

A Relook at the Housing Policies from the Viewpoint of the Urban Poor in India

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Abstract— A large section of the population in Urban India is unable to afford a basic dwelling unit. Housing shortage triggered by the rising unaffordability makes it logical to re-asses the application of alternative technology. After having resolved technical issues of how far these match up with the conventional techniques and integrate with the present-day urban amenities, a series of questions emerge. Can the owners of dwellings which use parallel materials or technology, be a part of the mainstream housing sector, having the same rights and privileges as those enjoyed by other property owners? Will they have access to loans for building, renovating or repairing their dwellings? Is our policy framework and political resolve in place, to welcome such alternative technologies? It is this part of the research that focuses on the internally inconsistent sections within the policies. Here the intent and the content conflict each other.

Index terms: Urban Poor, Housing Policy, Affordability, Housing, Alternative Materials, Alternative Technology, BPL

1 INTRODUCTION

As part of the investigation, 'The National Housing and Habitat Policy of 2007' has been analyzed, with respect to those sections and definitions, which have proved to be a deterrent factor, in the use of 'Alternative Materials' and technology. While the intentions of providing affordable housing for all, suggest inclusiveness of policy, the reality bases itself on conflicting objectives leading to stalemate situations in the housing market. The Deficit Model here manifests itself more as a question mark on the possibility of implementation rather than act of implementation itself.

Conventional housing techniques have failed to offer affordable housing for all income groups. Non affordability applies to all income groups, and is inevitably associated with heavy intangible costs. Affordability gets interpreted as 'what is possible in a limited budget'. If the cost of materials and labor escalate - a smaller house becomes the most convenient, 'possible' and therefore an affordable 'option'. An option could mean a choice from among a variety of alternatives, but 'the only option' as it is so, in this case, limits the choice making to a level where it means 'the one and only solution'. Any further escalation, results in elimination and/or drastic reduction in quality of essential services, materials or technology. While it becomes a 'template' and therefore the easiest way out for the decision makers, who are known to advocate 'uniformity' and 'standardization', 'a single non-partial solution for one and all', as against 'customization' of specifications, rules policies, the so called 'solution' becomes the result of a rigorous elimination process, stripping the dwelling unit of its modesty, dignity and its ability to survive healthily among its urban counterparts. The stark contrast adds up only to create an extended new slum family with every unit of its kind, added or replaced.

The deep rooted reluctance to explore possibilities, of using an intelligent, cheaper yet equivalent option for substitution

has reached a peak, where it has already seeped into the policy making process. The 'bare minimum' gets defined and re-refined with every hike in prices of building materials, until even the thread bare is beyond the limits of affordability for the millions living in urban agglomerations.

The repercussions are; acute housing shortages, homelessness, squatter settlements, pavement dwellers, leading to typical Slum conditions. The estimates that define poverty while making an assessment of the number of households that can be categorized as being 'Below Poverty Line', (BPL) based on household incomes, and the definitions of affordability and affordable housing have been found to be far from reality.

Both 'affordability' and 'appropriateness', being relative terms, most housing policies fall short of being a prescription for implementation. As such various non negotiable parameters get compromised upon. These include size of the dwelling, number of persons per room ratio, factor of safety, services etc. The policies thus end up (unintentionally though), spelling out how to create more slums rather than eliminating them. The irony is that the cheapest of the conventionally designed dwellings are far beyond the affordability levels of the targeted - beneficiary income groups. The research goes on to prove how 'inclusive policy making' along with small modifications in the procedures, definitions, can encourage the use of a wonder material like bamboo.

2 RESEARCH FOCUS

2.1 Testing of an Alternative Technology

The first part of the study builds up a case for relevance and appropriateness of bamboo technology for housing in India especially in bamboo growing regions. In these regions, neither the availability of bamboo nor the knowhow of traditional bamboo construction technology through existing prototypes is a deterrent factor. The research analyzes the prospects of using bamboo as a building material for the provision of affordable housing for the Urban Poor.

As a result of the first part of the research, Bamboo successfully replaces steel in Reinforced Cement Concrete to save construction costs, among other environmental benefits. A step by step replacement of bricks for walls, doors and windows further reduces costs through the process of iteration.

2.2 Alternative Technology seen against Housing Policies

The second part of the study focuses on the internally inconsistent sections within the policies with conflicting interpretations at both the levels of intent and content. The research extrapolates statistical data on housing shortages to establish how conventional materials have failed to offer affordable housing across all sections and income groups. The worst hit being the urban poor, who get marginalized to the extent of being totally thrown out of the mainstream housing market.

THE URBAN POOR -WHO ARE THEY?

The Urban Poor are generations of migrants settled in, but not a legitimate citizen of a growing and living city. They possess no ownership documents either for land or property, do not have a bank account, indulge in informal money lending and borrowing. They do not have an Identity proof, or a proof of address. They are often non tax payers, engaged in informal small jobs, surviving on very low incomes. As such, they have no access to institutionalized loans, insurance or subsidies. Their houses are unfit for human habitation, yet they live in them for decades, without much improvement. Any effort through the various Government Schemes, to allow them room for upward movement both socially and economically, fall flat, due to loopholes in the policies, or mismatch of priorities as assessed or understood by the planners, against those of the target group. Those who become prosperous, (which is very rare), relocate and find an abode elsewhere.

At other times forceful evacuation and involuntary relocation to a site away from the current one, despite provision of permanent houses, often results in selling off, of these houses to the next higher income group section of society, and returning to the earlier location, and continuing to live in a shanty.

3 EVOLUTION OF STRATEGIES FOR DEALING WITH SLUMS IN INDIA

3.1 From Clearing Slums to Developing Them

The phenomenon in the late '70s and early '80s put a big question mark to the Government approach to "Clear Slums". Slums were seen as "cancerous growth" in healthy cities, and were treated like an unwanted extra appendage which had best be amputated. The concept was later modified to mean slum-improvement in the late '80s, to slum up-gradation in the '90s, to integrated slum development. The term "development" was an all inclusive package. Comprehensive as it may appear to be, it proved to be ineffective, owing to the lop-sided development which resulted through this approach.

3.2 Affordability and Willingness to Pay

Issues of affordability, purchasing power, willingness to pay for basic services, user and betterment charges, skewed priorities, poor representation by the weak, over-powering presence of those who were slightly better off and could walk the corridors of influence, were now major concerns. It compelled planners to consider using a participatory approach for decision making and problem solving.

3.3 The Participatory Approach

"Put the Last Man First" was the new mantra (dictum) for development. The new approach was democratic and transparent. Planners, grassroots level workers, implementers were now required to develop a new skill, that of learning the PRA TOOLS (Participatory Rapid Appraisals), in order to understand the priorities of the poor. A collective decision making process was introduced for the first time. More and more tools were now available for "inclusive policy making". Integrated participatory development brought about positive infrastructural (physical), as well as access to basic amenities, due to a large number of employment generation activities, supported by National Employment Guarantee Programs.

4 CONVENTIONAL MATERIALS INCREASE UNAFFORDABILITY

It has been made amply clear in the discussions at various levels that the conventional housing technology, materials,

methods of construction, distribution and deliverance, has not only failed, but continue to fail in providing a Dwelling Unit per household. It must by now be understood that a habitable Dwelling is one which is safe, simple yet durable, small yet compact, dignified and serviced with urban conveniences, and suitable enough to serve as a an abode for the millions of homeless in India. Projections attained through extrapolation of statistical data reveal no improvement in the current housing situation. The housing shortages are on the rise, in urban areas, pushing large sections of urbanites either to subserviced, unauthorized, shanties, or squatter settlements, and worst of all pavement dwellers. In every sense of the word, the household that lives in a shanty is no better than that which lives the life of a squatter.

5 'HABITAT' AS AGAINST A 'SHELTER' – THE NEW CONCEPT

It has been realized and appears to be the reason for the change in terminology that is being used. Providing 'shelter for the homeless' was considered to be the best solution in the '80s as stated in the 5-year plans. It was an internationally used term, especially for the Developing Countries. Various Policies were put in place during the 'International Year of The Shelter for the Homeless (IYSH '87 recognized by the United Nations)'. However over the years it came to be realized that a shelter is just one of the problems faced by the homeless. Provision of shelters without the services, amenities and facilities was not resolving the issue; in fact was equal to replacing one slum with another. The National Housing and Habitat Policy of 2007 has aptly replaced the term 'Shelter' with the term 'Habitat'.

6 ALTERNATIVE MATERIALS COULD OFFER SOLUTIONS

The rising costs of building materials, and the inclusion of basic services, infrastructure and conveniences has made housing even more unaffordable for many. Under the circumstances it becomes important to examine alternative materials and technology that can replace conventional materials, without compromising safety, security, durability, convenience, and quality of construction.

This study explores the possibility of using bamboo as one of the key building materials in the construction of dwelling units which could not only offer safe, durable, affordable dwelling but could also be accommodated smoothly in the mainstream housing market. It therefore required a thorough investigation into the finer aspects of the extent to which the material could live up to its qualities of being a handy, cheap, and a sustainable material, in the context of mass housing for the homeless in large urban agglomerations. The use of the term 'shelter' has deliberately been omitted for obvious reasons.

7 APPROPRIATENESS AND COST EFFECTIVENESS OF BRC

Bamboo Reinforced Concrete (BRC), an innovation, is ready to replace one of the costliest structural materials (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.

The substitution requires some amount of dressing of the Bamboo Splints so as to form a frictional surface with concrete, preventing it from slipping. In addition the same dressing prevents bamboo from coming in contact with the damp concrete, and causing it to decay as it is an organic material.

Structurally the material requires larger cross sectional area in concrete than steel, resulting in larger beam column and slab sections. The net cost reductions therefore cannot fully depend on material substitution, and structural design which is quite the same as that of Steel Reinforced Concrete (SRC).

8 RESEARCH, INNOVATION, COST AND A SUPPORT SYSTEM

It is also imperative to minimize costs drastically without compromising on safety, durability, dignity and social acceptance. This process could make housing affordable, and the housing market accessible. The long term effect would be the increase in the willingness to pay among a large number of the urban poor, primarily those who reside close to bamboo growing regions, most of whom belong to the informal sector.

This sector does not have the means, an identity, a support system and documents of citizenship nor the tenural rights, thereby excluding it from a substantial and important part of the mainstream, nationwide housing activity. Such exclusion denies it access to favorable policies, financial and target-group schemes, for enjoying routine benefits such as; housing loans, insurance, legal ownership rights and housing at subsidized rates.

9 URBAN DYNAMICS

9.1 An Apparent Urgency Emerges, for addressing Urban and Regional Issues

The push-pull factors that govern the economies of regions, and metropolitan cities, have, historically created perpetual inadequacies in urban infrastructure. While solutions have been found in the various theories on town-country, urban-region development, the chaos created in large metros, has notoriously circumvented any idealism upheld by Urban and Regional Planners. Urbanism is therefore yet another package with its evils, as evident from, large non-designated, non-defined non serviced agglomerations, with many living under inhuman conditions.

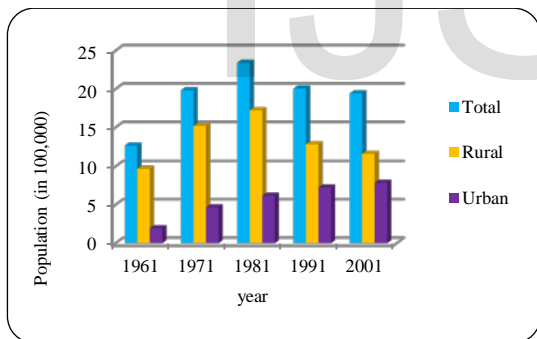


Fig.1.0 Houseless Population

9.2 The Reasons for a Rapid Increase in Houselessness among the Urban Poor

Apart from it being the issue of a time lag in provision of infrastructural facilities, commensurate with the number of migrants, and their rate of influx, there is yet another phenomenon which has since long contributed towards the creation of slums, squatter settlements, and houselessness. Fig.1.0 represents the share of urban population, in the growth of total houseless population. Urban houselessness

is a function of urban population. It grows irrespective of the total population. The migrant creates his own shelter. However temporary it may be, it remains his abode for a very long time. It cannot therefore be treated as being valueless. Going by the statistical data, the total number of houseless households equals to the number of semi pucca (semi-permanent) and kutchra (temporary) houses available at a given point of time.

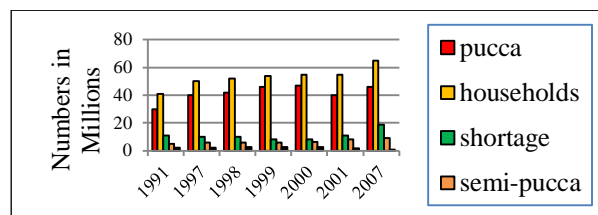


Fig 2.0 Housing Stocks, Households and Housing Shortage

The trend shows that houselessness has been increasing over the years, and so is the number of semi pucca (semi-permanent) and kutchra (temporary) houses. It further goes on to explain that a pucca (permanent) house has been becoming unaffordable by more and more households over the years. Hence it can be projected that a pucca (permanent) house has failed and shall continue to fail to reduce houselessness even more so in future. The pucca houses, as evident from Fig. 2.0 have failed to meet the housing shortage especially after 2001, when it has more than doubled. The contribution of the semi pucca (semi-permanent) and the kuccha houses (temporary) towards fulfilling the housing demand is marginal. There does not seem to be much effort in using the kuccha (temporary) and semi pucca (semi-permanent) houses as a means to increase the housing stock.

This creates an urgency to shift the focus from constructing more pucca (permanent) houses to the strengthening and improving the quality of the existing semi-pucca (semi-permanent) and kutchra houses (temporary). This will create a parallel building industry with its own research, manufacture, experimentation and provision of housing for the urban poor using alternative materials for affordable housing.



Fig 3.0 A Kuccha House

10 THE GENESIS OF DISPARITY AND UN-AFFORDABILITY

10.1 Mis-Match of Economic and Physical Planning Objectives

The non- convergence of the Nation's Economic objectives and the Physical Planning objectives create an unending cat and mouse chase. The former being focused on creating employment in cities and the latter unable to keep pace with the rate of influx of the migrant population, to create housing and related infrastructure and to accommodate them gracefully and respectfully.

10.2 No Scope For Upward Mobility For The Urban Poor

In India a "pucca" (permanent) house, owned by an urbanite however modest it may be, sits on a property that constantly appreciates in its value. The dwelling unit provides him with the opportunity for upward mobility even before it has been paid for. The owner can speculate. A house becomes an asset for him. He has all the documents which qualify him to be a part of the formal sector. He can even participate in the commercial speculation of his property which he rightfully and legitimately owns.

10.3 A Marginalized Sector

The urban poor build 'kuccha houses' (temporary or semi-permanent), on a piece of land, which does not belong to

them. Their houses are self – made, out of whatever they can lay their hands on e.g. GI sheet, bricks, tarpaulin, plastic sheets during rains, with bricks and stones as weights to prevent such materials from flying during strong winds. Some may use hessian cloth with ropes to anchor them on to hooks embedded in the soil.

Nothing about these houses is even remotely permanent. With no documents, to establish their ownership, they get excluded from the formal sector. Exclusion makes the informal sector vulnerable to an irrevocable struggle for survival. This scenario demands investigation on identifying alternative and appropriate materials, technology and a set of relevant standards, byelaws and policy frameworks to provide affordable dwellings.

11 ISSUES OF SOCIAL NON-ACCEPTANCE

Post Independence a total dependence on conventional building materials like cement steel concrete, has blinded the building industry to experiment with other options, so much so that even among the poor, cheaper alternatives have not made any head way. Bamboo houses are not preferred and as such do not seem to be socially accepted probably because of the label attached, that of being a Kuccha House (Temporary house). It is ironic that people prefer to remain houseless in the hope of being able to construct /afford a conventional 'permanent' house rather than to construct one out of bamboo, especially in urban areas. Alternative materials for superstructure, roofing and doors windows alone are known to reduce costs up to 40%. Substituting bricks, cement, steel, and timber alone can reduce costs up to 40%.

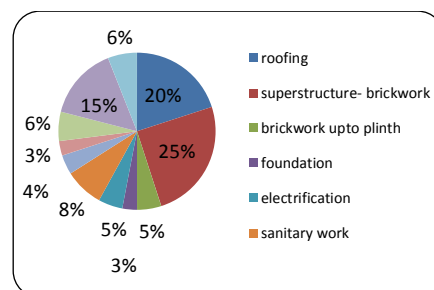


Fig.4.0 Cost Reduction by Construction Elements
Approximate Breakup of total Construction Cost for different elements of building.

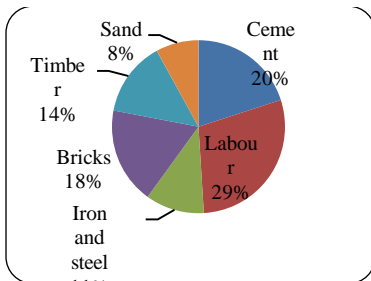


Fig.5.0 Cost Reduction by Replacing Building Materials. An approximate break-up of total construction cost for materials and labour

need them the most i.e. the urban poor ? It is high time; some of these vital issues were resolved.

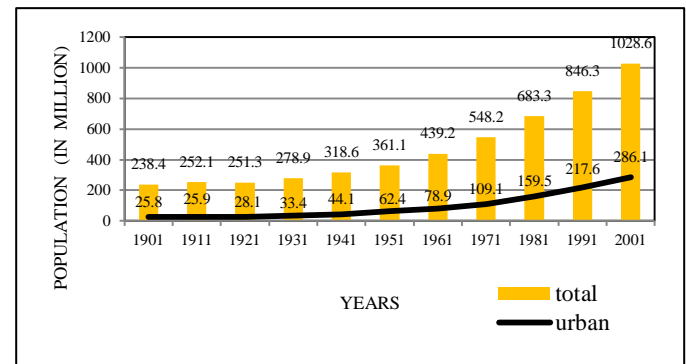


Fig.5. Share of Urban Population in the Growth of Total Population

(Source: Registrar General of India)

The Research explores the issues of non-acceptance / non-popularity of the material especially in urban areas and traces its reasons in the codes, policies definitions, and in the process of urbanization. This also sets the stage for using bamboo as a substitute for steel in RCC for cost reduction, after un-affordability of a conventional house, emerges as the prime reason for ever increasing houselessness.

12 ISSUES OF AUTHORITY, RESPONSIBILITY AND ACCOUNTABILITY

In a scenario where physical planners turn a blind eye, even as much as to acknowledging the presence of the first generation Urbanites, namely, the Urban Poor, parallel mass housing, using Non- conventional materials, becomes unthinkable. When, how and who will ensure that the experiments conducted on the benefits of using unconventional materials and technology across cultures, ever get transformed into a reality? When, how and who must ensure that knowledge, skill sets, innovations and best practices, trickle down to the last level of an overly simple and modest dwelling unit designed for those who

13 RESEARCH NEEDS TO BE LINKED TO THE GOVERNMENT POLICIES, PROGRAMS AND SCHEMES

For application based research out puts, generated in various laboratories, it is equally essential for these results to be translated into real life solutions for dealing with acute societal problems, especially those pertaining to the weaker sections. Policies, plans, projects and programs formulated by the Government, must integrate these findings so as to be able to reach out to a larger beneficiary target group - in this case; cheaper and affordable housing for the Urban Poor. A finding that has been proven for its merit worth, or which claims to transform or upgrade the physical environment, making a positive difference towards the Quality of Life (QOL) of millions of people called the Urban Poor, cannot be abandoned, constrained or ignored. A relook at these policies will eliminate any inconsistencies, definitional or procedural flaws, which might prove to be an obstacle in accommodating the alternative technology, construction, material innovations, for providing affordable goods and services, on a sustained basis

Technical investigations assessed the prospects of using bamboo as a substitute for steel in RCC for cost reduction, with a prescription of a specific support system necessary to ensure the deliverance of low cost and subsidized housing for the urban poor.

14 THE ROLE OF GOVERNMENT IN PROVIDING AFFORDABLE HOUSING

In the process of analyzing the possibilities of substituting conventional construction materials used for the key structural components of a structure with bamboo, a study of Government Initiatives towards adopting such innovations became inevitable. A National Workshop on Pro Poor Housing Finance was held in New Delhi On 29th October 2008, by the Ministry of Housing and Urban Poverty Alleviation. It brought forth the Government initiatives and programmes for affordable Housing.

First National Housing Policy in India was formulated in 1988. A new National Housing Policy was announced in August 1994 following the change of Government in 1990. This was followed by a national Housing and Habitat Policy in July 1998. This included major initiatives like involvement of multi-stakeholders, repeal of Urban Land Ceiling Act, permitting Foreign Direct Investment in housing and Real Estate sector, etc However, all these policies were generic and were applicable to both rural and urban areas.

15 RELEVANT SECTIONS FROM THE NATIONAL URBAN HOUSING AND HABITAT POLICY 2007

The Habitat Policy was meant to enhance the spotlight on 'habitat' with a 'Regional Planning approach' as well as further deepen the role of Government as a 'facilitator' and 'regulator.' Moreover, the Policy laid emphasis on earmarking of land for the EWS/LIG (Economically Weaker Sections / Low Income Groups) in new housing projects. The Urban Housing and Habitat Policy emphasized on the Government retaining its role in social housing so that affordable housing is made available to those sections of the population that lacked affordability and were hopelessly marginalized in urban land market.

15.1 Cost-Effectiveness

Section 1.35 aims to promote development of cost-effective, quality approved building materials and technology with a view to bringing down the cost of houses built for the EWS/LIG.

15.2 Cost Estimates

Section 1.19: The Working Group on Urban Housing pertaining to the 11th Plan made different assumptions on

unit cost of construction of houses in million plus cities and other urban areas for estimating the investment required for overcoming the housing shortage. The total estimated investment for meeting the housing requirement up to 2012 was estimated to be Rs.3, 61,318.10 Crores consisting of Rs.1, 47,195 Crores for mitigating housing shortage at the beginning of 11th Plan and Rs.2, 14,123.10 Crores for new additions to be made during the 11th Plan period. This included construction of Pucca (Permanent) houses and up gradation of Semi-Pucca (Semi-Permanent) and Kutcha (Temporary) housing units.

15.3 Integration with the Global Economy

Section 1.24: In 1991, India adopted a more 'inclusive' view of economic development by emphasizing that it must be integrated with the global economy. In pursuance of this, it reduced custom duties and welcomed Foreign Direct Investment (FDI) in several sectors of the economy. The National Housing Policy, 1994 was a product of this economic point of view. The 1994 Policy in its section on "Goals" sought to increase supply of land serviced by basic minimum services with a view to promoting a healthy environment. The National Housing & Habitat Policy, 1998 laid greater emphasis on the aspect of "Habitat" as a supplementary focus to housing. The emphasis on "providing" housing continued in this Policy with emphasis on both quality and cost-effectiveness especially to vulnerable sections of society

15.4 Programmes and Schemes

Section 1.25 (a) - The various policies adopted by the Central Government, from time to time, were accompanied by initiation of various programmes and schemes. The National Slum Development Programme (NSDP) had provision for adequate and satisfactory water supply, sanitation, housing, solid waste management, primary and non-formal education. The scheme provided additional central assistance to States to supplement the resources of the State Government for provision of basic infrastructure and services in slum areas. The Swarna Jayanti Shahari Rozgar Yojana (SJSRY) was designed to provide gainful employment to the urban poor by encouraging setting up of self-employment ventures and provision of wage employment opportunities or families below poverty line in urban areas. The Two Million Housing Programme (TMHP) was launched with the objective of 'housing for all' with particular emphasis on the needs of economically weaker sections and low income group categories. The Valmiki Ambedkar Awas Yojana (VAMBAY) aimed at

providing subsidies for construction of housing and sanitation for urban slum dwellers living below poverty line in different towns/cities all over the country.

15.5 Result of the Programmes and Schemes

Section 1.25 (b): The policies and programmes led to some positive results in the housing and habitat situation. Some increase was noticed in the supply of serviced land, shelter and related infrastructure. For example, during the initial years of the 10th Plan, financial assistance was provided for construction of 4, 42,369 dwelling units under VAMBAY. Similarly, the total number of beneficiaries under NSDP and SJSRY were 45.87 million and 31.77 million respectively during the same period.

During the period between 1991 and 2001 a net addition of 19.52 million dwelling units in the urban housing stock (Census: 2001) was noticed, amounting to an average annual construction of 1.95 million houses. The share of ownership housing in urban areas increased from 63% in 1991 to 67% in 2001 (Census: 2001). It is important to note that households having one room accommodation declined significantly in urban areas from 39.55 per cent to 35.1 per cent during the period 1991 to 2001. This was an indicator of upward mobility in among the urban poor, showing an increased demand along with a slightly accelerated supply of an improved housing stock.

15.6 Basic Services for the Urban Poor

Section 1.27: The Basic Services for the Urban Poor (BSUP) seeks to provide a basket of seven entitlements/services; security of tenure, affordable housing, water, sanitation, health, education and social security among the low income settlements in the 63 Mission Cities. The Integrated Housing and Slum Development Programmes (IHSDP) seek to provide the same seven entitlements/services in towns/cities other than Mission cities.

15.7 Thrust Areas

15.7.1 Planning in Consonance with the 74th Amendment

Section 1.28: The National Urban Housing and Habitat Policy, 2007 seeks to use the perspective of Regional Planning as brought out in the 74th Constitutional Amendment Act in terms of preparation of District Plans by District Planning Committees (DPCs) and Metropolitan

Plans by Metropolitan Planning Committees (MPCs) as a vital determinant of systematic urban planning. The policy seeks to promote a symbiotic development of rural and urban areas. In this regard, the policy seeks to ensure refinement of Town and Country Planning Acts (wherever required) and their effective implementation.

15.7.2 Affordable Housing for All

Section 1.29 The core focus of this Policy is the provision of "Affordable Housing For All" with special emphasis on vulnerable sections of society such as Scheduled Castes/Scheduled Tribes, Backward Classes, Minorities and the urban poor.

15.7.3 Subsidization to Assist the Poorest of Poor

Section 1.30 This Policy takes note of the substantive gap between demand and supply both for housing and basic services. This Policy seeks to assist the poorest of poor who cannot afford to pay the entire price of a house by providing them access to reasonably good housing on rental and ownership basis with suitable subsidization. The Policy seeks to enhance the supply of houses especially for the disadvantaged, duly supplemented by basic services.

15.7.4 Innovative Financial Instruments

Section 1.25 This Policy seeks to develop innovative financial instruments like development of Mortgage Backed Securitization Market (RMBS) and Secondary Mortgage Market. It also seeks to attract Foreign Direct Investment (FDI) in areas like integrated development of housing and new township development.

15.7.5 Innovations in Housing and Infrastructure

Section 1.32 This Policy draws from innovations in the area of housing and infrastructure in India and elsewhere. It also gives a menu of actionable points which inter-alia includes Public-Private-Partnerships, conservation of natural resources and formulation of regulations & bye-laws that are environment friendly, Investment-friendly and revenue-generating.

15.7.6 Fiscal Concessions

Section 1.33 This Policy seeks to emphasize appropriate fiscal concessions for housing and infrastructure.

15.7.7 Accelerated Construction Activities

Section 1.34 This Policy seeks to accelerate construction activities for giving a boost to Employment for vulnerable sections of society.

15.7.8 Promote Low Cost Development Technology

Section 1.35 This Policy aims to promote development of cost-effective, quality approved building materials and technologies with a view to bringing down the cost of EWS/LIG houses.

15.7.9 Promote Sustainable Development

Section 1.36 This Policy aims to complement poverty alleviation and employment generation programmes for achieving the overall objective of "Affordable Housing for All" with sustainable development.

15.7.10 Role of Various Stakeholders

Section 1.37 This Policy dwells upon the roles of various stakeholders and specific action required pertaining to Land, Finance, Legal and Regulatory Reforms as well as Technology Support and Transfer.

15.7.11 Alternate Building Materials and Technologies

Section 3.1 The Central Government would (in consultation with State Governments) create an environment for Research and Development. Sub sections (xix) (xx) Promote Research & Development (R&D) relating to alternate building materials and technologies as well as energy conservation practices in the housing sector. Take appropriate steps for standardization and quality marking of building materials.

15.7.12 Production and Availability of Local Building Materials

Section 3.2 The State Government would (in consultation with Urban Local Bodies): Create a Supportive Environment Sub section (iv) Promote and incentivize

decentralized production and availability of local building materials.

15.8 Role of Research and Development, Standardization and Technology Transfer Organizations

15.8.1 Transition from Conventional to Innovative

Section 4.1 Undertake research to respond to different climatic conditions with a focus on transition from conventional to innovative, cost effective and environment friendly technologies

15.8.2 Promote Standards in Building Components, Construction Methods

Section 4.2 Develop and promote standards in building components, materials and construction methods including disaster mitigation techniques.

15.8.3 Transfer of Innovative Technology from Lab to Land

Section 4.3 Intensify efforts for transfer of innovative technologies and materials from labs to field.

15.8.4 Improved Habitat

Section 4.4 Accelerate watershed development to conserve water, stop soil erosion and Re-generate tree cover in order to improve habitat

15.9 Resources

15.9.1 Land Supply

Subsection (iv):10 to 15 percent of land in every new public/private housing project or 20 to 25 percent of FAR Floor Space Index (FSI) which is greater will be reserved for EWS/LIG housing through appropriate legal stipulations and spatial incentives. Subsection (v) A Special Action Plan will be prepared for urban slum dwellers with special emphasis on persons belonging to SC/ST/OBCs/ Minorities/Economically weaker Sections /physically handicapped and Minorities. Due consideration would be given so that Safai Karamcharies (Cleaners) and Scavengers are not geographically and socially segregated. Subsection (vi) Beneficiary - led housing development will be encouraged. Suitable percentage of land developed by the

Public Sector will be provided at institutional rates to organizations like Cooperative Group Housing Societies, which provide housing to their members on a no-profit no-loss basis. Employee Welfare Organizations will also be promoted since they operate on a no-profit no loss basis. A special package will also be worked out for Labor Housing.

15.9.2 Finance

Subsection i) In order to ensure that 10 to 15 percent of land or 20 to 25 percent of FAR / FSI whichever is greater is earmarked in every new public/private housing project, appropriate spatial incentives will be developed by Urban Local Bodies (ULBs) and Development Authorities

Subsection ii) A Secondary Mortgage Market may be promoted by the Reserve Bank of India (RBI)/National Housing Bank (NHB). This will enhance transparency and flexibility in the housing market. iii) Residential Mortgage Based Securitization (RMBS) need to be nurtured through NHB, Scheduled Banks and Housing Finance Corporation (HFCs). Subsection iv) A Model Rent Act will be prepared by the Government of India to promote rental housing on the principle that rent of a housing unit should be fixed by mutual agreement between the landlord and the tenant for a stipulated lease period prior to which, the tenant will not be allowed to be evicted and after the expiry of the said lease period, the tenant will not be permitted to continue in the said housing unit. Subsection v) the feasibility of a National Shelter Fund to be set up under the control of the National Housing Bank for providing subsidy support to EWS/LIG housing would be examined in consultation with Ministry of Finance. The NHB will act as a refinance institution for the housing sector. Subsection vi) Housing and Urban Development Corporation Ltd. (HUDCO) will be directed to observe the aims and objectives listed in its Memorandum of Association and Articles of Association with a view to encouraging EWS/LIG housing. Subsection vii) Efforts should be made to encourage Foreign Direct Investment (FDI) from Non Resident Indians (NRIs) and Persons of Indian Origin (PIOs) in the housing and infrastructure sector in consultation with the Ministry of Finance and RBI. Subsection viii) Suitable fiscal concessions for promoting the housing sector may be developed by the Ministry of Housing and Urban Poverty Alleviation in collaboration with the NHB and the Ministry of Finance.

16 IMPACTS OF THE CURRENT POLICIES

16.1 Favorable Environment Created for Dealing with Unaffordability

Having analyzed the policies in their Intent and Content, Prima Facie it can be inferred undoubtedly that a comprehensive approach has been adopted for the inclusion of the Urban Poor in the mainstream housing market. The issue of non-affordability, by the informal sector, has been adequately addressed at multiple levels in an effort to create an all inclusive habitat for the poorest of the poor. A favorable environment has been created for research and experimentation with alternative technological solutions for construction of cheaper houses without compromising on the quality of the Habitat

16.2 Strategy for Implementation - Unclear

While the Policies may have an ambitious and well intended package in place for minimizing houseless population and eliminating housing shortages, some of these require fine coordination among multiple agencies. Historically, multiplicity of functions and overlapping of jurisdictions have been the cause for the failure of policies, schemes and programs. Limiting the scope of this study to providing a cheaper solution for constructing a house using Bamboo Reinforced Concrete for the Key structural elements, replacing steel has proved to be technically feasible. However; some of the important housing terminology need to be redefined, in order to have the benefits of the research to reach the urban poor living close to bamboo growing regions; Translating the design into a series of standard thumb rules will make it easy for construction, thereby eliminating the involvement of engineers, contractors and architects, further contributing to cost reduction; Awareness Manpower Training is yet another area for action for effective promotion of innovation through lab land transfer furthering the objective of employment generation and self help working environment.

16.3 Policies - Intent vs. Content

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, 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.

16.4 Consistent Housing Policies Could Contribute Substantially to Combat Un-Affordability

The Section of society in question, is characterized by an economy which is "below subsistence level", poor Quality of Life, over burdened and/or nonexistent facilities, amenities and basic services. Their "informal" status excludes them from the benefits accrued by mainstream "legal" citizens. They occupy slums within a city, live in shanties and squatter settlements, and work on a daily-wage-basis. Their numbers follow a multiplier growth pattern. They encroach upon prime urban land, live in non habitable dwellings. A conventional pucca (permanent) house is far beyond their means. With all good intentions, the Government is unable to provide them affordable houses. They ask for daily bread, but are offered a piece of cake. There is no control on sky rocketing land prices, as well as those of the conventional building materials like cement concrete steel or bricks, and thereby the unit cost of construction. In this scenario, the Government policies recommend, disproportionately smaller and substandard conventional pucca (permanent) houses, while research in laboratories on alternative materials with much better performance, continues with satisfactory outcomes. Bamboo in this research was chosen as an example examined and tested to be safe, structurally stable and durable. A case has thus been prepared, for questioning some of the Government policies, definitions and procedures, in an attempt to accommodate this material for housing the urban poor, in order to combat the rising un-affordability of modest dwelling units.

After having examined in detail, the logic that forms the basis for the formulation of the national housing and habitat policy, issues of affordability, accessibility, and adequacy led to the formulation of a strategy for implementation.

16.5 The Process of Deliverance of Housing Plays a Vital Role in Cost Reduction

Provision of Housing is a complex task which involves many stake holders. It is a commodity which goes through a long journey from scientific and technical product innovation, design and testing, to the final delivery to the end user. Many interventions at various points of time are made by multiple agencies. The cumulative cost reduction is therefore, not solely dependent on the design of a Dwelling Unit. In actual terms the design is an important parameter lesser for its cost dimension, than for its contribution towards creating a dignified habitat.

16.6 Design Measures to Focus on Creating a Dignified Habitat

Creating a set of standards that specify the ceilings and floors, by way of listing of parameters into categories that stand firm on the level to which they can be left open for negotiation if at all. This clearly leaves cost reduction through means that do not demand a corresponding compromise in the quality of life. The Cost reduction exercise is hence divided into non design measures followed by design measures.

Though the current housing policy was meant to be pro poor, in reality it has proved to be non-affordable and inadequate housing for those below the Poverty Line in Urban areas. Some of the definitions, and assumptions being far from reality, render critical sections of the policy, as the cause rather than being a solution to the slum conditions in Urban Areas.

17 SIMULATIONS AND COST ITERATION USING DESIGN MEASURES

It is found that the design measures can go thus far and no more, despite rigorous iteration eliminating and replacing expensive building structural components and key materials with appropriate substitutes that are comparable, while still being relatively cheaper. One of the major substitute experimented with for iteration is Bamboo Reinforced Concrete in place of Steel Reinforced Concrete.

It goes on to establish that the income group in question BPL (Below Poverty Line) is highly sensitive to even the smallest fluctuations in the pre decided cost implying that any non scheduled, non planned expenditure is not without a struggle. The Government shall in such a scenario, be compelled to have benevolent schemes, with many waivers,

exemptions, grants, subsidies, free-ships and most of all cheap loans. It goes without saying that the monitoring and administrative machinery of the Government, as well as the Housing Funding Institutions and the Local Authorities will need to draft special regulations including a clear cut distribution of duties and action plans which spell out who has to do what and when. This way a complete package can be put in place for the urban poor.

An over view of the Simulated Comparison of the costs of two architecturally identical dwelling units, constructed with RCC structural components, revealed encouraging results which further gave impetus to the research. Both the structures were reinforced differently – a) Steel (SRC) and b) Partial and selective Replacement of steel with bamboo (BRC) in Slab Columns and Beams in the Superstructure. Having discovered the intense role that is required to be played by the policy makers, including a system design for controlling leakages in the flow of funds during the process of deliverance of housing to the target group in question, the onus of cost reduction does not entirely rest with the designing of the dwelling unit.

Hence regulating cost through an iteration process by replacing conventional SRC (Steel Reinforced Concrete) with BRC (Bamboo Reinforced Concrete), along with other substitutions, is required to be stopped at a point in the exercise, when the dwelling unit starts to be comfortably perceived as safe durable dignified socially acceptable and reasonably devoid of probable technical failures demanding frequent repairs.

18 FINANCIAL OUTLAYS, POLICIES, LEGAL FRAMEWORK AND ACTION PLANS

Before an alternative construction material is proven to be a guaranteed cost minimizers; definitions, policies, strategies, action plans, building regulations, the administrative, financial and managerial frameworks, have to be re-examined to assess and evaluate the possibilities of such a product surfacing in the mainstream housing market. Any bottleneck in the system could prevent a cost saving technology from reaching the Urban Poor.

19 DESIGNS, EXECUTION AND DISTRIBUTION

The design, execution, construction, occupation and implementation through various Government schemes offering a standard affordable Dwelling Unit (DU) are guided by the norms set by the National Housing and Urban Habitat Policy. 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 to be spelt out.

20 CAPACITY BUILDING MEASURES

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 that formulated the housing Policy? The Research seeks to place the “designed” bamboo dwelling unit against the backdrop of The National Urban Housing and Habitat Policy, 2007.

21 NEW EMERGING CHALLENGES FOR PLANNERS AND ARCHITECTS

Meanwhile experiments, innovations were happening quite without the involvement of the target group. New terms and concepts invaded the construction Industry. Planners, Architects, Engineers and other professionals were now discussing "Sustainability", "Green Architecture" and "Energy Efficient solutions in Architecture. Leeds rated Iconic Green Buildings, took architectural practice to a totally different level. While large architectural firms were engaged in sustainability as a core concern in their architecture, the man on the street was slowly yet systematically getting marginalized from mainstream development. Energy and Environmental issues topped the list of concerns. "Larger than life" hybrid structures created a new typology of buildings, which violated all norms of symbiotic co-existence. They required "corrective design measures" to make them energy efficient. The design and re-design did very little to minimize the demand on public funds. The carbon footprint, had to be reduced, simultaneously public funds were required to be spent carefully and judiciously.

22 THE EMPOWERMENT OF URBAN LOCAL BODIES

Through the 73rd and 74th constitutional amendment in 1992, the local authorities were vested with discretionary powers, along with the mandatory powers, which increased their authority, responsibility, and accountability. Maintaining a world class image was more important than ever before. With multiple claimants on forever limited public funds, lobbying among various stakeholders relegated the slum dweller back to where he came from.

Urban local bodies were faced with greater challenges. Paucity of funds, an expanded scope of work, with decentralization caused the planning bodies and the maintenance bodies, to start working in tandem. Other related local and state bodies involving services and amenities, were all expected to work in a coordinated manner. The format for such administration and Governance resulted in overlaps in their jurisdictions and multiplicity of functions and action. Wastage, duplication of work, and piecemeal work tendencies often lead to fire-fighting, and crisis management.

23 CONCLUSIONS

Affordable housing for the urban poor is a bundled package offered by a techno – financial – legal - managerial and administrative team arrived at by an iteration process. In real terms, more than the structural vulnerability, appearance, fire and insect attack proneness affecting durability, the resolution of the issue of finance, the legal status assigned to the material through the building byelaws, appeared to be a greater task. For Bamboo to become a mainstream material of the building industry, as a material of substance, up scaling the value of its utility, requires a strictly drafted manual for streamlining the deliverance of housing. This is where research energies have to concentrate, in future.

A set of recommendations form a major part of this research. These include guidelines for effective dissemination of innovations in the field of bamboo technology and deliverance of bamboo housing to the target group in question. These are however outside the scope of this paper.

24 ACKNOWLEDGMENT

F.A. Author thanks her Supervisors and Co- Authors, S.B. Dr M.V.Latkar and T.C. Prof. Utpal Sharma for their valuable inputs from time to time. F.A. Author would specially like to thank the Members of the Research and Consultancy cell of the Visvesvaraya National Institute of Technology currently, Chaired by Dr. H.M. Suryavanshi (Dean - Research and Consultancy, Professor at the Department of Electrical Engineering, V.N.I.T.), along with the members Dr. Rajesh Gupta (Dean Planning and Development and Professor at the Department of Civil Engineering), Dr. D.H. Lataye (Associate Professor at the Department of Civil Engineering, V.N.I.T. Nagpur), for their unstinted guidance and reviews during the six-monthly seminars as part of course work.

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