

# Affordable Housing for Smart Villages

This book initiates a fresh discussion of affordability in rural housing set in the context of the rapidly shifting balance between rural and urban populations. It conceptualises affordability in rural housing along a spectrum that is interlaced with cultural and social values integral to rural livelihoods at both personal and community level. Developed around four intersecting themes: explaining houses and housing in rural settings; exploring affordability in the context of aspirations and vulnerability; rural development agendas involving housing and communities; and construction for resilience in rural communities, the book provides an overview of some of the little understood and sometimes counter-intuitive best practices on rural affordability and affordable housing that have emerged in developing economies over the last thirty years. Drawing on practice-based evidence this book presents innovative ideas for harnessing rural potential, and empowering rural communities with added affordability and progressive development in the context of housing and improved living standards.

- For a student aspiring to work in rural areas in developing countries it is an introduction to and map of some key solutions around the critical area of affordable housing
- For the rural development professional, it provides a map of a territory they rarely see because they are absorbed in a particular rural area or project
- For the academic looking to expand their activities into rural areas, especially in rural housing, it provides a handy introduction to a body of knowledge serving 47% of the world's population, and how this differs from urban practice
- For the policy makers, it provides a map for understanding the dynamics around rural affordability, growth potential and community aspirations helping them to devise appropriate intervention programs on rural housing and development

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# Preface

The premise of this book is that the underlying assumption of previous affordable housing schemes that rural communities have limited or no affordability, is fundamentally flawed. A completely new approach is necessary to accurately assess community affordability, understand potentials and design affordable housing that has the potential to not just meet but to exceed community expectations by upgrading their living standards. Based on the analysis of survey data collected from 37 rural villages (spanning over 2000 households) in Assam, India, it is evident that there is a clear disparity between public housing schemes and public aspirations for affordable housing. Such research-based evidence forms a solid basis for stimulating an educated argument on the core topic of affordability and affordable housing in this book.

Currently, in the Smart Villages Lab at the University of Melbourne, the authors are undertaking empirical research to develop new knowledge and theories with a particular focus on rural planning, housing, infrastructure and governance. The aim of the research is to create new knowledge and support public policies focusing on eradicating poverty in emerging economies such as India. Rapid development programmes that target rural population require an in-depth investigation of public policies and their underlying governance mechanisms that result in effective delivery of affordable housing and associated services. Over the past few decades, many grand schemes to develop affordable housing for rural development have failed to produce expected outcomes. Traditional top down housing solutions, laden with public policies have increased the gap between rural and urban communities across numerous fronts. The Smart Villages research, initiated from a project funded by the State Government of Assam, is centred on fundamental improvements in rural infrastructure, local skills and knowledge required for rural development. Researching into this area of critical need, the authors co-authored a first book *Planning, Housing and Infrastructure for Smart Villages*, Routledge, UK (2019).

Housing and infrastructure provision is one of the key areas of disparity between urban and rural communities. The Smart Villages lab's research provides a unique opportunity for improving rural housing policy by

incorporating culture and community at the core of decision-making. By undertaking the fieldwork in this research, a series of intellectual enquiries have been initiated based on accurate representation of the individual households with a comprehensive set of socio-economic data. These enquiries provided a solid basis for formulating new policies on affordable housing from the perspective of the house owners. Highlighting the underlying knowledge and processes around creation of community housing in a global context, the book provides a good basis for comparing and contrasting the opinions of rural residents with expert viewpoints, bringing an insightful debate on affordability and affordable rural housing that will appeal to a global audience.

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# 1 Introduction

Rural villages were once synonymous with self-sufficient agricultural communities. Lack of electricity and telecommunications links saw these communities essentially cut off from the rest of world. The local architecture in these areas reflected this self-sufficiency and isolation as houses were built by members of the local community, from locally sourced materials, with design features that had evolved in response to the local climate and culture. In more recent decades, the industrialisation of agriculture has created larger farms with fewer employees as many labour jobs are replaced with technology. These production processes are very cost-effective meaning these farms can charge lower prices for their produce. Thus, small-holder farms are unable to compete in the market place and can no longer generate sufficient income from agricultural activities. Similarly, the number of labour positions available on larger farms are declining. Waves of young able-bodied citizens are migrating to urban areas in search of better opportunities leaving rural communities with high proportions of elderly residents and small-holder farms growing food for their own sustenance but not generating any income. While rural communities are still cut-off due to poor infrastructure they are becoming more dependent on external resources for survival. The increase in access to media has also influenced once isolated rural communities by providing a window into how other people live. This has altered their expectations, leading to a preference for “urban” lifestyles.

The concept of a “Smart Village” has evolved in response to this changing nature of rural areas. This would see the transformation of these struggling communities into thriving, self-sufficient ones. At the heart of the Smart Village concept is the creation of income generating opportunities, to help attract young people back to these areas, coupled with the enhancement of local skill level to reduce their dependence on external resources. For example, providing a microgrid for the generation of electricity would bring the benefits of electrification without the risk of blackouts accompanied by connection to the national grid. Training members of the local community to perform repairs and maintenance on the system would ensure that it remains in good working order without the need for external support. Increased electrification would go hand in hand with improved telecommunications access, bringing rural

## 2 Introduction

villages a world of information and enhancing income generation potential. Small businesses will gain information that could help enhance the quality and quantity of their production. For example, farmers could learn ways to improve their crop yields. The internet also provides isolated communities with a way to source better supplies and increase their customer base. However, perhaps the most important part of enhancing people's lives is providing them with an affordable, comfortable, functional and safe place to live in.

For most people worldwide, the cost of accommodation takes up the greatest proportion of their income. Due to the vastly unequal distribution of incomes, people with vastly different financial resources are competing in the same housing market. As a result, poorer people are often forced to either live in appalling conditions or move to afford their accommodation. This destroys the socio-economic diversity of communities creating concentrated pockets of cheap low-quality housing. These areas are undesirable both as a place to live and a place to visit. Thus, it will be difficult for businesses to thrive, meaning they are more likely to move their premises to a different area. This has the doubly negative impact of moving jobs away from potential employees and moving services away from residents in areas with poor housing (Whitehead, 2007).

Providing appropriate affordable housing in diverse communities will be a key component of transforming decrepit rural areas into Smart Villages. To do this, the provision of housing must go beyond the basic concept of a "roof over the head" to embrace a range of features that could lead to the improvement of livelihoods. These concepts are summarised in Figure 1.1.

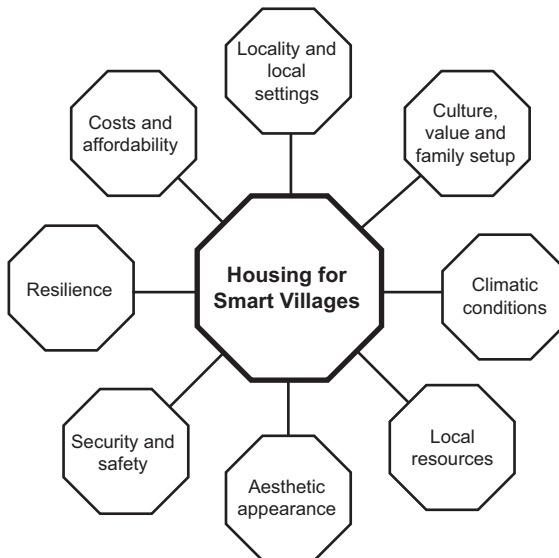


Figure 1.1 Factors associated with affordable housing in Smart Villages



As can be seen, costs and affordability only make up one of the factors for consideration. It is also important to consider:

Location and local settings, understanding whether the house is located in close proximity to essential services, employment opportunities.

The culture, value and family setup are also important. The use of a house goes beyond simply a place to sleep, also providing a place for children to play and study, a work space for small businesses, and a place for entertaining guests. Households with strong religious beliefs often also require spatial layouts that allow them to practise rituals.

The local climatic conditions should also be factored into the house design. Vernacular architecture in most regions has evolved in response to the local climate (Zhai and Previtali, 2010). Thus, housing in warmer climates retains coolness during the daytime and cools down quickly in the evening, while in cooler climates housing is designed to retain heat. Modern architecture often fails to capture this climatic responsiveness meaning either the interior space will be uncomfortable or that households will be required to spend money on heating and cooling their internal space.

One of the most significant costs of rural housing is the construction and therefore, reducing costs is important for achieving affordability. Reducing construction costs is often considered a reduction in quality, however, there are ways to avoid this compromise. Relying on local resources in terms of both building materials and labour could help make housing more cost-effective, while also increasing local employment opportunities.

In many cultures a home is a place for entertaining guests and thus it is important that the aesthetic appearance of the house is something to be proud of. Many people feel their house is an important status symbol and will have direct bearing the way they are perceived by other members of their community. Ensuring a pleasing aesthetic while still using low-cost materials is an important challenge.

Poorly built houses are not just unpleasant but can also be dangerous to live in. People have the right to feel safe in their own home, therefore, reducing costs should not compromise on quality.

Perhaps the most important part of making a house affordable is ensuring longevity. While it may be possible to build a relatively cheap, aesthetically pleasing house, it cannot be considered affordable if it is severely damaged during storms or other disasters. This is particularly the case for regions where such occurrences are frequent. There is some evidence that the intensity of natural disasters is increasing due to climate change, and that this scary trend is projected to continue, therefore ensuring houses are resilient to any natural disasters projected to impact a region is also an essential consideration.

This book will describe the importance of incorporating all these factors into affordable house designs, and ways that these can be achieved. It draws on evidence from previous affordable housing schemes and their successes and failures in the following structure.

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Rural communities have typically been associated with agriculture and traditional lifestyles. However, in the face of an increasingly globalised world and increasingly industrialised agriculture the nature of rural communities is changing. Chapter 2 describes some of the new types of rural communities that are emerging in the modern world.

The changing face of rural communities is visible in the alteration of rural architecture. Traditional vernacular housing designs typified by locally sourced building materials are being replaced with modern brick and concrete houses. While there are some benefits to modernisation, vernacular designs evolved in response to the location's climate and culture and so have some features that are more appropriate. Their use of locally sourced renewable building materials also makes them superior in the emerging need to embrace sustainability into the construction of buildings. In Chapter 3 we explore some of the design features of vernacular structures that are superior to modern designs due to their climatic responsiveness and cultural significance.

Nearly every region in the world appears to be experiencing housing shortages these days. Thus, people everywhere are struggling to afford accommodation. As a result, many are either finding themselves cutting back on other basic essentials to cover their accommodation costs, living in squalid or overcrowded conditions, or living in an inconvenient location. Countries are often judged by the state of their housing; thus, governments are struggling to respond to this ever-increasing problem. In Chapter 4 we look at different definitions of affordable housing and discuss the importance of going beyond monetary considerations to incorporate adequacy and availability. We then look at a range of specific affordable housing initiatives incorporating both government and non-governmental case studies, and their successes and failures.

The house in itself is not the only factor affecting affordability. The location of the house is also an important consideration. Convenient access to employment opportunities and essential services will impact on a family's quality of life and can either be hindered or enhanced by the location of their accommodation. For many families a house is not just a place to sleep in but is a place to perform many daily activities including work, study and socialising. The ability to perform all these activities will be affected by the layout of the house and its surrounding landscape, impacting both cost of living and quality of life. In Chapter 5 we explore different ways affordability can be impacted by the location and layout of a house.

The obvious solution to the chronic global housing shortage is to construct more houses. While this sounds simple enough, there are two challenges to achieving this. Firstly, finding suitable land to build on and granting citizens tenure over this land. Secondly, the actual construction, which entails the costs of building materials and labour. Both of these can be difficult to access in rural communities, increasing their costs compared to urban areas. Reducing construction costs is often considered synonymous with compromising on quality. However, by embracing vernacular design

features and using a mixture of traditional and modern building materials cost-efficient quality housing could be achieved. In Chapter 6 we describe in detail different issues relating to land tenure and present a range of construction options that could significantly decrease the overall costs of housing, without compromising on quality.

As part of the research for this book the authors visited a remote rural region of India and met with locals to find out about their housing and their feelings about their homes. Some of these people were living in houses that had been built by the government under the “housing for all” initiative, while others were self-built. Chapter 7 summarises the results of this field study along with discussion around the suitability of government-funded housing provision.

One criticism of vernacular houses is the perception that they are flimsy and will collapse easily in extreme conditions. However, others believe the reverse to be true. Vernacular housing was designed to cope with local conditions, including the natural disasters that frequent some regions. In Chapter 8 we look at the impact that some of the worst disasters in recent history have had on housing in rural communities, including earthquakes, tsunamis, cyclones, floods, droughts, fires and conflict.

Architects and engineers have developed design features specifically to increase the resilience of housing to these natural disasters. Some vernacular features have also been designed in response to natural disasters, in areas where these are a frequent occurrence. In Chapter 9 we describe some of these specific features pertaining to the different types of disasters that occur frequently in some regions. We compare modern and vernacular features in determining which of these is most effective at ensuring resilience while still ensuring house construction is affordable for rural citizens. Thus, we look at ways of making rural housing that is both resilient and affordable.

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