

## A CONCEPTUAL FRAMEWORK FOR SUSTAINABLE – AFFORDABLE HOUSING FOR THE RURAL POOR IN LESS DEVELOPED ECONOMIES

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### Summary

Housing development, a basic unit of human settlement is also a crucial component of social development. It plays an important role in achieving sustainable development. The concept of shelter differs from individual to individual depending on culture, tradition, profession and way of living. Besides being a basic necessity, it is also a source of identity that has a significant effect on the overall psychological well being of the inhabitants. Sustainable- affordable habitat could be described as a way of developing and maintaining the living environment supporting human health (both physical and psychological), satisfying shelter needs along with protecting and preserving nature for future generations. This paper introduces a conceptual framework defining housing problems from the perspective of beneficiaries supporting the development of effective policies to facilitate Sustainable – Affordable habitat. The framework shows the interdependency of different aspects of sustainability in the process of housing development. It also sets out strategies and identifies policy initiatives required to realize the goal of a sustainable- affordable habitat. The framework developed in this paper can be generally applied to analyse the housing situation of the poor in less developed economies.

### 1. Introduction

Housing embodies many concepts such as comfort, safety, identity and above all it has central importance to everyone's quality of life and health with considerable economic, social, cultural and personal significance. It is also a critical component in the social and economic fabric of all nations. No country is yet satisfied that adequate housing has been delivered to the various economic groups that make up its populace. It is estimated that there are more than 100 million homeless and about one billion people inadequately housed through out the world (UNCHS 1996, S. Eeguden, 2001). Although they constitute one quarter of all humanity, only a small fraction lives in the industrialized countries. Developing countries suffer the most acute housing problems. About one third of their total population is homeless (The global strategy for shelter to the year, HS/185). The reasons and nature of these problems differ from country to country depending on local social, economic and political contexts. The housing problem of low- income countries differs greatly from those experienced in developed economies, and further rural and urban housing also exhibit their own peculiar differences. This paper attempts to develop a conceptual framework for sustainable- affordable housing for the rural poor in developing countries. It tries to understand the problem from the perspective of the beneficiaries specifically in terms of their basic needs. A holistic approach based on several concepts of sustainability, has been developed to provide a thorough and comprehensive framework to analyze housing issues to realize the goal of sustainable habitat. This framework agrees with Keeney (Keeney, Ralph L. 1988) resembling the structuring of the objectives of the different stakeholders to define the problem field as illustrated in figure 1.

### 2. Housing issues: A framework for conceptualization

House building, forming the basic unit of human settlement in the built-up environment is also a crucial component for social development. It plays an important role in achieving sustainable development. The social and cultural factors determine the primary requirements of housing. Financial capacity or affordability to an individual has the immediate effect of transforming this need or requirement into a sound reality. Technology acts as a catalyst to help in realizing this by providing affordable options suiting individual

requirements and changing circumstances, along with accomplishing present demands, the needs and wishes of future generations should also be taken into account. The importance of sustainability of housing comes within this context. It embraces four closely inter-dependant aspects: socio- cultural, economy, technology and the environment.

## **2.1 Socio cultural needs**

The concept of shelter differs from individual to individual depending on culture, tradition, profession and way of living. The design and materials used for the house should correspond to the user's way of living and local building traditions (Christel Ebsen and Bjarke Ramboll, 2000). In most communities, houses are treated as part of the identity of the individuals labeling their status. People do not want to live in a house, which stigmatizes them as belonging to a low-income class, even if it is all that is affordable to them. The location and type of houses often reflect social inequalities. This also affects their social relationships, day-to-day living and ultimately the prospects of future generations. Besides being a basic necessity, it is also a source of identity that has a significant effect on the overall psychological well being of the inhabitants. It acts as a matrix that strengthens family and community ties. Different groups of people within the society should be able to participate equally. Socio- cultural sustainability in housing involves several dimensions such as adaptability, equality, integration of amenities and services; self help housing or beneficiary participation and community involvement.

Sustainable housing should respond to the socio- cultural needs and practices of the beneficiary households and communities. It is focused on housing development that promotes social interaction of individuals and cultural enrichment of the community and is aimed to reduce the inequality of housing between social classes (Islam, N, 1996). At the same time it accelerates the improvement in social development, relations and interactions.

## **2.2 Economic aspects**

As improvement and development of society are closely related to economic development, socio-cultural sustainability is closely linked to economic sustainability. Economic growth is the key to provide the means to meet basic needs, to ease poverty and to generate employment, factors that are essential for sustainable development (Veron, R 2001). Even though housing problems arise as a symbol of poverty, mere financial assistance usually does not help the poor in meeting their housing needs. The affordability of a household in any part of the world depends on its command over the various resources required for housing. The command over these resources must be given right priority while planning for any housing development programme. The most important financial resources are the actual and potential savings of the inhabitants. This probably represents between 10 to 15% of all personal incomes (Turner, J, F, C 1976). Housing programmes may be linked to programmes generating employment or income enabling the poor to afford their own houses and maintain them (Bhattacharya, K, P 1994). The housing sector is employment intensive; it generates employment during the construction period and also during its life for proper maintenance providing employment opportunities for skilled as well as unskilled labor (Glaeser, B 1995 and Tiwari, P 2001).

Economic sustainability or affordability of housing should be embedded in an economic development strategy, which strengthens the economic self-reliance of household members. The poor often cannot afford to accept public housing assistance due to the lack of economic sustainability or affordability of the schemes.

## **2.3 Technology concerns**

Conventional building materials are beyond the reach of the majority of the world population due to their poor affordability. Besides the escalation in the cost of building materials, rising environmental concerns due to the extensive exploitation of natural resources connected with general construction and other housing development activities urges the need to search for alternative technological options. Alternative materials, methods and techniques of construction replacing conventional building construction can result in reducing the depletion of natural resources and save energy (Reddy, B, V, V and Jagadish, K, S 2001).

Technology can be said to be sustainable only if, it takes advantage of local resources and can be produced locally using unskilled labor, utilizing already available materials without the need for heavy capital investment. It should benefit as many people as possible and should be flexible and functional also, i.e. adaptable to the changing needs of the community; at the same time it should also be environmental friendly. It must be affordable and workable at community level. Feasibility, functionality, strength, durability and reliability are identified as the basic necessities for technological sustainability.

## **2.4 Environmental aspects**

It is now generally agreed that development in the low-income countries must proceed in parallel with a general global application of new technologies, which are both less resource intensive and less environmentally damaging (Spence, R and Mulligan, H, 1995). In order to be sustainable, developments in economy and social changes should be able to sustain ecology and improve potential resources for future generations. Environmental sustainability in housing can be achieved by addressing resource limits of the environment through efficient consumption of non-renewable resources, minimizing the impact of waste materials and pollution by utilizing appropriate technologies and making use of local work forces. The construction industry is involved in activities, which adversely affect the environment through the over exploitation of non-renewable resources. It utilizes energy for the development or production and

transportation of materials and machinery, building and also for maintenance activities. According to the World watch Institute, building construction consumes 40 % of raw stone, gravel and sand, 25 % of virgin wood, 40% of energy and 16% of water used annually worldwide (Dimson.B, 1996). The processes involved in the provision and use of housing have a significant role in the contribution to solid waste. Household activities also supplement the accumulation of waste further polluting the environment. Reducing material wastage has several benefits. It reduces global material consumption and in the long term, also the amount of demolition waste. It also reduces construction costs, making houses more affordable. When properly done, recycling waste as building materials is a convenient way to reduce the environmental impact of the construction industry (Agenda 21 for Sustainable construction in developing countries).

CF<sub>1</sub> (figure 1) lists out the requirements of the different elements of sustainable- affordable habitat.

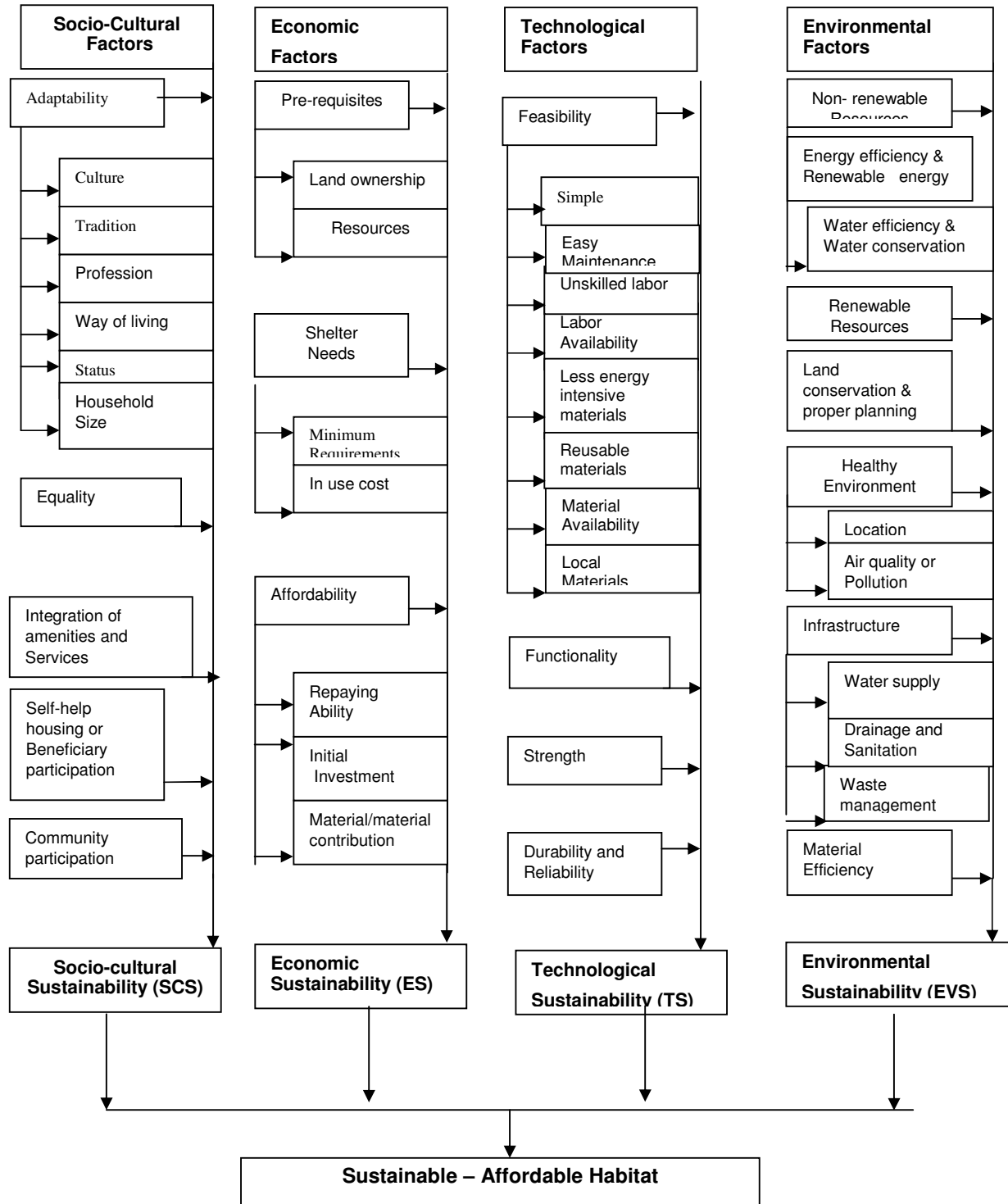


Figure 1 CF<sub>1</sub> Elements of Sustainable- Affordable habitat

### 3. Sustainable – Affordable Habitat

Sustainable development is often defined as development that meets the needs of the present without compromising the ability of future generations to meet their needs (World Commissions for Environment and Development, 1987:23). 'Meeting the needs of the present' refers to the development aspects of sustainability, which includes economical, social, cultural and political issues. The second phrase of the definition 'without compromising the needs of the future' mostly refers to environmental issues (Ebsen, C and Ramboll, B, 2000). Human settlements should be planned, developed and improved in a manner that takes full account of sustainable development principles. Sustainable- affordable habitat could be described as a way of developing and maintaining the living environment that support human health (both physical and psychological), satisfying their shelter needs along with protecting and preserving the nature for future generations. The conceptual framework for sustainable- affordable habitat has been formulated to achieve housing development by balancing social progress, enhancing economic growth, propagating innovative technology along with conserving and protecting the environment and natural resources for future life and development.

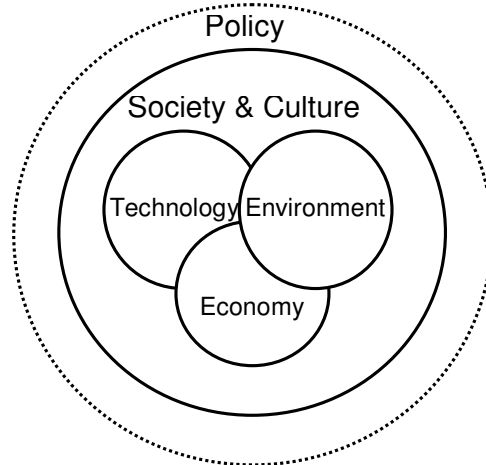


Figure 2. CF: Sustainable – Affordable Habitat

The figure illustrates the relations between the four elements of sustainability and urges the need for an effective policy framework. A framework of objectives has to be prepared to determine the requirements and formulate strategies to support social, cultural, economic, technological and environmental sustainability. During the process of economic development three phases in change can be distinguished (but not separated): 'Optimization- improvement- renewal'. In each of these phases specific interactions between 'culture, structure and technology' can be recognized. In the process of sustainable development optimization and improvement with respect to the environment has been practiced and developed in the last decades supported by policy programmes and industrial initiatives (Jansen, L 2002). Technological innovations can accelerate or decelerate the process of sustainable development as it can have positive and negative impacts to the environment. Protecting the environment is a fundamental aspect of sustainable development. It includes the improvement of essential ecological processes, biological diversity and the natural resource base (Veron, R 2001). Sustainable housing requires a strong supporting institutional (policy) framework to accelerate and integrate the process of development. At strategic level, sustainable development principles and approaches should be integrated into policy strategies and the planning process.

### 4. Strategies for Sustainable – Affordable Habitat

The efficient supply of housing is closely associated with policies, delivery systems in land, infrastructure services, finance, the construction industry and building material supply. The existence of inappropriate regulations and inefficient planning systems can also cause havoc with housing supply for the poor majority. Thus housing policy for people living in poverty has a multi- objective and multi- institutional relevance (UNCHS- GSS 2000). Housing, being a location specific activity, the Government especially local government is considered as the most important actor in the process of housing delivery or rather in facilitating the people to house themselves (Ebsen, C and Ramboll, B 2000). An integrated policy framework is essential to co-ordinate the activities of all the actors to create a 'pull' from the side of beneficiaries rather than a 'push' from the authorities. At strategic level, sustainable development principles and approaches should be integrated into policy strategies and the planning process. An efficient organizational set up is essential during the project implementation and after the project has finished. It is also inevitable for an efficient working of the implementation systems, optimizing limited resources and integrating the various actors to achieve sustainable- affordable housing.

## 4.1 Policy Framework

CF<sub>2</sub> shows the criteria required to formulate implementation strategies for sustainable- affordable habitat. This framework can be considered as a mechanism to achieve the objectives as derived from the analysis using CF<sub>1</sub>. It identifies four essential strategies to realize sustainable- affordable housing: Policy measures for socio- cultural sustainability (PSC), Policy measures for economic sustainability or Affordability (PES), Policy measures for technological sustainability (PTS), Policy measures for environmental sustainability (PEVS)

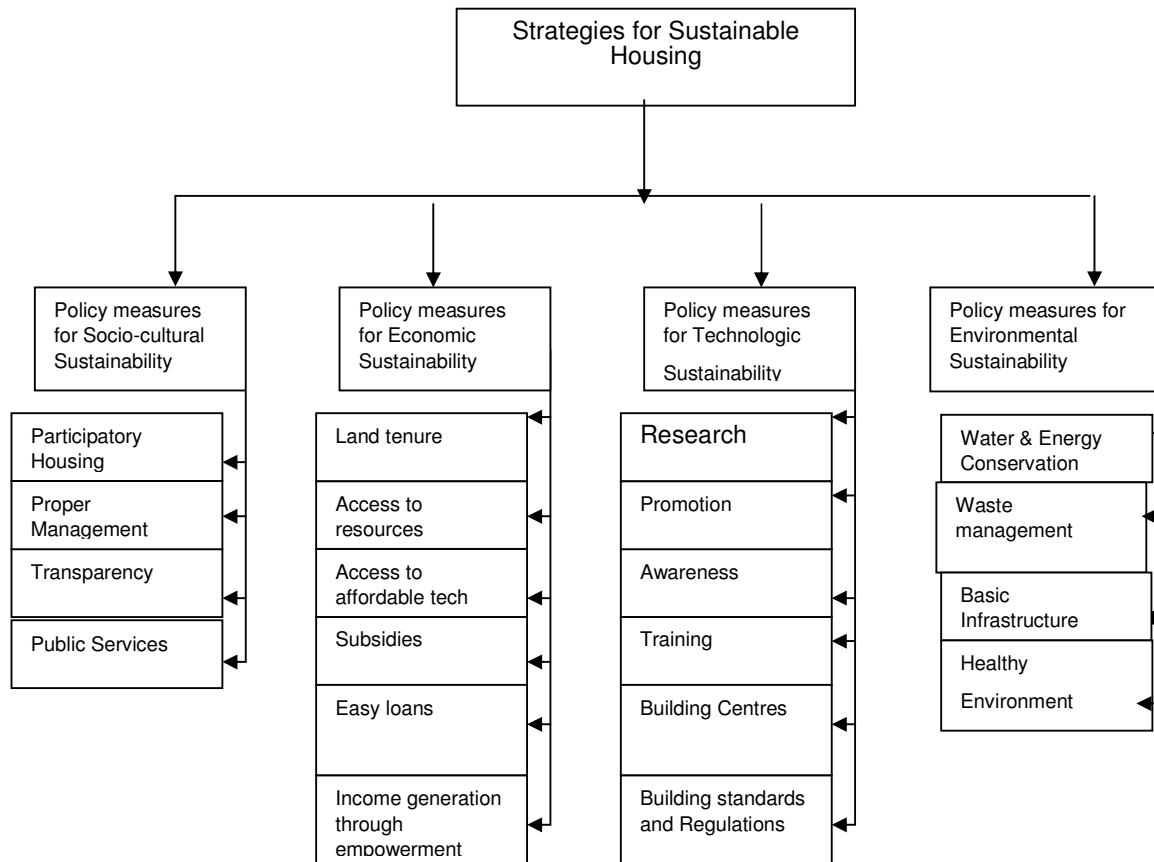


Figure3 CF<sub>2</sub> Policy framework for sustainable- Affordable Habitat

### 4.1.1 Policy measures for socio- cultural sustainability (PSS)

Participatory housing, including community building and self-help, proper management and transparency of development programmes can be considered as the basic elements of PSS. It should include strategies to achieve the following criteria:

Housing should fulfill the cultural and traditional requirements of inhabitants and should be flexible enough to meet the varying needs and interests of the inhabitants based on the changes in the ways of living, profession and household size over time.

- i. The design, types and building materials used should not stigmatize the inhabitants.
- ii. The location of the houses should be such as to facilitate the inhabitants to take part in community activities, improving social relations and intermingling with others.
- iii. Housing developments should not cause the segregation of a community based on income, religion or other social criteria.
- iv. Easy access to infrastructure facilities and community services should be ensured.
- v. Sustainable housing development should be able to promote self -help housing or involvement of households to develop a sense of ownership or pride among the inhabitants.

- vi. Community participation should be ensured to speed up the growth of sustainable residential neighborhoods.

#### **4.1.2 Policy measures for economic sustainability or Affordability (PES)**

Access or command over various resources is an important criterion for affordable housing. Strategies and housing policies should facilitate the provision of easy loans, subsidies and income generating activities, which accelerate the repaying capacity of the households. Policies should be formulated so as to achieve the following objectives:

- i. Land ownership, accessibility to resources like materials, labor and infrastructure facilities like transportation, machinery, power etc. should be ensured.
- ii. Affordable housing should satisfy the minimum housing requirements.
- iii. Ensure to minimize operational and maintenance cost in the long term.

#### **4.1.3 Policy measures for technological sustainability (PTS)**

Technology promotion activities, awareness programmes and skill up gradation or training programmes should be promoted through policy initiatives. Building regulations and standards also need important consideration. PTS should include strategies to sustain the following criteria:

- i. The technology should be simple enough to work with unskilled labor only requiring easy and inexpensive maintenance.
- ii. The use of locally available or locally developed materials, which are cost efficient, abundantly in supply, durable, strong and environment friendly should be promoted.
- iii. As far as possible make use of renewable, reusable and recyclable materials.
- iv. It should be able to satisfy the needs and requirements of inhabitants. It should be socially acceptable and should also be affordable.
- v. Ensure the usage of less energy intensive materials and methods.
- vi. It should match the normal construction quality standards.

#### **4.1.4 Policy measures for environmental sustainability (PEVS)**

The provision of basic infrastructure facilities, the conservation of natural resources, efficient usage of water and energy are essential for sustainable housing. Policies should be formulated considering the following specifications:

- i. Integrate alternate solutions for renewable energy, reuse of water and also proper measures for conservation of resources.
- ii. Housing developments should not disturb ecological and environmental balance.
- iii. Ensure the provision of a healthy indoor and outdoor environment.
- iv. Basic infrastructure facilities such as the provision of drinking water, drainage, sanitation and solid waste management should be ensured as an integral part of housing development.

## **5. Conclusion**

Housing development can be considered as a pioneering step for sustainable development having multiple objectives and multi- institutional relevance. As the housing needs of individuals differ from person to person depending on various factors an integrated approach can be very helpful in defining the problem in general. The framework presented through this paper can be used as a general tool to define the housing problems of the rural poor in any of the developing economies. CF<sub>1</sub> can help to analyze the needs and requirements of the beneficiaries from their own point of view, sorting them out in different aspects of sustainable development. The framework also points out the strategies required for sustainable- affordable habitat through CF<sub>2</sub>. It helps to initiate new integrated strategies to solve the housing problem as defined by CF<sub>1</sub> by comparing the situation with countries having similar socio- economic contexts.

At the same time, this framework needs some modifications for application to the housing problems of developed countries having particular differences in needs and requirements specifically in the differing concept of shelter from that of less developed economies.

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