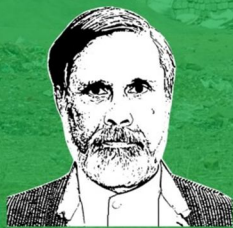


Urban Affordable Housing: Decoupling Material Resources



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The Housing Scenario in India

In the present development trajectory, India is at a crucial juncture where the nation is required to meet the demands of a population of over 1.2 billion (Census of India, 2011) along with ensuring environmental sustainability. The growth trajectory has so far, resulted in over-exploitation of finite resources thus resulting in tremendous environmental degradation. For example, the Indian brick sector produces close to 240-260 billion bricks annually which results in a loss of 350 million tonnes of top soil. With the steadily rising economic status of the Indian population, growth of cities has become evident which has further created a rapid demand for housing. The current affordable housing shortage in Urban India (2012-2017) stands at 18.78 million dwelling units (Ministry of Housing and Urban Poverty Alleviation, 2012). This is expected to increase to 44-48 million units by 2022 (KPMG, 2014). Further, the rural housing shortage stands at 43.67 million (2012-2017), assuming an annual housing stock growth at 2.09% and annual growth in households at 2.1% (Ministry of Rural Development, 2011). Apart from the housing shortage, reconstruction due to disasters and extreme weather events along with renovation and aerial expansion of buildings will result in an increased demand for materials as well as energy use in the construction sector¹. A number of Government programmes like Housing for All 2022 (Urban and Rural), Smart Cities Mission and the Atal Mission for Urban Rejuvenation and Urban Transformation etc., have been launched to meet this housing demand and are thus likely to give a further boost to the construction sector.

Resource Use in Construction

Buildings impose a burden on the environment by consuming a substantial amount of resources like raw materials and fossil energy. The building sector was the second largest sector with regard to material consumption in 2007, accounting for around 20% of all material demand, growing by over one billion tonnes from 1997 (SERI, 2012). It also uses 40–45% of India's steel, 85% of paint production and 65–70% of glass. A significant portion of the output from automotive, mining and excavation equipment industries are used in the construction industry (Planning Commission, 2012). Environmental degradation due to inefficient extraction processes and over-exploitation have left devastating impacts on both the environment as well as human livelihoods. For example, use of top soil for the manufacturing of burnt clay bricks, results in habitat destruction, collapsing of river banks, soil erosion, river flooding etc.

¹ This demand would be required both at the construction as well as the operational phase of buildings.

Contextual Understanding and the Idea of Decoupling

Thus it is evident that the housing/building sector is highly resource intensive making it imperative that processes, practices, and policies are developed to move toward the path of environmental sustainability.

In this context, it is important to understand the concept of ‘*decoupling*.’ In its literal sense, decoupling establishes removing the link between any two variables. By virtue of its definition, it can be applied to any sector. The International Resource Panel (IRP) launched by the United Nations Environment Programme distinguishes between two forms of decoupling namely, *resource* and *impact*. The former discusses reducing the rate of use of (primary) resources per unit of economic activity i.e. efficient use of resources, while the latter illustrates raising economic output while reducing negative environmental impacts that arise from extraction, production, use, and post-use of resources. In the case of our discussion we aim to understand the processes and mechanisms of de-linking material use from the growth of the affordable housing sector.

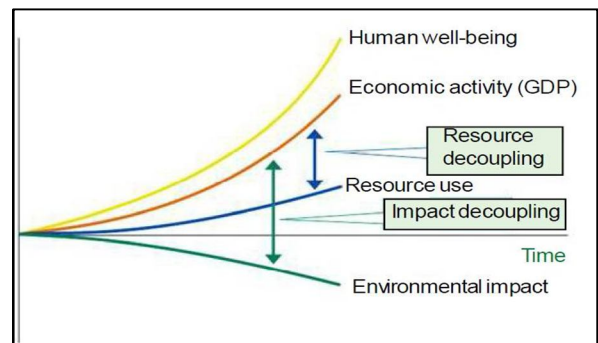


Figure 1: Decoupling Resource Use from Growth (UNEP IRP, 2011)

Existing Policies for Resource Efficiency in Buildings

While ‘decoupling of resource and energy intensity from economic growth is a new concept in India, the Government of India, through several policy instruments and market mechanisms has been working toward promoting resource efficiency in the Indian economy. A recent development in this space has been the formation of the Indian Resource Panel by the Ministry of Environment, Forest and Climate Change. The panel aims to create a facilitative environment for recycling to promote sustainability and to decouple growth from environmental degradation. One of the most commendable policies which has the potential to ensure decoupling of material resources is the Fly Ash Notification, 1999. The notification places restrictions on the excavation of topsoil for the manufacturing of bricks and promotes the utilisation of fly ash for the same.

Construction and demolition waste (C&D) is another secondary raw material that can be used in the housing sector. The Construction and Demolition Waste Management Rules, 2016 encourages the use of recycled C&D waste products such as paving blocks and kerb stones. The Sustainable Sand Mining Management Guidelines, 2015 ensure that sand and gravel mining is done in an environmentally sustainable and socially responsible manner.

Given this context of increasing demand for affordable housing and the emergence of decoupling as one of the most potent solutions to achieve this, the present *trialogue 2047* aims to address the following questions:

1. What extent of decoupling is possible to become a mainstream approach with the current state of technology and practice in the housing (construction) sector, with an emphasis on the affordable housing sector?
2. What are the market/policy instruments that can influence the choice of technology and materials in building construction? Further, how do we ensure 'affordability' in this context?
3. What kind of solutions (financial, technical, political etc.) do we need to promote 'decoupling' of material resource in the housing sector?