moladi Construction Technology

Submitted By: moladi



Organization Profile

Organization Name: moladi Building Communities

Organization Type: Private sector

Website: www.moladi.co.za

Practice Details

Country(ies): South Africa, Botswana, Namibia, Democratic Republic of Congo, Zambia, Taiwan, Mozambique, Angola, Zimbabwe, Panama, Liberia, Tanzania, Kenya, Nigeria, Ghana, Maldives, Sri Lanka, Mexico, Suriname, Haiti, Trindade and Tobago

City(ies): Cape Town, Johannesburg, Port Elizabeth, Durban, Kimberley, Pretoria, Luanda, Windhoek, Rehoboth, Outapi, Monrovia, Gaborone, Palapye, Lusaka, Francistown, Maputo, Dar-es Salaam, Nairobi, Lagos, Abuja, Accra, Paramaribo, Colombo, Mexico City, Veracruz, Port of Spain, Thulhaadhoo, Bilene, Nairobi, Panama City, Port-au-Prince Taipei, Shirvan Road

Start Year: 1986 **Ongoing:** Yes **End Year:** N/A

Main Adequate Housing Components:



Housing Thematic Areas:

- Housing Affordability & Financing
- Housing & Climate Mitigation
- Technology & Digital Solutions in Housing

Relevant SDGs:



UN-HABITAT

Problem & Context

Moladi addresses critical housing delivery challenges in South Africa, including high construction costs, slow build times, skilled labour shortages, and poor-quality workmanship in low-income housing. These issues emerged within the context of a massive housing backlog, rapid urbanisation, and limited municipal capacity. Traditional construction methods proved too slow, expensive, and inconsistent for large-scale delivery. Policy gaps included rigid building codes that excluded alternative technologies, lengthy approval processes, and procurement systems that favoured established contractors. Limited recognition of innovative systems in national and municipal frameworks further hindered adoption. Moladi responded by offering a fast, cost-effective, and replicable solution using formwork and local labour. Its integration into policy and recognition by institutions closed regulatory gaps and enabled streamlined, scalable delivery.

Solution Developed

Moladi developed a comprehensive solution to address the challenges of cost, speed, quality, and skills shortages in low-income housing. Using a reusable plastic formwork system, Moladi enables rapid, consistent casting of entire house walls in a single pour. This reduces labour demands, accelerates construction, and ensures high structural integrity. The system targets low-income communities, informal settlements, disaster-relief areas, and rural regions—populations often excluded from formal housing markets.

The primary objectives were to deliver affordable, durable housing at scale; empower local labour through on-site training; and streamline the housing value chain from design to delivery. The approach aimed to reduce dependency on skilled contractors and minimise material waste while meeting building standards.

Moladi's innovation lies in its integration of technology (formwork + engineered concrete), social impact (labour-based methods), and institutional support (policy and finance integration). By aligning with regulatory bodies, banks, and municipalities, it turned an alternative system into a mainstream, scalable solution.

Implementation

Implementation of the Moladi Housing Solution involved coordinated actions across technical development, regulatory integration, community mobilisation, and financial alignment.

Moladi first developed its reusable plastic formwork system and concrete mix tailored for rapid, low-cost housing. It then pursued rigorous testing for SABS and Agrément certification. Parallel to this, Moladi trained local labourers and builders, enabling community-based construction teams. It worked with municipalities to align project plans with local land, services, and

beneficiary lists. The system was also introduced into public housing programmes and disaster-relief schemes.

Government: Department of Human Settlements endorsed Moladi in its Alternative Technology framework; municipalities facilitated land, services, and plan approvals.

NGOs: Habitat for Humanity and Khulumani Support Group co-delivered builds, mobilising volunteers and funding.

Private Sector: Moladi provided technology, training, and oversight. Banks like FNB and Standard Bank approved mortgages for Moladi homes.

Communities: Locals were trained and employed in construction, ensuring local ownership and skills transfer.

Resources & Partnerships: Funding came from a mix of government housing subsidies, and commercial mortgages. Key partnerships with National Treasury, SALGA, NDA, and banks ensured institutional support. Moladi's in-house R&D and training teams provided ongoing technical assistance and quality assurance.

Enablers & Obstacles

Enablers: Key drivers included strong political buy-in from the Department of Human Settlements and National Treasury, which formally recognized Moladi in policy frameworks. Regulatory support through SABS and Agrément certifications legitimized the system, enabling municipal approvals. Bank participation allowed for mortgage financing, while community engagement through training and employment built local trust. The innovative technology—fast, low-cost, and replicable—was a core enabler, especially in low-resource settings.

Obstacles: Initial resistance came from bureaucratic delays, unfamiliarity among municipal officials, and scepticism from professionals used to conventional methods. Moladi addressed this through education campaigns, live demonstrations, and "knock tests" to prove quality. Limited technical skills in communities were overcome through on-site training and mentorship, ensuring capacity-building alongside delivery.

Results & Impact

Quantitative & Qualitative Results:

Moladi has delivered housing units across the globe. Construction time per house is reduced to 7–10 days for the first house, and one per day thereafter with one mould. Implementing more moulds produces more homes per day. With cost savings of up to 30% compared to conventional methods. Training programs have equipped thousands of local workers, many of whom are now employed as skilled builders or site managers.

Impact on Low-Income & Marginalized Groups:

Moladi directly benefits low-income households by enabling access to safe, dignified, and affordable housing. Homes are mortgageable, allowing families to build equity and financial security. The use of local labour ensures income generation and skills development in under-resourced communities, particularly among youth and women. In disaster-hit and rural areas, Moladi has provided rapid shelter solutions where traditional systems failed or were too slow.

Broader, Long-Term Impacts:

Community-wise, the Moladi approach fosters local ownership, cohesion, and resilience through inclusive construction and training. Economically, it stimulates job creation and SME development within the construction value chain. Environmentally, the system reduces waste through reusable formwork and efficient material use, supporting more sustainable building practices. Over time, Moladi contributes to closing the housing gap while building empowered, skilled communities.

Replication & Scale Up

The Moladi housing practice has been successfully replicated in numerous countries across Africa, Asia, and the Americas. These include:

Africa: South Africa, Botswana, Namibia, Democratic Republic of Congo, Zambia, Mozambique, Angola, Zimbabwe, Liberia, Tanzania, Kenya, Nigeria, Ghana

Asia: Taiwan, Sri Lanka, Maldives

Americas: Mexico, Suriname, Trinidad and Tobago, Panama

This wide geographic replication demonstrates Moladi's adaptability to diverse climates, regulatory environments, and socio-economic contexts, making it a versatile solution for affordable, durable housing globally.

Moladi housing can be easily scaled up because its formwork production doesn't rely on skilled labour. The system uses injection moulding—a simple process involving a mould and an injection moulding machine. Producing the mould takes just about 3 months, the same time it takes to deliver the machine to Port Elizabeth. This "plug and play" setup allows quick, local production of formwork, enabling fast replication and expansion of housing projects with minimal technical barriers. The moulds on site becomes to "factory" producing homes.

Policy Uptake

This housing practice has been fully adopted into formal policy frameworks and legislation, and is being implemented at scale with institutional support.

Moladi is fully integrated into formal policy through its inclusion in the Department of Human Settlements' approved alternative technologies list. Provincial housing policies and municipal bylaws have been updated to fast-track approvals and subsidies. National Treasury, SALGA, and COGTA promote it in PPP models, enabling direct municipal implementation. Backed by SABS, Agrément, and NHBRC, with lender support, Moladi is now deployed at scale through government, bank-financed, and NGO-led housing projects.

Replicated across 20+ countries in Africa, Asia, and the Americas including South Africa, Kenya, Nigeria, Mexico, and Sri Lanka.

Listed as approved alternative technology by South Africa's Department of Human Settlements.

Lessons & Takeaways

Moladi's rapid-build system gained full institutional support through SABS and Agrément certification, NHBRC registration, and mortgage approval by major banks. Endorsed in national housing policies and PPP models, it's listed as an approved alternative technology by the Department of Human Settlements. Over 100 municipalities and NGOs have partnered with Moladi for housing delivery. Social trust, reinforced by the "knock test," has helped the system scale. Today, Moladi is a certified, bankable, and community-backed solution for affordable housing.