

Cost Benefit Analysis In PMAY And MHADA

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Abstract- Housing is a basic need of human being. But this is out of the means of low income householder who constitute majority of the population in the country. Cost benefit analysis become must in civil engineering. In this report some methods of Cost benefit analysis given. First of all in this report present situation present trends and future trends about affordable houses in India is given. This report is mainly concentrated on chapter construction materials. The Cost-Benefit Analysis denotes a methodology for a project evaluation and also a fundamental concept on economic matters. In this respect, the present article reviews some plain concepts which, if misjudged, may lead to assign an economic meaning to usual results having a strictly financial scope. Lying on this premise, the conclusion focuses on the needing for broader categories to evaluate the economic cost-benefit relationships of an investment project. In this paper studying Pradhan Mantri Awas Yojana and MHADA scheme regarding cost benefit analysis

Keywords- Pradhan Mantri Awas Yojana, MHADA and Cost Benefit Analysis

I. INTRODUCTION

Cost–benefit analysis (CBA), sometimes called benefit costs analysis (BCA), is a systematic approach to estimating the strengths and weaknesses of alternatives (for example in transactions, activities, functional business requirements or projects investments); it is used to determine options that provide the best approach to achieve benefits while preserving savings. The CBA is also defined as a systematic process for calculating and comparing benefits and costs of a decision, policy (with particular regard to government policy) or (in general) project.

Broadly, CBA has two main purposes:

1. To determine if an investment/decision is sound (justification/feasibility) – verifying whether its benefits outweigh the costs, and by how much;
2. To provide a basis for comparing projects – which involves comparing the total expected cost of each option against its total expected benefits.

CBA is related to (but distinct from) cost-effectiveness analysis. In CBA, benefits and costs are expressed in monetary terms, and are adjusted for the time value of money, so that all flows of benefits and flows of project costs over time (which tend to occur at different points in time) are expressed on a common basis in terms of their net present value.

Closely related, but slightly different, formal techniques include cost-effectiveness analysis, cost–utility analysis, risk–benefit analysis, economic impact analysis, fiscal impact analysis, and social return on investment (SROI) analysis.

1.1 Theory

Cost–benefit analysis is often used by organizations to appraise the desirability of a given policy. It is an analysis of the expected balance of benefits and costs, including an account of foregone alternatives and the status quo. CBA helps predict whether the benefits of a policy outweigh its costs, and by how much relative to other alternatives, so that one can rank alternate policies in terms of the cost–benefit ratio. Generally, accurate cost–benefit analysis identifies choices that increase welfare from a utilitarian perspective. Assuming an accurate CBA, changing the status quo by implementing the alternative with the lowest cost–benefit ratio can improve Pareto efficiency. While CBA can offer a well-educated estimate of the best alternative – perfect appraisal of all present and future costs and benefits is difficult –, perfection in terms of economic efficiency and social welfare are not guaranteed.

The concept of CBA dates back to an 1848 article by Jules Dupuit and was formalized in subsequent works by Alfred Marshall. The Corps of Engineers initiated the use of CBA in the US, after the Federal Navigation Act of 1936 effectively required cost–benefit analysis for proposed federal waterway infrastructure. The Flood Control Act of 1939 was instrumental in establishing CBA as federal policy; it demanded that "the benefits to whomever they accrue [be] in excess of the estimated costs."

1.2 Definition

“A sustainable building is one which uses less water, optimizes energy efficiency, conserves natural resources, generates less waste and provides healthier spaces for occupants, as compared to a conventional building.”

The practice of creating structures and using processes those are environmentally responsible and resource-efficient throughout a building’s life-cycle from sitting to design, construction, operation, maintenance, renovation and deconstruction. This practice expands and complements the classical building design concerns of economy, utility, durability, and comfort. Sustainable building is also known as a sustainable or ‘high performance’ building.

1.3 Elements of Sustainable Building

There are 4 elements of Sustainable Building. That shows the main points required to be considered while designing any building.

- Smart Design
- Energy Efficiency
- Eco Materials
- Water Conservation

Buildings can incorporate many sustainable features, but if they do not use energy efficiently, it is difficult to demonstrate that they are truly sustainable. In fact, given that the term “sustainable building” can be somewhat vague, some people prefer to use the term.

1.4 Impacts of Conventional Buildings That Sustainable Buildings Seek To Rectify

The environmental impacts of buildings are enormous. Conventional buildings use large amounts of energy, land, water, and raw materials for their construction and operation. They are responsible for large sustainable house gas (GHG) emissions as well as emissions of other harmful air pollutants. They also generate large amounts of construction and demolition (C&D) waste and have serious impacts on plants and wildlife. An analysis of these issues demonstrates the scope of the problem.

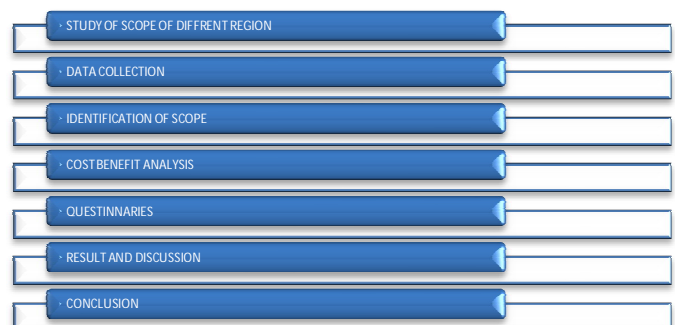


Fig 1: benefits of sustainable building

1.5 Objectives of study

- To identify the rules and regulation used for PMAY and MHADA scheme
- To study implementation of sustainable building for PMAY and MHADA scheme.
- To prepare cost analysis for selected case study and compare with sustainable building.
- To prepare questionnaires survey for given work from contractors, builders , consultants and architects
- To perform cost benefit analysis with sustainable building for PMAY and MHADA scheme

II. METHODOLOGY



under PMAY, preference will be given to differently abled and older persons.

Eligibility Criteria

Condition for PMAY: (a) Beneficiary max age 70 years, (b) EWS (Economic Weaker Section) annual income Less than Rupees 3 Lac and LIG (Lower Income Group) Annual Income 4,00,000 to 6,00,000 Lac INR as well as Mid Income group since Feb 2017, and (c) The beneficiary should not have an own dwelling unit on the name of any family member in any part of India. The houses given under this scheme will be owned by females or jointly with males.

Phases

3 Phases of PMAY envisage starting and completing the house construction work as follows:

- PMAY Phase-1 from April 2015 to March 2017 to cover 100 cities.
- PMAY Phase-2 from April 2017 to March 2019 to cover additional 200 cities.
- PMAY Phase-3 from April 2019 to March 2022 to cover the remaining cities.

3.2 Basic Strategy For Public Private Partnerships For Affordable Housing.

□ Key Objectives of using PPP in Housing/Affordable Housing

The fundamental strategy underlying Public Private Partnerships as an implementation strategy for affordable housing is to combine the strengths of the private sector with those of the public sector in order to overcome challenges faced by affordable housing and to achieve superior outcomes.

However, the success of PPP as a strategy will depend critically on designing PPP structures that make an appropriate allocation of risks, responsibilities, rewards and penances and create the incentives for value creation. This is at the heart of the policies and contractual structures to be created for different PPP strategies to address the challenge of affordable housing.

□ Solving for the Affordable Housing Challenge

Alternative Choices of PPP Strategies In the last chapter, problems of access to and cost of land, construction

and operating inefficiency, and lack of access to low cost financing were identified as key obstacles for providing affordable housing. Various ways in which PPP can try to address these obstacles are described below:

1. **Enhancing Access to Low Cost Land:** The issue of availability and cost of well-located land is central to the issue of affordable housing. Depending on project location, land costs can vary anywhere between 20 to 60% of the total project cost. However, the potential for directing privately owned land towards affordable housing at a low cost is limited. Through appropriate PPP structures the private sector can be incentivized to do so by adopting one or more of the following strategies.

A. Private Land for affordable housing in exchange for permission for more intensive utilization of land

Under this strategy, government seeks to leverage and monetize its powers to regulate land use. In exchange for giving permission to private sector entities for more favorable (intensive) utilization of land parcels owned by them, the government can require a portion of that land or other land to be made available for affordable housing. All schemes that seek to trade higher FAR/FSI granted to the private sector for affordable housing fall in this category. This kind of PPP is essentially a form of cross subsidy where the private sector is made to direct a portion of higher earnings provided by a higher FAR/FSI for the provisioning of affordable housing.

B. Private Land for affordable housing in exchange for permission to build high-end housing

Under this strategy, Government seeks to monetize its power to regulate real estate development and use it to get private sector to provide land and affordable housing. Private sector builders are required to provide affordable housing as a condition to be allowed to create high-end housing for which there is a profitable market. It can be safely assumed that under this strategy the builder shall, effectively, pass on a substantial part of the “burden” of the cost of creating affordable housing to the consumers of the high-end component of the project. Thus, the higher income customers will effectively provide the affordable housing, in the form of a cross-subsidy created under this PPP strategy, to low-income customers.

C. Government Land for affordable housing by unlocking unutilized/underutilized parcels of government owned lands

This can be a direct way of enhancing the land pool, available for creation of affordable housing. Many Central and State government departments and agencies own vast tracts of land, in excess of their requirements in the foreseeable future, those are very poorly utilized and are often illegally encroached. A systematic policy and effort can bring such lands under affordable housing and further be made available to the private sector, at a low cost, to develop and build affordable housing projects using private capital and efficiencies under suitable PPP structures. The housing created under this PPP strategy will effectively be in the form of a subsidy consisting of public lands provided by government to low-income clients.

D. Land for affordable housing through Redevelopment of underutilized urban areas

In Indian cities like Mumbai, Delhi and Kolkata, vast tracts of some of the world's most expensive land can today be found covered by slums. Even when the lands are privately owned and developed, they often host large number of ramshackle single storey or double storey tenements under CI sheet roofs. These structures are more like make shift temporary structures rather than urban buildings on expensive land. More often than not such poor and inefficient utilization of privately owned urban lands is the consequence of policy bottlenecks, archaic land use restrictions, rent control acts, and land title issues. Policy reforms accompanied by PPP projects that seek to redevelop such unutilized/underutilized urban areas through area redevelopment programs should be at the heart of the approaches to address the affordable housing challenge. These are-development projects canco-create affordable housing along with commercial buildings and high-end housing.

Redevelopment represents a win-win strategy in which all parties gain by better and more intensive utilization of the scarce land resources. Public Private Partnerships in such programs have the potential to create value by combining government's abilities to marshal public lands with private sector's ability to create world-class designs, construct superior real estate and unlock its value through creative marketing. Significantly, governments also play the role of a market-maker by providing regulatory oversight and playing the role of a referee and honest negotiator that help create confidence and trust among small land and property owners and tenants to participate in the redevelopment exercise with

the large developers. A substantial part of the value so created can then be directed towards providing affordable housing.

E. Land for affordable housing through Policy reform on Change of Land Use (CLU) of Agricultural Lands

The several approaches outlined above are led by State interventions and can make an important contribution to the task of directing more land to affordable housing. However, the size of the challenge of affordable housing in India, like poverty, is a much larger problem. It cannot be solved through a beneficiary oriented, case-by-case approach alone.

Ultimately, a sizeable and sustainable response from PPP will require strategic changes in policy to allow a self-propelled market to address the challenge of cost of land and affordable housing on a large scale with a low, or no dependence on direct interventions by government through subsidies or cross subsidies. The prices of well-located lands have to decline to levels at which the low income and poor citizens of India can participate in the market. For the prices of land to decline to affordable levels, government can create an enabling environment, for a dramatic increase in the supply of land and of vertically dense development of houses and supporting infrastructure, through a controlled but easy and inexpensive process of change in land use. The role of government shall be to create master plans that are transparent and sacrosanct. Case by case approval of change of land use should be neither allowed nor required. The regulatory functions of government should be separated from the development function and integrated with the planning function. Most importantly, governments must lead this opening up of new areas for real estate development by providing trunk infrastructure consisting of roads, water, sewage, electricity, etc. and public transport that would enable people to lead productive lives. This would be the ultimate Public Private Partnership at a strategic level that has the potential of addressing the problem of affordable housing at its root. Further, the trunk infrastructure can in turn be provided bya combination of appropriately structured PPP as well as public sector projects. The PPP projects for infrastructure can be implemented either on a standalone basis or can be integrated with affordable housing projects.

2. Reducing Costs through Efficiency Gains in Construction and Operations

The private sector can be expected to contribute to efficiency gains in the development of land, construction, operations and maintenance for affordable housing through the use of technology, better management and construction

practices. In addition the private sector should be expected to bring economies of scale from large projects and by involving a larger number of private partners. Delivery of projects at a lower cost and, without cost and time overruns, can potentially contribute to availability of affordable housing. In order to achieve these positive outcomes, PPP projects will need to be structured such that they create appropriate incentives for good performance by the private sector partner.

3.3 Study Area

3.3.1 Mhada Project

A great transformation from port city to textile mills city Mumbai was at around 1980's which boosted city economy. From then till now many such mills like Dawn Mill, Zenzi mill, Phoenix mill, Kamla mills at mill prominent locations like Worli, Lower Parel, Byculla, Parel and Cotton Green in western and central Mumbai which was once survival source to lakhs of workers has been continuously been converted to High rise buildings (Skylines) and commercial complexes which is the demand of today and can fetch lucrative money for developers. Let's see the historic mills, few of which still remain with iconic 200 feet tall Chimneys which will remind us always about the Historic and Heritage Bombay once we had

With the sudden change in Mumbai development, lifestyle needs, commercial skylines demand by corporates, commercial growth in terms of people taste and preference, the real estate growth at prime locations of south Mumbai like Lower Parel soared and till date the development of residential and commercial skylines is at high washing away the heritage and historic Mills and their chimneys. Our Chief Minister of State Shri. Devendra fadnavis is working around to justify the mill workers with low cost homes which they are waiting since long and fast ageing and developing city creates fear of future. Hope our CM gets the smiles back as soon possible. Let the Mumbai grow, But not at the cost of 100% destruction of Heritage and Historic structures and never with few faces smiling and many with tears

The redevelopment of Mumbai's cotton mills began in 1992, when efforts began to demolish the numerous cotton mills that once dotted the landscape of Mumbai, India, to make way for new residential and commercial buildings, as part of the wider modernization of Mumbai. Gradually, the government relaxed its norms that once restricted the redevelopment of mill lands, and as a result, numerous high-profile builders quickly took possession of these land parcels. Between 1990 and 2010, the majority of these mill lands were acquired and redeveloped.

Bharat Potdar Mill, Lower Parel , Mumbai

Name of Scheme: Bharat Poddar Mill, Lower Parel.

Location: Bharat Poddar Mill, Lower Parel

Type of Schemes: Mill Workers & Transit Type

Total no. of tenements proposed: 241 T/S

Carpet area: 228.30 sq.ft.

Rooms per tenements: 1 BHK

Current status: Full O.C. Obtained (work completed)

Location Plan

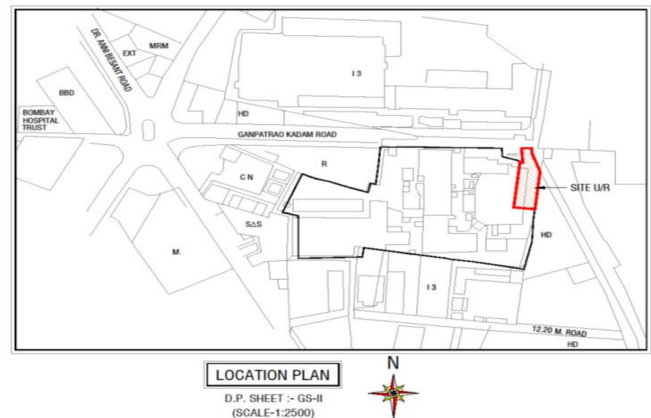


Fig 4.1 Location of the site

3.3.2 Devraai Residential building under MHADA



Site Information

Name of the site: Devraai Phase-2

Location : Kiwale, Pune

Site Area : 2125 m²

Built up Area : 3103.48 m²

Air-conditioned Area : 0 m²

Non Air-conditioned Area : 3103.48 m²

Typology : Residential apartments

Energy consumption reduction : 84.5% reduction in energy consumption compared to
 Energy Performance Index (EPI) : 15.5 kWh/m²/year
 Renewable Energy : Rated capacity of solar PV installed on site – 3 kW

Solar hot water system met 96% of the conventional energy demand for hot water
 Year of Completion : 2017

The following strategies were adopted to reduce the building impact on the natural environment

Construction of a basement+parking+2 floors residential building of 3103.48 sq.m. The residential building has parking in the basement and at the ground floor. At the first and second floor 4 flats; each of 94 sq.m. Area are designed.

The budget of the building is around 95lakhs. The duration for completion of the work is 10 months. The work commenced on march 15, 2017. The owner and contractor of the building is the same private firm called “Devraai Phase-2” located in Kiwale, Pune. The firm is a small enterprise which

has executed projects worth Rs. 5crores. The quantities and rates were roughly obtained from the Engineer in-charge of the site.

	Sai Construction-Ganesh Salunkhe	Sidhhi Mr.
Name Of The Contractor		
Name Of The Project	Devraai Phase-2'	
Location Of Project	Kiwale, Pune	
Total Duration	10 Months	
Budget	Rs 19 Lakhs	
Total Build Up Area	3103.48 m ²	
Start Date	15-Mar-17	
Substantial Completion Of The Project	15-Jan-18	
Final Acceptance Date Of The Project	20-Jan-18	

Following are the Infrastructure cost for following area

Sr. No	Sector	Sector – Unit	Proposed Cost for 2018 (in ` Lakhs)
Physical Infrastructure			
1	Water Supply	Running length of sub line (Km)	2593.02
		Raising Main (Km)	564.11
		Individual taps (No)	0.00
		Overhead water tanks (No)	1802.63
		Sub Total	4959.76
2	Sanitation	Length of Underground Sewer Line (Km)	8633.71
		Length of storm water Drainage Lines (Km)	8633.71
		Individual toilets (No)	9015.52
		Sub Total	26282.93

3	Solid waste management	Garbage dumping Bins (No)	470.83
		Sub Total	470.83
4	Roads	Length of Approach roads (Km)	345.61
		Length of Internal roads (Km)	11384.51
		Sub Total	11730.12
5	Street Lighting	Street lights (No)	1529.05
		Sub Total	1529.05
Total Physical Infrastructure			44972.69

IV. CONCLUSION

- At present both the conventional and cost effective technologies are available in the field of housing construction. Among these, the cost-effective technology has the advantage of economy in construction, saving of time and energy and of the optimum use of materials.
- Since the building materials are locally available the huge transportation costs incurred for transporting the materials and the delay in construction can be avoided. Thus, cost-effective technology, no doubt, can be opted as a permanent remedy to overcome the severe housing inadequacy in the country.
- Try to use locally available building materials and avoid high priced scarce materials. By doing so, we can avoid unnecessary costs and delay in construction.
- Before embarking upon a particular housing project, try to understand its 'cost effectiveness when compared to other technologies.
- It is better to avoid wasteful expenditure by giving garish colours and paints on housing - "let the bricks look bricks".
- A clear-cut understood strategy is a must about structural planning and architectural designing of housing.
- The reduction in thickness of wall construction is good. It will assure not only the economy in construction but also gives more space for rooms by reducing the difference between plinth area and floor area.
- It will be better to concentrate more on internal facility rather than giving external outlook for housing

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