

# Towards Establishing a New Paradigm for Understanding “Affordability” in the Context of Housing for the Urban Poor

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**Abstract:** This paper cites relevant provisions in the National Housing Policies, where the thrust is clearly on Housing for the Urban Poor, along with the inclusion of research outcomes in the area of alternative materials and technology in order to lower construction costs. The intention has been "Affordable Housing for all, hence the policies create room for standardization of building components, to facilitate ease and speed of construction. All Government instruments appear to be in place for receiving innovation; As a spin off to the space created for action research showcasing alternative low cost solutions to the acute housing shortages on account of non affordability, the research focus needs to shift to identification of obstacles that exist in the mobilization, implementation, and transformation of the intent and content of the policies in to a working reality. It is the action that has to follow the policy formulation that needs to be detailed out, if one is serious about the policies in the first place.

**Index Terms-** Affordable Housing, Economically Weaker Sections, National Policies, Task Force, Urban Poor

## I. INTRODUCTION

**B**amboo Reinforced Concrete (BRC), an innovation, is ready to replace the costliest structural material (steel) in RCC columns beams and slabs, after it has been customized technologically as an ideal material to suit budget mass- housing for the Urban Poor, in cities close to Bamboo growing regions in India.

However, before the material is proven to be guaranteed cost minimizers; definitions, policies, strategies, action plans, building regulations, the administrative, financial and managerial frameworks, have to be examined to assess and evaluate the possibilities of such a product penetrating the mainstream housing market. The Design execution construction occupation and implementation through various Government schemes offering a standard affordable Dwelling Unit will be guided by the norms set by the new housing and urban habitat policy 2007. Right from for its size, location, financial outlay, public finance, subsidies, infrastructural package, income and expenditure pattern study and other terms and conditions if any have been spelt out. Capacity building measures, Manpower Training, participation norms etc. are of utmost importance involving

special target groups, stakeholders and beneficiaries, if technology Transfer is to be expected. Do the Housing Policies stand firm to welcome drastic technological innovations? Do the definitions of affordable housing allow for non conventional materials? Are Affordable houses actually affordable, by the poorest of the poor, who are below poverty line? Where does bamboo stand with respect to affordability, appropriateness, as defined by the committee led by Mr. Deepak Parekh, Chairman – HDFC Ltd? The Paper seeks to place the “designed” bamboo dwelling unit against the backdrop of The National Urban Housing and Habitat Policy, 2007.

## II. TASK FORCE ON AFFORDABLE HOUSING FOR ALL

99% of the total housing shortage is located among the Economically Weaker Sections (EWS) and Lower Income Groups (LIG) of the Urban Population. The commencement of 11th Five Year Plan period itself saw a deficit of 24.7 million units. In order to meet this challenge The Ministry of Housing & Urban Poverty Alleviation created a High Level Task Force in January, 2008 to examine the issues related to the provision of Affordable Housing for All led by The Chairman – Housing Development and Finance Corporation Limited ( HDFC Ltd.)

### A. The Issues addressed in the Report by the Task Force

1. Developing innovative financial instruments for bringing flexibility in the housing market and examining various fiscal and spatial incentives for increasing supply of houses to economically weaker sections and Low Income families.

2. Affordability of all categories including the Economically Weaker Sections (EWS), Low Income Groups (LIG) and Middle Income Groups (MIG) in terms of their income and consequent paying capability as well as other factors; recommending ways and means of enhancing accessibility of EWS/LIG groups to housing with suitable governmental support; and Recommending ways and means of enhancing accessibility of MIG groups to housing.

3. Examining the framework of Regional Planning and Master Planning with a view to enhancing the supply of developed land and recommending legislative measures for accelerating the supply of housing units for the urban poor.

4. Recommending measures for promotion of low cost building technologies;

5. Suggesting steps for enhancing the supply of rental housing;

6. Assisting the Ministry in devising an integrated strategy for in-situ slum up gradation with a view to improving the quality of habitat as well as providing the urban poor with places to work and sell; and

7. Advising the Ministry about various types of programme initiatives with the aim of achieving the goal of “Affordable Housing for All”.

*B. Recommendations of the Task Force*

The Task Force has strongly recommended the need for ‘Affordable Housing’ and mentioned that delay in addressing the affordable housing problem would seriously affect India’s economic growth and poverty reduction strategies. The Task Force notes that housing is central to economic growth and has multiplier effects on employment, poverty reduction etc. The Task Force estimates that alleviating the urban housing shortage could potentially raise the rate of growth of GDP by at least 1-1.5 percent and have a decisive impact on improving the basic quality of life.

*C. Specific Recommendations of the Task Force*

1. Public policy should be “Affordable Housing Centric”

2. To have a uniform definition of affordable housing for a country as large and diverse as India, using the concept of “one-size-fits-all” is counter-productive. However, the Task Force has suggested the following parameters for the purpose.

1. Government to may undertake a separate exercise to estimate the number of households on the basis of these parameters. The Task Force visualizes the size of the household as five members

2. Data on initiation and completions of housing schemes at the national and state level be made readily available and be collected through an institutional structure.

**III. THE DEFINITION AFFORDABLE HOUSING AS PUT FORTH BY THE TASK FORCE UNDER THE CHAIRMANSHIP OF MR DEEPAK PAREKH CHAIRMAN HDFC**

*A. Affordable housing*

1. This is a term used to describe dwelling units whose total housing costs are deemed affordable to a group of people within a specified income range. A primary factor in housing affordability is household income. The most common approach is to consider the percentage of income that a household is spending on housing costs. In the US and Canada, a commonly accepted guideline for housing affordability is a housing cost that does not exceed 30 per cent of a household's gross income.

Table 1: Affordability levels and Income Categories Deepak Parekh Chairman

Income Group	Size	Cost	EMI/Rent
	Carpet Area in Sq. Ft	As a Multiple of Household Gross Annual Income (x)	As a Percentage of Gross Monthly Income
<b>EWS/LIG</b>	300-600	< 4x	< 30%
<b>MIG</b>	< 1200	< 5x	< 40%

2 EWS/LIG categories of households: A unit with a carpet area between 300 and 600 sq ft, with the cost not exceeding four times the household gross annual income and the EMI/rent not exceeding 30 per cent of the household’s gross monthly income. Household size: 5

3. MIG categories of households: A unit with a carpet area not exceeding 1,200 sq ft with the cost not exceeding five times the household gross annual income and EMI/rent not exceeding 40 per cent of the household's gross monthly income. Household size: 5

**IV. RESOURCE MOBILISATION**

*A. Land for Affordable Housing*

1. Additional lands may be brought into urban usage on a regular basis

2. Simplifying procedures and processes for land acquisition and conversion of agricultural lands for urban use.

3. Reviewing the processes of Master Planning and effecting such changes as are necessary for making a proper assessment of land requirements and allocation of such lands for different uses, including lands for affordable housing.

4. Treat affordable housing as a ‘public purpose.’

5. Upward revision in the FAR/FSI, across cities of different sizes commensurate with investment in infrastructure that it will necessitate.

6. Implement in-situ development in an integrated manner

7. Create healthy rental housing market under programmes like Jawaharlal Nehru National Urban Renewal Mission (JNNURM)

8. Revamp role of State Housing Boards and encourage them to focus on playing a more active role in the provision of affordable housing, even if it is through public private partnerships

9. Funds raised through the sale of land transactions by State Housing Boards must be ring fenced, with a defined proportion redeployed only for affordable housing

10. Develop detailed critical space plans, which incorporate infrastructure intensive cluster development.

11. Impose an impact fee on those benefiting from higher FAR/FSI.

12. In-situ development on public lands for addressing affordable housing issues in partnership with the Government.

13. ‘Security of tenure’ is to be recognized as an important and integral tool for relieving pressures on the housing market. This may undertaken through regularization of settlements, community or cooperative ownership, security via lease, use rights, which enables in-situ development to take place.

14. The recommendations on land related issues i.e. bringing in additional lands, upward revision in the FAR/FSI and in-situ development have to be implemented in an integrated manner.

15. Improve the speed of transactions through cadastral, computerized land records and application of e-governance to land transactions.

16. Commission a professional study, to examine the range of issues covering urban land and recommend a comprehensive,

long-term urban land policy. Given the environmental concerns, “sustainable” methodologies need to be developed.

17. Need to foster an environment that would make rental housing for EWS/LIG categories a worthwhile activity to invest in.

*B. Fiscal and Financial Framework*

1. Increase JNNURM funds for affordable housing by 100 percent and a part of the funds be used for direct provisioning of housing for poor urban households.

2. A part of the funds be also used as supplements for in-situ development to be routed through the Non-Government Organizations (NGOs) and Community Based Organizations (CBOs).

3. A cess of 0.5 percent on all central government taxes be credited to a dedicated Shelter Fund, to be managed by the National Housing Bank, with a budgetary support of equal amount, so as to make a long-term impact on affordable housing.

4. Permit housing finance institutions (HFIs) to access long-term External Commercial Borrowing (ECB) market, since the HFIs require long-term funding sources at the lowest cost possible to pass on to the ultimate borrowers.

5. Reinstate income tax deduction under Section 80 IB of the Income Tax Act for developers engaged in affordable housing projects

6. Extend scope of Section 36(1) (vii) of the Income Tax Act to include housing finance institutions

7. Role of State Housing Boards be revamped and the Boards be encouraged to focus on playing a more active role in the provision of affordable housing, even if it is through public private partnerships.

8. Funds raised through the sale of land transactions by State Housing Boards must be ring fenced, with a defined proportion to be redeployed only for affordable housing.

9. Modifications in Income Tax Act for HFCs and developers engaged in affordable housing projects.

10. Reduction in stamp duty rates and registration fee for affordable housing to 2% ad valorem uniformly in all states.

11. Levy a flat charge of Rs. 1,000 on registration of equitable mortgages.

12. Bring “affordable housing” under the infrastructure definition.

13. Establish a housing finance company whose main focus will be on microfinance and support and scale up existing microfinance companies by effecting changes in their regulations that constrain their operations

14. Promote use of new and alternate technologies in construction

15. Set up a dedicated institutional framework to promote affordable housing

16. Promote household savings in the informal sector

17. Establish a real-estate regulator that could serve as a single window for overseeing and monitoring the affordable housing agenda, regulate activities, promote policy reform, etc. Until then, set up ombudsman-type bodies at the state level.

*C. Technology for Cost Effectiveness*

A low-rise high-density built form is recommended as an appropriate measure for upgrading, redevelopment or construction of housing projects for the lower income groups.

*D. Institutional Framework*

1. The real estate should be regulated through a regulator and pending the legislative process for having real estate regulators in place in the States, consideration should be given to set up Ombudsman type bodies at the State level.

2. The role of the housing and real estate Ombudsman would be to monitor JNNURM housing projects, ensure that proper appraisals are being done, collect relevant data, identify beneficiaries for JNNURM housing projects and address consumer grievances.

V. ANALYSIS

*A. Concept of Affordability*

Affordability is generally viewed as a ratio of price/rent of housing to income of household. The ratio differs for different income groups. Lower income groups can afford to pay much less proportion of their income for housing than that of higher income groups. While keeping the affordability ratio for LIG and MIG as given by the Parekh Committee, the ratio for EWS needs to be lowered to not more than 20 per cent for EMI/rent and 3 times household’s gross annual income for cost of house.

Another category of urban poor which is also (or ought to be) part of government’s inclusive policy of providing Affordable Housing for all namely BPL (Below Poverty Line). This category needs to be considered separately and not as part of EWS. The affordability level of households in this category would be no more than 5 per cent of the income. The income categories and affordability levels thus can be defined as follows:-

Table 2: Affordability levels and Income Categories

Income Group	Income	Cost	EMI/Rent
	Monthly Rs.	As a Multiple of Household Gross Annual Income (x)	As a Percentage of Gross Monthly Income
<b>BPL</b>	<=2690	< 2x	5%
<b>EWS</b>	2639 - 3300	< 3x	20%
<b>LIG</b>	3301 - 7300	< 4x	< 30%
<b>MIG</b>	7301 - 14500	< 5x	< 40%

Taking the income classification of different income groups as defined by the Government of India, the affordability levels would be as follows;

Table 3: Income classifications and capacity to afford EMI/Rent/Month

Income Group	Income	Affordable EMI/Rent per Month (in Rs)	Affordable cost of the House (in Rs)
	Monthly Rs.	In Absolute Terms	In Absolute Terms
<b>BPL</b>	<=2690	<= 134	<=64500
<b>EWS</b>	2639 - 3300	538 - 660	96876--118800
<b>LIG</b>	3301 - 7300	990 - 2190	158448--350400
<b>MIG</b>	7301 - 14500	2920 - 5800	438000--870000

Not all the households in each category would be concentrating at the upper end of the spectrum. Affordability levels of most of the poor would be much lower than what is being communicated by the figures in Table 3. It is also quite evident, that at current prices these cannot fetch a dignified house in most urban areas. It is important to define the lower limits for each income category also in order to plan for provisioning of all for lowest of income group in each category. Affordability is to be defined not only in terms of purchase price of the house (in case of ownership housing) or rent but must also include other charges/fees (registration charge, search cost etc.) payable at the time of purchase/renting of the house as also recurring cost over the lifetime of stay in the house. These would include taxes, maintenance cost, utility cost. One may also include cost of commuting to work place or other places of different members of family.

*B. Affordable vs. Adequate Housing*

Given the limitations on ATP (Affordability to Pay) of various (and especially the lowest) income groups, housing options for these are decided in terms of whatever is 'possible' within these limits. Housing defined as being a package of multiple characteristics including location, tenure, size, infrastructure – compromise is made mainly on locations and size. In fact issue of affordability, especially for the poor is closely linked with location of housing. Most of the poor work in the informal sector. Most appropriate locations for these are near their work places. Since, most of them get paid according to work done, time consumed in commuting from places far off from (potential) work places would mean fewer hours of work, lower income and lower ATP. The increased cost of commuting from far off work places would have a further negative impact on 'money' available for housing. Besides, the objective of providing Affordable Housing for all is not only to provide housing within their affordability limits but to provide a superior package of housing than what they have at present. The trade-off between location and tenure/infrastructure may not always be a preferred option for the poor.

Similarly, provision of small sized (one room) units with minimal area to fit within the affordability limits of the lower income groups needs to be reappraised. At present, the

enunciation of housing problem in various Government documents is not only in terms of dilapidated housing conditions but also large number of households living in congested (one room units) conditions. Planning for provisioning of one-room units is not solving the problem of housing. It may also be noted that housing is a durable product and once built will stand for next 30-40 years. By providing for small sized high-density units one would be replacing one types of slum with other type of slums. The objective of Housing policy thus should be not only to provide Affordable Housing but to provide housing which satisfies minimum adequate norms. One is to define Adequate.

Housing and then deliberate as to how to make this housing affordable for different income groups.

The affordability limits (in terms of income prices ratio) are defined for the country as a whole. So is the size of housing which is within this affordability limit. It is quite obvious that such cannot be the case for all urban areas in the country. Thus there may be very few households in Mumbai with incomes below the EWS limit but still find it impossible to afford even one sq.ft of land in the city. In some small cities, income levels of the poor may be at the lower end of EWS income limits and despite low prices of housing, the problem of un-affordability will remain. There will be not only interstate but also intra state differences in affordability levels of income groups. Housing is a location specific issue. The income limits, the affordability levels of the EWS, LIG and MIG need to be defined at the local level. Formulating policies based on such generalized affordability norms may not be bring about desired results.

Another important issue, which needs to be considered, is, whether the definition of Adequate Housing would be the same for different types of households. It must be recognized that households differ not only according to income but also according to household size, composition of household, profession, level of skills, stability or otherwise of job etc. The housing requirement and preferences would vary accordingly. The definition of Adequate Housing for each household cannot be the same. Thus housing requirement (in terms of location, tenure, size etc) of single male/female, new migrants will be quite different from other households. To plan for providing dwelling units of a particular size within affordability limits (defined in relation to income) for all may not be a good policy. It may also be noted that willingness to pay will be higher for 'a glove that fits' rather than a misfit. One is to avoid defining Adequate Housing in general terms of 'x' Sq.Ft. of area for different income groups.

Definition of Adequate Affordable Housing will differ from place to place and for different categories of households within each income group. This needs to be defined at the local level.

*C. Can the Market provide Affordable Housing?*

The market does respond to purchasing power of different income groups and provides some kind of shelter to all. The only shortcoming is that this housing is far from 'adequate'. The level of inadequacy is highest in case of the poor and is deficient in almost all characteristics of housing. The reason for high (unaffordable) price of housing in the market lies in:-

1. High land prices,
2. Cost of construction
3. Transaction cost
4. Taxes & legal charges, and
5. Profit margins of private operators.

Price of land is the single most expensive component in the cost of housing in urban areas. High price of land is a consequence of the inability of land market to respond quickly to increased demand for land with growth of urbanization. The sluggish response of land market is partly due to inherent inefficiencies and imperfections of this market. Land/housing market is characterized by small size of the market (number of buyers and sellers in each submarket is quite small); low levels of substitutability between houses/land plots in different submarkets; lack of information about price and availability of houses/land in different areas leading to limited competition. Further it takes a long time to make land available for residential use. Conversion of land from one use to another takes a long time due to various state regulation and procedures.

Increased demand combined with slow response of supply leads to higher prices setting a benchmark. Even when supply is increased over medium to long term, prices do not decline. Prices are normally downwardly rigid. High and increasing land prices fuel expectations and add speculative demand to user's demand leading to further increases. Excess demand for land for new or existing uses is also partly responsible for increase in prices. Quite often public sector/state projects are provided land at much-below market (subsidized) prices leading to wasteful use of land thus drawing away excessive land from the market and reducing supply. Low cost of use of land in existing uses also creates excess demand. If the cost were put at more 'realistic' (near-market) levels, land from existing uses could be released for new uses. This would have some softening impact on price of land. Supply of land could also be increased if conditions could be created for quicker turnover of use of land. Land could be released from obsolete uses and put to use for newly emerging uses. Examples of such obsolete uses in cities abound [see R.M. Kapoor 1990]. In India, the high transaction costs of shifting houses reduce mobility of households. Many households may like to shift to different locations or different sized units over their life cycle but continue to be rooted in the same house forever. A notable example of such a phenomenon is old retired persons continuing to stay on in prime locations in the urban areas, which if vacated could release some housing for the new working population and would have positive impact on prices.

The cost of building materials, construction labor, outdated technologies, high capital cost due to long-drawn construction process increases the cost of constructions. Various fees and taxes payable by the developer during production process increase the cost still further. These cost include conversion fee (for change of land use from non-residential to residential use), license fee (for permission to carry out a project), registration fee and stamp duty (for registration of purchase of land in developer's name), wealth tax on land, development fees (for obtaining No Objection Certificates and approvals from various authorities) and income tax on sale of properties. These taxes and fees are passed on to the consumer (partly or fully depending on

the elasticity of demand and market conditions) as part of the cost of production. The cost of construction itself is hiked by taxes and duties levied on construction materials and services rendered by various professionals in the project. Sale tax, excise duty, VAT is levied on building materials like steel, cement, paint, Varnishes, etc. Further, payments made to consultants like architects, structural engineers contractors, real estate consultants and agents are subject to service tax. To nullify the impact of service tax, the developer normally increases the fee by the tax amount (fully or partly). Transaction cost including search cost, brokerage, and stamp duty and registration fee. These escalate the cost to the owner still further.

In the past few years, a booming economy has given rise to a segment of population with very high income. This coupled with low interest rates on home loans and fiscal incentives had enhanced their affordability levels significantly. This has given a further fillip to demand for housing by a certain section. Increasing prices have fed expectations of continuing increments emboldening the builders to amass huge amounts of land at inflated prices. It is due to this fact that despite the present decline in demand, builders are wary of reducing prices significantly. Reducing prices to an 'equilibrium level' would mean huge losses for most of them.

Increase in prices at the (top) end of the market has impacted on prices at the middle and lower ends. This phenomenon has priced out not only the poor but many a middle income groups also from the market. Housing inequalities have increased. The decade 1991-2001 had seen an increase in housing inequality. If a census of housing conditions were to be taken up in 2009, one would see further widening of this inequality.

The market has thus failed to provide land at affordable prices to different sections of population. The most deprived being the poor. Government has intervened in the market through physical, legislative and economic instruments.

#### *D. Monetary and Fiscal Policies*

Considering the importance of finance in improving the affordability of housing, the Government of India had used both monetary and fiscal policies to increase the flow of funds to housing as also to reduce its cost. Under monetary policy, commercial banks are directed to lend a certain percentage of their advances for priority sector. Housing has been designated as one of the priority sectors. The government's fiscal policy has been very supportive of housing sector since 1996. A number of fiscal incentives to encourage investment in housing have been provided.

#### *E. Priority Sector Lending for Housing*

Under the policy of Priority Sector Lending (PSL), scheduled commercial banks are to lend 40% of their net bank credit every year to priority sectors. The priority sectors include Agriculture, Small Scale industry and 8 other sectors. Housing is one of these. Whereas a sub-target has been fixed for agriculture and tiny sectors, none has been fixed for housing.

Lending for housing under this program thus becomes a residual rather than a priority. In the last few years the credit

given for housing by commercial banks increased manifold due to slow off take by other sectors.

The loans by commercial banks can be either direct loans to individuals or indirect loans for housing to Housing Intermediary agencies and all investments in financing of housing.

The Reserve Bank of India has been continuously 'liberalizing' the terms of PSL for housing. The loan limit for direct loans has been increased from Rs.3 lakh to Rs.5 lakh in 1997 to Rs. Rs.20 lakh in 2009, as part of the fiscal stimulus.

The private sector is 'demanding' a further increase to Rs.50 lakh. It is clear that the governments' priority in housing sector, as defined in its credit policy is not confined to housing for the Poor but housing per se.

The rate of interest on loans below Rs.2 lakh is subsidized whereas those above this limit are deregulated. The commercial banks thus would have no incentive to lend for the poorer sections of population. (Directly or the indirect route through NGOs, cooperative banks or other intermediary agencies)

#### *F. India's Urban Housing Problem*

The total (urban) housing shortage in the country is estimated at 24.7 million dwelling units. Approximately 98 to 99 per cent of this shortage pertains to EWS-LIG.

In terms of 'quality' of structure, (defined as permanent) housing 79 per cent of housing stock was permanent (in 2001). A mere 5.3 per cent was temporary and within that even a smaller portion (2 per cent) was unserviceable temporary.

The situation was more critical in terms of large sized families living in small house. Only 12 per cent of households were 1-2 members but 37 per cent lived in one or less room. 48 per cent of married couples did not have independent room. 68 per cent lived in 2 or less rooms including a significant percentage of large sized families.

Comparing the number of households living in permanent/semi permanent/ temporary housing with the number of housing units in each category, the excess of number of households over number of housing units in three categories is 3 million, 1 million and 0.8 million respectively. Thus, a larger proportion of households, living in permanent housing, share accommodation with other households. Congestion factor was higher in permanent housing than in nonpermanent.

This is understandable since a large number of non-pucca (non-permanent) houses would be too small in size to accommodate more than one household. The problem however is not only of number of livable housing units equaling or exceeding number of household. Unless the supply responds to requirement in different segments, we might have surpluses in some segments and shortage in others. This is evidenced by high vacancy rate (at 9 per cent) in urban housing.

A clear understanding of the nature of housing problem is an essential pre-requisite for formulating appropriate policies. Even though the 'need' for housing is the highest at the lower end, it is not to say that need for housing for MIGs/HIGs has been exhausted. The housing policies thus have to be directed towards meeting requirements of all sections of population.

## VI. INFERENCE

### *A. Review of a scheme - Guidelines for Interest Subsidy Scheme for Housing the Urban Poor (ISHUP)*

Interest Subsidy Scheme for Housing for the Urban Poor (ISHUP) is aimed at providing cheap loans to the urban poor who have a plot but insufficient funds for constructing a pucca house for themselves. The scheme gives them an interest subsidy of 5%, per annum for loans up to Rs.1 lakh for EWS (per month house hold income below Rs.5, 000/-) and LIG (per month house-hold income between Rs.5, 001/- to Rs.10, 000/-) Under this scheme, interest subsidy of Rs.1, 100 Crore allocated to the scheme is expected to leverage institutional finance of Rs.3, 870 Crore. The scheme has been kept as a pilot for the 11th plan, partly because of the limitation of funds, and partly with a view to evaluate demand for this package. It is hoped that the states and ULBs will promote it actively in towns in which no housing is being provided under JNNURM or any state scheme. HUDCO has been identified as one of the nodal agency towards implementing the scheme.

As it can be seen, this scheme is meant for an income level much higher than that of the Urban Poor targeted at, in the event of houses being designed out of BRC (Bamboo Reinforced Concrete), for structural components.

As per the NRC report, income groups termed as the BPL (Below Poverty Line) whose monthly incomes are estimated to be much lesser than Rs. 2690, and who can at the most afford a rent/EMI of Rs. 134, are not eligible for this scheme. While at the macro level a scheme of this sort could serve to make housing affordable for a section of society, the poorest of the poor in designated urban areas will not be able to benefit from this scheme.

### *B. Inconsistencies and misconceptions:*

1) Yet another question is, can the EWS, BPL population afford a third of its income on housing? What can 30% of a monthly income of Rs.2690/- (Rs.807/ pm) fetch him for a house, assuming that he does set aside a third of his income as EMI/Monthly Rent?

2) Can he afford a total cost amounting to Rs.2, 58, 000/? Can a Pucca house be designed constructed, and handed over to the owner, at such an amount including processing charges, taxes, registration fees, consultants etc?

3) The Deepak Parekh Committee report supports it. However, on closer analysis it is clear that what is being promised is what is "Possible" and certainly not what is "desirable" in terms of size and number of rooms. A standard compromise is being made across the country uniformly, thereby reducing the area, size of rooms, and number of rooms.

4) Congestion, arising due to a higher density of population sharing infrastructural facilities, is characteristic of this type of pucca housing, the price of which is forever skyrocketing. Will the size be further reduced? To what extent?

5) The pucca house is not always a priority for all owners; some prefer a cheaper rate of construction, without forgoing size, at the same cost.

6) It is needless to say that there is a minimum size of the house and that of the rooms and also the number of rooms, below which it cannot qualify as adequate housing. Hence a balance between affordability, adequacy and habitability, quality, safety and security, is required to be found.

7) Even as an investment, unlike gold, neither for its purchase nor EMI /rent, can the price remain constant! Just as in the case of land, fragmentation and shrinking of a house cannot be termed as a viable solution simply because if the phenomenon is stretched to its logical extreme, there is a point after which, any further shrinking will render the home as a folly in Architecture.

8) Hence if there is a constant at all, it has to be the minimum size of the house, the minimum number of rooms, safety, security and durability, leaving no room for a compromise.

9) The Pucca and /or kutchaness of the house are irrelevant terms as long as the other constants are focused upon.

10) If at all there is a variable, it has to be to be the cost and material of the house, which can be controlled by the use of appropriate technology.

11) Knowing now, that neither of the parameters can be provided at the cost of the other, an architectural design, with BRC structural component can commence within the budgetary constraint, so that a decent home can be constructed. Based on this understanding postulates can thus be framed:

### C. Postulates

1) A house constructed under any State or Central Government has to be durable, safe secure and habitable.

2) Habitability to be defined in terms of a minimum specific size and number of rooms per house hold consisting of 5 members.

3) The Concept of a pucca house to be modified, so as to include alternative materials and technology which continue to provide security safety, habitability, so as to qualify for funding through banks and HFIs.

4) It has to be noted that all alternative materials unconventional materials do not result in a kutch house.

5) A Pucca house despite being durable, safe and secure can still be inhabitable.

6) A pucca house can be durable, safe secure, habitable and still be unaffordable on account of other hidden costs, including travel and other betterment, processing and user charges, taxes etc.

7) A so called Kutch (temporary) house (using parallel technology) can also be durable, safe secure, habitable and still be unaffordable on account of its inherent capital cost, other hidden costs, including travel and other betterment, processing and user charges, taxes etc.

8) Affordability cannot be equated to size of the house infinitely as being inversely proportional to it, but must stop at a point when it starts to get inhabitable or inadequate.

## VII. CONCLUSION

Having started with the idea of using bamboo as a substitute to steel in the key structural components of a dwelling unit designed

for the urban poor living close to Bamboo producing Regions in India, it was necessary to examine.

1) How favorable the policies were towards the use of alternative materials, in principle and in spirit.

2) Whether there were inconsistencies within the provisions of the Policy for affordable housing and habitat 2007, which would prove to be a hurdle in promoting structural components out of BRC (Bamboo Reinforced Concrete) if it is technically proved safe, durable and reasonably priced and sized.

3) To put it simply it's about lowering construction costs by replacing SRC (Steel Reinforced Concrete by BRC (Bamboo Reinforced Concrete). While the DPC (Deepak Parekh Committee) report makes a firm point, about encouraging the use of alternative materials and Technology, having understood the NRC report there appear to be retarding forces making the so called "affordable housing", totally unaffordable for the urban homeless, which is the target group in question.

4) A few of the most critical definitions in the Deepak Parekh Report are not in coherence with the intent of the policy. One such definition is that of a pucca house. This definition excludes some of the non conventional materials used in self constructed homes by the Urban Poor. They are, as per the report, termed as kutch (temporary). It is this very house which is a home for a typical informal sector daily-wage HH (House Hold), who would often live in it for decades. It goes on to establish that it is not valueless. However, the definition renders a house of this category ineligible for being granted a housing loan. The irony is, that this income group, which needs the loan the most, and despite careful revision, and all-encompassing policy frameworks evolved, it is also the income group that is denied housing.

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The Title of the Thesis is: Investigating the Prevalence, Relevance and Appropriateness of Bamboo Technology for Housing in India. The Study is currently at the stage of conclusion.