



Monthly newsletter on issues
of sustainable development

DEVELOPMENT ALTERNATIVES



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The views expressed in the articles in this newsletter are those of the authors and not necessarily those of Development Alternatives.

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Sustainable and Resilient Human Settlements – People and Nature at the Centre of the Transformation We Need

The World Habitat Day is celebrated on the first Monday of October every year. This year, the day coincides with the birthday of Mohandas Karamchand Gandhi, Father of our Nation, and Mahatma to all of us Indians. What better inspiration to look towards than to Gandhian thought to address the poly- crises of resource stress, pollution, and climate change impacts that human settlements are facing today in their quest to achieve sustainability and resilience.

The Indian human settlement landscape today is in tremendous flux and change. Rapid urbanisation characterised by expanding and over-crowded cities; demographic, economic and spatial transformation of villages with service and manufacturing based economies replacing agriculture and allied activities, changes in land-use from agriculture, pasture and forest lands to industry, institutional, commercial and residential infrastructure; and a nebulous peri-urban landscape at threat from encroachment and pollution. All these regions are moving towards greater inequity (well demonstrated in the covid lockdown), higher resource and carbon intensity, and an increasing distance from nature figuratively and literally. And all these regions are more exposed and vulnerable than ever to the impacts of a changing climate.

No doubt that science and policy are weighing-in with technological solutions for higher resource circularity and carbon neutrality; nature-based solutions to complement grey infrastructure, policy directives and minimum quality standards for universal access to housing, basic amenities, energy and mobility services and public campaigns for sustainable consumption practices. However, the application of policy intent is slow and outcomes of sustainability and resilience at local levels are far from being achieved. To quote Oliver Greenfield, global convener of the Green Economy Coalition, *"We know what needs to be done, the question is how"*.

At the one end of the spectrum are data intensive and quantitative tools to support policy and planning that require expertise, skills and investments in institutional capacities and frameworks to enable valuation of ecosystem services, carbon saving, resource circularity and economic growth. These are largely used by researchers and experts to inform national policy development and industry transformation. They are necessary, however their application to enhance sustainability and resilience of human settlements is nascent. At the other end of the spectrum are consumption behaviours and perceptions of citizen-actors that determine choices with respect to transport, water, energy, food, fashion and building construction, waste-management etc. In this space, the interventions are largely campaign oriented and often prescriptive with communities as recipients rather than partners of the process of transformative change.

A big gap exists in between these two extremes, in leveraging the potential of citizens – the market or end users or communities, as these are variously called, to drive change as active stakeholders. The interventions to build capacities of citizen-actors to feedback into the rule and regulation making bodies, participate in the planning of their cities



Demonstration of Green Building in Uttarakhand

and neighbourhoods and actively engage in management of common services and spaces is inadequately supported by formal institutional mechanisms.


People's movements all over the world, as also in India, are demanding for a change in the relationship between themselves and their formal governance institutions. They are asking for their diverse voices to be heard, for their traditional knowledge systems to be taken on board in decision making, and for their capabilities to engage in governance to be enhanced. And, as more and more citizens become better informed regarding the implications of economic growth and infrastructure development actions, they demand for more ecologically benign and restorative development solutions.

Therefore, a second question that must be asked is on the role of citizenry across the different social-economic strata in the planning, design and management of human settlements, and how may formal institutions build the capacity and agency of citizen-actors to engage with, influence and direct the process of transformation of their neighbourhoods, towns and cities into sustainable resilient and vibrant places to live and to thrive in.

Many examples of community-led planning, design and management of settlements and infrastructure in the Indian human settlements-scape inspire us. Rural areas such as Odanthurai in Tamil Nadu, Piplantari in Rajasthan, Madore in Madhya Pradesh, Hiware Bazaar in Maharashtra and Mawlynnong in Meghalaya demonstrate collaborations between panchayats and communities to bring in innovative technological, management and governance solutions to address food, energy, water and waste management, forest and pasture-land rejuvenation and eco-friendly construction. We see the possibilities of community-led rural to urban transformation in the small town of Magarpatta city near Pune choosing to co-develop a sustainably planned and co-owned urban settlement rather than be engulfed by Pune city. We also find examples of neighbourhood or urban-district transformation from metropolises such as Bangalore where communities are coming together to manage urban wetlands

and Gurugram, where communities are leading forest rejuvenation and waste management. These transformative shifts are driven bottom-up, supported with social-ecological and technological knowledge and expertise, demonstrate a shared understanding of implications of both non-action and of mal-development, are linked with local governance processes and are most often resourced by either CSR or non-government funding.

These interventions indicate localised decentralised and largely self-managed, ecologically and socially responsible development reflecting Gandhian principles active engagement and participation of communities in the management of their human settlements (*swaraj*); built on the understanding of the interconnectedness of human-habitations with nature (*advaita*) and therefore choose ecologically benign and restorative solutions (*trusteeship*), reducing wastes, reusing and recycling resources (*non-violence* towards society and environment). In some of these examples, we see the inclusion and betterment of all members of the community (*sarvodaya*) and a focus on the most vulnerable ensuring equitable access to habitat goods and services to all (*anthodaya*).

And, while these bottom-up interventions are often discussed in policy design and development fora, the mechanisms to integrate their lessons in municipal and panchayat planning frameworks and guidelines are missing. Policy makers often critique the relevance of decentralised, people and nature centric process-based approaches to address the complex, large-scale and fast paced urbanisation challenges today. One would argue, however, that the simplicity and human-nature connectedness inspired by Gandhian thought and practice will enable us to navigate the complexity to transform our human settlements to humane, sustainable, and resilient places. Mainstreaming the integration of lessons from community-led processes would be the answer in a large part to the first question "how"? . 

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Ashraye : Driving Circularity and Decarbonisation in India's Built Environment

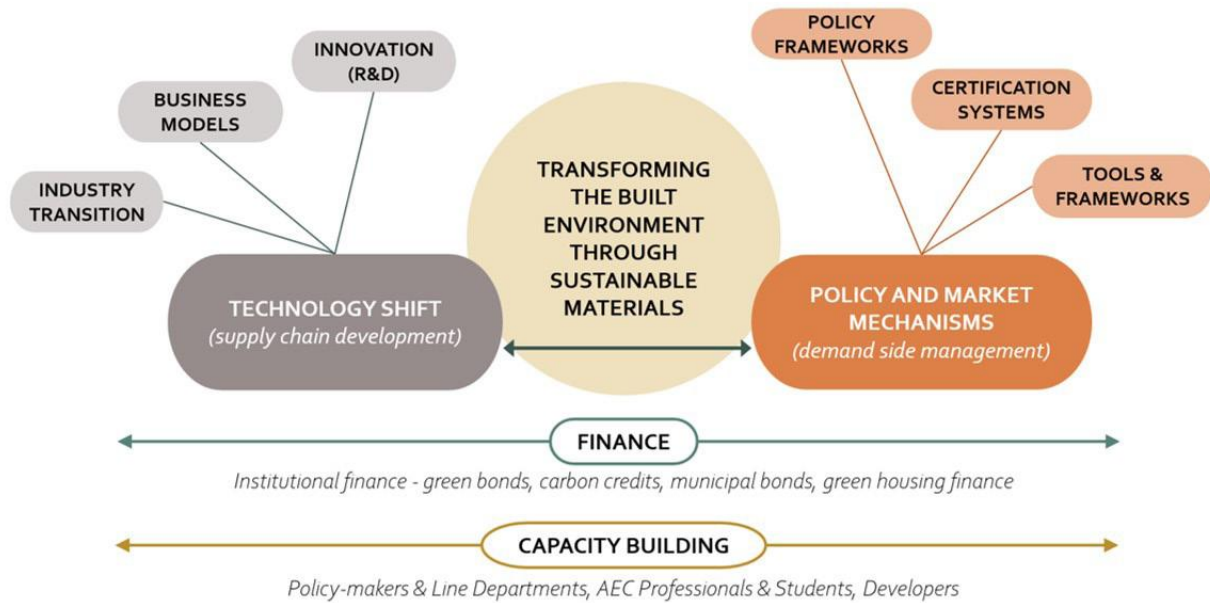
In recent years, the built environment has gained prominence globally as a key action area for addressing the interlinked issues of climate, resource consumption and pollution. The sector represents 38% of global energy emissions, with almost a quarter of these coming from the 'embodied energy' of building materials (Global Alliance for Buildings and Construction, 2021). In the case of India, domestic resource extraction increased by over 300% between 1970 and 2019, and almost half of this has been used for construction in the form of non-metallic minerals, such as sand, gravel, limestone, structural clays (Materialflows.net, 2019).

The increase in demand for building materials is projected to continue till 2035 due to increased impetus for infrastructure development in a rapidly urbanising India, particularly to meet the housing demand under the Pradhan Mantri Awaas Yojana (PMAY), as well as the need for massive urban redevelopment works due to increasing densification and evolving planning norms, even as brick and concrete structures built in the last century reach their end of life. The sheer quantum of these impacts and increasing demand for materials warrants mitigation that is robust and immediate.

The arena of buildings and construction has implications across multiple industries through its extensive, convoluted value chain and necessitates coordinated action across the disciplines of architecture, planning and industrial ecology. Moreover, balancing demand and supply dynamics is crucial to create an enabling market ecosystem where sustainable and responsible material alternatives with reduced resources and carbon footprints are readily available, bought and utilised effectively and efficiently.

To address these concerns holistically, the Development Alternatives Group has initiated its flagship programme for transforming the built environment through sustainable materials named *Ashraye*. This looks at four key components:

1. **Technology shifts** for supply chain development by facilitating industry transitions such as moving from Ordinary Portland Cement and Portland Pozzolana Cement to Limestone Calcined Clay Cement, from polluting burnt clay bricks to fly ash bricks and other masonry alternatives, as well as driving research and designing business models for innovative building materials from construction and demolition waste, industrial waste and bio-based materials.
2. **Policy and market mechanisms** for demand-side management through policy and regulatory frameworks, including developing strategic plans and roadmaps, integrating sustainable public procurement practices, codes and standards, tender and BOQ processes, and designing fiscal incentives and subsidies; strengthening material usage and embodied energy concerns in green building certification systems that act as essential decision support systems.
3. **Financial instruments** that may be leveraged to support the technology transition at scale in the form of institutional financial mechanisms such as green bonds and carbon credits for supply chain decarbonisation, and municipal bonds and green housing finance to incentivise demand-side shifts.
4. **Skill development and capacity building** of stakeholders across the value chain. This includes policymakers who can help create the enabling mechanisms for this shift in the public sector and the line department officers and engineers who will implement those. At the private sector end, students and professionals in the architecture, engineering, construction and design industry are key stakeholders, including developers and contractors. Architects and developers have an essential role as agents of change due to their direct influence on homeowners and buyers' decision-making.



Ashraye is currently being implemented in the Indian states of Odisha and Maharashtra in collaboration with state-level stakeholders for mainstreaming decarbonisation and circularity approaches in affordable housing development through the development of subnational road maps and other tools and frameworks, pilot demonstration projects and extensive capacity-building activities across the buildings and construction sector value chain. This approach can contribute significantly towards enhancing the sustainability of the built environment while generating livelihoods and new economic opportunities through the productive utilisation of available wastes and other secondary resources. *Ashraye* offers a unique opportunity for aligning national and subnational mandates towards Mission LiFE, PMAY, CITIIS, Smart City Mission, Swachh Bharat Mission, ECBC, etc., as well as meeting India's international commitments towards the

Sustainable Development Goals and NDCs by pioneering new, holistic models of sustainable, affordable housing developed based on localised, participatory approaches. □

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Shifting to Community Centric Urban Housing in India

The treatment of slums in India has significantly evolved over the years. Urban development has been influenced by the ideology that investment in affordable housing acts as a potentially counter-productive incentive for increased rural-to-urban migration (Burra, 2005 in Rao et al., 2022). The migrants who then set up homes in the city were, in previous years, generally perceived as ‘squatters’ or ‘encroachers’ lying in the way of what may be seen as an elitist goal of having ‘slum-free’ cities by those in city administrations and the upper echelons of society (Rao et al., 2022). City dwellers were not cognisant of the fact that slums are, in fact, a byproduct of unplanned urbanisation.

Historically, housing for the urban poor has been led by an entirely top-down ‘one-size-fits-all’ approach anchored by policymakers, bureaucrats and civil society (Killemsetty and Patel, 2022). Post-independence housing policies for the urban poor did not yield significant results as there were issues in terms of affordability

and social acceptability. Rehabilitation of the slum dwellers, more often than not, took place in areas miles away from their workplaces and sources of livelihood. Over the years, the role of the government took on a different colour, from the physical provisioning of affordable housing to its enabling, facilitating and financing (Mitra, 2021 and Chatterjee, 2020 in Mitra, 2021).

Odisha Livable Habitat Mission

Housing policy in the slum context has evolved from forced evictions to in-situ upgrading to providing tenure security through land rights. Policymakers have rarely created an enabling environment to encourage community participation in the policymaking and implementation process of these policies. The Odisha government has been attempting to change this trend by implementing an umbrella programme called the Odisha Livable Habitat Mission (OLHM), popularly known as the JAGA mission. It seeks to enact the Odisha Land Rights to Slum Dwellers Act (2017). The Act makes provision for the following:



Mahaveer Awasi Yojna - An *in-situ* slum redevelopment project at Mouza: Gadakana over a land area of 3.82 acre

- (a) Tenure security to slum dwellers against the threat of eviction
- (b) Establishing a legal foundation for enhancing the living standards of slum residents
- (c) Enabling beneficiary families to avail subsidies through the Indian government's flagship programme, 'Pradhan Mantri Awas Yojana (PMAY)' (Killemssetty and Patel, 2022).

SDA - The fourth tier of governance

The programme is currently among the largest slum titling exercises in the world. JAGA has established over 2931 slum collectives known as 'Slum Dwellers Associations' (SDA) to foster active participatory planning in informal urban settlements and create a 'fourth tier of governance' (Panigrahi, 2022).

These associations play a vital role in the construction and advancement of the communities and housing projects where they are established. An excellent illustration of a community-driven approach, SDAs have gradually transformed into influential entities over the years. The government also views them as platforms for democratic engagement, enabling individuals to take on leadership roles within their communities and fostering a sense of belonging and responsibility towards housing initiatives.

During Development Alternative's visit to Gadakana Affordable Housing in Bhubaneswar, an intervention was held with Lakshmi (name kept anonymous for privacy), the dedicated leader of the SDA of Gadakana Housing. This encounter gave an in-depth insight into the inner workings of the community-based approach to housing development.

During the interaction with Lakshmi, she shared valuable insights about Gadakana Affordable Housing, revealing that it primarily served as a rehabilitation housing project. Most of its residents had relocated here in the aftermath of the 2013 cyclone. The community predominantly consisted of families with five to six members, with a significant portion of the working population commuting to and fro between Bhubaneswar and the complex for employment. Remarkably, some entrepreneurial women within

the community had established their businesses, including tea stalls and footwear shops, in the vicinity of the housing complex.

Each typical housing unit comprised of two rooms, a kitchen, and a washroom, complete with convenient in-built shelves for storage. Notably, residents were subject to strict regulations preventing any alterations or modifications to their living spaces. Unauthorised changes could result in potential charges under damage control measures enforced by government agencies.

The housing community centre served as the heart of the community, a space for celebrations, mourning and gatherings. Lakshmi skilfully managed both the organisation of these events and the complex's upkeep while staying within the government's allocated budget. She was duly compensated for her contributions to the community. The images above attest to the housing's cleanliness, efficient services and well-maintained infrastructure, including electricity and water supply. The SDAs and their dedicated staff played a central role in addressing the Housing's on-ground day-to-day needs, reiterating the importance of a bottom-up approach and people-centric development. □

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Sustainable Materials and Green Incentives for Affordable Housing

The building sector is a major greenhouse gas emitter, responsible for 38% of global energy-related emissions in 2019, with building materials contributing over 10% of indirect emissions (GlobalABC, 2020). Achieving net zero carbon emissions by 2050 requires reducing emissions from this sector by nearly 98% from the 2020 level of 38%.

Rapid urbanisation in the urban centres of Odisha, including Bhubaneswar, Cuttack, and Puri, has led to a housing shortage, especially for low-income families. The 2011 Census estimated that 27.8% of the State population resides in urban areas. In the same year, the Odisha government reported a shortage of over 600,000 dwellings, half of which is in urban Odisha (HUDD, 2021). With 45% earning less than INR 5,000 monthly (Economic Survey, 2019), affordable housing (AH) is crucial for socio-economic development in Odisha, especially given its high vulnerability to natural disasters. In this challenging context, the state has an opportunity to address a two-fold challenge, housing shortage and building emissions, by integrating sustainable materials and green technologies to its AH policies and initiatives. While AH projects lower costs for the beneficiaries, utilising local and sustainable materials will address environmental impacts, climate change and building resilience.

In this article, we analysed cornerstone policies for AH in Odisha to identify gaps and opportunities pertaining to integration of utilisation and promotion of green technologies and sustainable materials in the existing policies and regulations as shown in the table (next page).

The Analysis shows that except for the Pradhan Mantri Awaas Yojana, which



Estimated Building Stock Growth in India

Source: The Embodied Carbon Challenge for India.

(CLF) Retrieved August 29, 2023, from Carbon Leadership Forum

provide provisions for adoption of green technologies and materials under its Technology Sub-Mission, none of the other policies provide clear directives for adoption of sustainable materials/technologies. While most of the policies adopt a participatory approach and provide fiscal assistance and other incentives for beneficiaries and developers, none of the policies incentivise the utilisation of sustainable materials in AH projects. Though limited to certain carpet sizes, AH projects have the potential to incorporate green certification systems to address environmental impacts considering its huge demand.

Integrating sustainable materials and green technologies into Odisha's affordable housing policies brings forth a dual advantage. Firstly, it stimulates economic growth by promoting local industries involved in sustainable construction materials and building technology, thereby creating job opportunities. Secondly, it will significantly reduce the carbon footprint of the housing sector, mitigating environmental degradation and advancing the cause of a greener Odisha for generations to come. □

Table 1: Odisha Affordable Housing Policies Analysis

Policy	Promotion of Green Tech/Sustainable Materials	Fiscal incentives/Subsidies	Participatory Approach	Integration of green certification systems
PMAY – U	-Technology Sub-Mission	<ul style="list-style-type: none"> - Financial assistance for beneficiaries - Exempt or nominal charges towards stamp duty, registration charges, etc. - Additional Floor Area Ratio (FAR) or Transferable Development Rights (TDR) in case of slum redevelopment on private owned land - Credit-Linked Subsidy Scheme 	<ul style="list-style-type: none"> - The scheme involves organisations like BEE, NRSC to provide support to ULBs - Centre and state/UT shall partner with premier academic institutions to develop technologies and provide capacity development and handholding to cities 	Nil
Jaga Mission	Nil	Nil	<ul style="list-style-type: none"> - Participatory Infrastructure Need Assessment (PINA) - Formal rights of land recognition and tenure security 	Nil
Biju Pucca Ghar Yojana & Nirman Shramik Pucca Ghar Yojana	<ul style="list-style-type: none"> - Promotes incorporation of disaster resilient features - Encourages innovation in housing typologies, design, building materials, and construction 	<ul style="list-style-type: none"> - Financial assistance for beneficiaries 	<ul style="list-style-type: none"> - Can involve CBOs, SHGs, NGOs etc. to coordinate building materials supply and facilitating construction. 	Nil
Odisha Urban Housing Mission	Nil	<ul style="list-style-type: none"> - Provision for Provision for compensatory FAR, fast track approval, and exemption of various charges - Financial assistance for Beneficiary-led construction 	Affordable Housing Facilitation Centre	Nil
Odisha Development Authorities (Planning and Building standards) Rules, 2020	Permits the use of technology and materials approved by BIS/other statutory body	<ul style="list-style-type: none"> - Provision for additional FAR for certain developments 	NA	Mandatory green building provisions for residential and non-residential buildings depending on plot size
Bhubaneswar Development Authority (Planning & Building Standard) Regulations, 2008	Permits the use of technology and materials approved by BIS/other statutory body	<ul style="list-style-type: none"> - Premium FAR charge compensation for gold/platinum rated IT/ITES green buildings 	NA	Nil

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Empowering Communities through the LOCO Initiative

Bundelkhand is a region in central India that spans across the states of Uttar Pradesh and Madhya Pradesh. It is known for its arid and semi-arid climate, characterised by erratic rainfall and frequent droughts. This region faces significant challenges related to water scarcity, making access to safe and reliable water supply a critical issue for its residents.

LOCO Model

In this challenging context, the Community-Based Locally Owned and Community-Operated (LOCO) model was implemented in Madore village, located in the Niwari district of Bundelkhand, by Development Alternatives. The LOCO model represents an innovative and sustainable approach to providing safe water supply to communities in water-scarce regions like Bundelkhand. This community-based enterprise model embodies the principles of local ownership and community operation. It is the result of a collaborative effort by the community members, who actively contributed to its development. A committee, predominantly led by women from the village, manages and oversees the system, reinforcing the sense of ownership.

The LOCO model's sustainability is underpinned by a pay-for-use revenue model. Each household pays a modest monthly fee of INR 50 for the operation and maintenance of the water supply system, ensuring its long-term viability. To facilitate fee collection and the smooth operation of the facility, a dedicated Water Development Group called the 'Siddha Baba Jal Praday Samiti' has been formed, comprising women members from the community.

A crucial element of the LOCO model is the monthly review meeting, which serves as the cornerstone of the system's functionality. These meetings not only address infrastructure and distribution

issues but also prioritise the safety of the water supply through regular testing. This diligent approach ensures that the water remains safe for consumption. Additionally, a stipend is provided to the individual responsible for the daily operations and maintenance of the pump, incentivising high-quality service.

Exemplifying transformative power

Even during the challenging times of the COVID-19 pandemic, the LOCO model continued to provide essential services, adhering to guidelines and norms. The committee went above and beyond by creating awareness about COVID-19 within the community by educating residents on protecting their families and staying safe.

The success of the LOCO model transcends mere water supply; it exemplifies the transformative power of community engagement and, notably, women's empowerment. This community-based intervention serves as a blueprint for replication in other water-scarce areas. It provides drinking water to families and fosters a sense of pride and ownership within the community. In a region where water scarcity is a relentless adversary, LOCO demonstrates how local ownership, combined with sustainable revenue models and robust community participation, can create a self-reliant ecosystem.

In conclusion, the LOCO model in Bundelkhand's Madore village is a testament to resilience, empowerment and sustainable development. It showcases the transformative potential of grassroots initiatives, one community at a time. In a region where water scarcity once seemed insurmountable, LOCO shines as a beacon of hope, offering a lifeline to those in need while empowering the community, especially its women, to take charge of their own destinies. As Bundelkhand continues to grapple with water-related challenges, the LOCO model serves as an inspiring example of what can be achieved through local ownership, community cooperation and a relentless commitment to secure water access for all. □

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LOCO Model Board at the entrance of Madore village
Photo Credit: Shubhayan Modak, 2023

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Women empowerment is imperative for tackling the complexity of gender disparity – enabling women with knowledge, skills, and opportunities to fulfil their needs and aspirations.



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