be easily dismantled and reused or recycled at the end of their useful life.

E) Water Conservation It can be judged from utilizing the materials and systems that help reduce water consumption in buildings and conserve water in landscaped areas. This is similar to chemical admixture used in concrete to reduce water content.

F) Effective Indoor Air Quality It should enhance by utilizing such material and meet the following criteria:



Low or non-toxic Materials that emit few or no carcinogens, reproductive toxicants or irritants as demonstrated by the manufacturer through appropriate testing.

Minimal chemical emissions Products that have minimal emissions of Volatile Organic Compounds (VOCs). Products that also maximize resource and energy efficiency while reducing chemical emissions.

Low-VOC assembly Materials installed with minimal VOC-producing compounds, or no-VOC mechanical attachment methods with minimal hazards.

Moisture resistant Products and systems that resist moisture or inhibit the growth of biological contaminants in buildings.

Some Steps for Material Selection

Material selection can begin after the establishment of project-specific environmental goals. The environmental assessment process for building material involves three basic steps.

1. Survey
2. Evaluation
3. Selection

1. Survey: This step involves gathering of all technical information about the material which can be indentified, including manufacturers' information such as Material Safety Data Sheets (MSDS), Indoor Air Quality (IAQ) test data, product warranties, source material characteristics, recyclable content data, environmental, performance and durability information. In addition, this step may also involve investigating other issues like building codes, government regulations, building industry performance, model green building product specifications etc. Such survey will help in identifying the full range of the project's material options.

2. Evaluation: This step involves confirmation of the technical information, as well as filling in information gaps. For example, the evaluator may request product certifications from manufacturers to help sort out possible exaggerated environmental product claims. Evaluation and assessment is relatively simple when comparing similar types of building materials using the environmental criteria. However, the evaluation process is more complex when comparing different products with the same function. Then it may become necessary to process both descriptive and quantitative forms of data.



A life cycle assessment (LCA) is an evaluation of the relative "greenness" of building materials and products. LCA addresses the impact of a product through all of its life stages. This tool that can be used is the LCA methodology through a software evaluation like BEES (Building for Environmental and Economic Sustainability) software. Such software can easily be developed or otherwise available commercially. It allows users to balance the environmental and economic performance of building products.

3. Selection: This step often involves the use of an evaluation matrix for scoring the project-specific environmental criteria. The total score of each product evaluation will indicate the product with the highest environmental attributes. Individual criteria included in the rating system can be weighted to accommodate project-specific goals and objectives.

Advantages of Green Building Materials

Green building materials offer some or all of the following benefits to the building owner and building occupants:

- Reduced maintenance/replacement costs over the life of the building
- Energy conservation
- Improved occupant health and productivity
- Life cycle cost savings
- Lower costs associated with changing space configurations.
- Greater design flexibility

Sustainable Development or Sustainable Building Concept

It is a development that meets the needs of present without compromising the needs of future generations to come. The concept of sustainable building incorporates and integrates a variety of strategies during the design, construction and operation of building projects. The use of green building materials and products represents one important strategy in the design of a building. As more than 40% population is living in the cities so these cities should be made Sustainable first.

Waste Generation

Huge amount of waste is generated every day in each city. For example, Delhi alone generates more than 6,500 tons of Garbage every day. By 2020 its amount will reach 1800 tons every day. Such amount of waste disposal is a Herculean task and will need space for dumping and fuel costs for transportation of waste upto disposal areas. In the cities the disposal areas are outside city which are miles apart. Therefore, this waste must be processed at nearby places and reused as much as possible.



Local processing of the waste will not only keep the city clean but also generate energy and resource materials. It will also generate huge employment opportunities and give several other advantages and thus sustainable.

Some Benefits of a 'Green Building Concept

- Green buildings are designed to be healthier and having more enjoyable working environment. Workplace qualities that improve the environment and which help in developing the knowledge of workers and may also reduce stress and lead to longer lives for multidisciplinary teams.
- Reduced energy and water consumption without sacrificing the comfort level.

- Significantly, better lighting quality including more day lighting, better daylight harvesting and use of shading, greater occupancy control over light levels and less glare.
- Improved thermal comfort and better ventilation.
- Limited waste generation due to recycling process and reuse.
- Increase productivity of workers and machines. It is reported that productivity can be increased by about 25% while following such green house norms.
- Attracting and retaining the best employees, can be linked to the benefits and qualities of workers receive, including the physical, environmental and technological aspects.
- Green building activities result in reduction of operating costs by 25-30%.

Need to Develop A Green Building Policy (GBP) in INDIA

The Green Building movement in India was started in 2003 and received a major impetus when, CII – sohrabji Godrej Green Business Centre Building in Hyderabad became the first green building in India which was awarded with the prestigious and the much covered LEED (Leadership in Energy and Environmental Design) Platinum rating by the US Green Building Council (USGBC) and also became the world's greenest Building in 2003.



LEED India Concept

The Indian Green Building Council (IGBC) designed and started. The Leadership in Energy and Environmental Design (LEED – India) system is called Green Building Rating System. It is an internationally accepted benchmark for the design, construction and operation of high performance green building.

LEED certified buildings utilize less toxic materials, low-emitting adhesives & sealants, paints, carpets, and composite woods, and indoor chemical & pollutant source control.

What Is To Be Done?

Essential to an effective green building policy that delivers energy efficiency is by using simple, standardized and better energy performance materials throughout the construction in all phases of building design and operation. Thus, to have green Building concept, some or all of the following steps need to be followed.

- Plan each office / home's orientation to the sun to harness energy and shield it from heat i.e. Proper Building Orientation and Landscape and emphasis on natural light.

- High efficiency insulated glass windows can reduce requirements of energy during the operation or use of Building. Thus it will emit minimum carbon dioxide CO₂.
- Minimize Cement / concrete consumption through innovative architecture and Structural Design for optimum use of cement.
- Maximum use of waste Pozzolanic material like fly ash in Concrete Mixture along with Cement.
- Non – toxic paints should be used on the walls. These use water rather than petroleum based solvents and do not emit smog producing pollutants. This will improve Indoor Air Quality.
- Use Sewage treatment and recycle the waste water from bathroom and Kitchen.
- Organic waste, both solid and liquid, produce a large quantity of Methane which is 23 times stronger than CO₂ as green house gases (GHG). Such organic waste must be processed to tap gas which can be used as cooking gas or fuel.
- Provide Rainwater Harvesting systems on the roof of Building to collect water, which can be used to flush Toilets or for general wash or recharge the ground.
- Use Solar Panels to heat bath water and generate little electricity for use when there are power cuts instead of using Invertors.
- Install simple Wind turbines on the roof, which can be used to generate electricity for use when there is no power.
- A rain garden can help reduce storm water runoff.
- Use Drip Irrigation to water the plants or Native landscaping around building. This requires less water for irrigation and maintenance.
- Government or Municipal corporations should provide enough incentives like tax rebates or tax breaks for green buildings during approvals.
- Government should make basic green norms – like gray water recycling and rainwater harvesting compulsory for all new buildings in all 5,161 cities, towns and urban agglomerations in the country.

