Shaping Sustainable Futures for Arid Cities

Submitted By: Earthna (Qatar Foundation)



Organization Profile

Organization Name: Earthna (Qatar Foundation)

Organization Type: Foundation and philanthropy

Website: https://www.earthna.qa/

Practice Details

Country(ies): Qatar

City(ies): Doha

Start Year: 2023 **Ongoing:** Yes **End Year:** N/A

Main Adequate Housing Components:



Housing Thematic Areas:

- Housing & Climate Mitigation
- Housing, Land & Spatial Planning
- Housing Policy, Legislation & Governance

Relevant SDGs:



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Problem & Context

With desertification and rising temperatures, GCC cities have become testing grounds for innovative approaches to climate-adaptive urbanism. In Doha, large-scale masterplans such as Lusail City and Msheireb Downtown showcase cutting-edge design and infrastructure, yet traditional micro-environments drawing on passive cooling, shading, and hybrid vernacular systems, offer valuable precedents for resilience. A research and policy gap remains in integrating contextualised sustainable design into contemporary urban frameworks. This is of increasing relevance in Qatar where climate adaptive measures are being sought to drive urban policy frameworks. Earthna Center for Sustainability is uniquely positioned to address this gap. Through establishing the 'Arid Cities Network' and international projects in Rajasthan (India), Zanzibar (Tanzania), Sierra Leone, and Guyana, Earthna has built a comparative knowledge framework to encompass environmentally contextual planning.

Solution Developed

The practice addresses housing challenges in arid climates by developing a resilience framework contextualised for Qatar and comparable regions. In a country with one of the highest per capita energy consumption rates globally, the framework reduces reliance on energy-intensive cooling and water systems through passive design, vernacular techniques, and culturally grounded ecological practices. The beneficiaries include urban residents in arid and semi-arid regions facing rising heat and water scarcity, as well as policymakers, planners, and developers seeking scalable models of resilience. Objectives are to create sustainable housing approaches that mitigate desertification, lower energy demand, and balance cultural identity with environmental performance. The innovation lies in integrating traditional knowledge with data-driven analysis: testing passive cooling, shading, and courtyard systems for modern contexts; reframing cultural practices as resilience strategies; and institutionalising Earthna's Arid Cities Network as a global knowledge platform.

Implementation

The Earthna Center for a Sustainable Future, established by Qatar Foundation, develops a resilience framework grounded in diverse knowledge streams including the blue economy, creative economy, food security, water resource management, and the built environment. By engaging government bodies, private sector partners, NGOs, and international institutions, Earthna cultivates a broad ecosystem for implementation. Positioned as a leading GCC think tank, Earthna leverages platforms such as Education City as a living lab to pilot solutions ranging from shaded pathways and solar installations to water-efficient systems. Through initiatives like the Earthna Summit, Qatar Sustainability Week, and the Earthna Prize, the center drives policy dialogue and validates the role of traditional knowledge in addressing arid climate challenges. A new 18-month master-planning scheme in northern Qatar, developed with public–private partnerships, will deliver resilient housing and infrastructure.

Enablers & Obstacles

The drive away from a hydrocarbon economy in the GCC has created opportunities for economic diversification and resilient systems. The Earthna Center has catalysed this shift through learning programs, research, and capacity building, alongside its biennial Earthna Prize, which recognizes exemplary sustainability projects. A core challenge lies in narrowing the broad scope of sustainability into focused frameworks that deliver measurable impact. In urban planning, the tension has been integrating traditional vernacular approaches not as token gestures but as system-oriented strategies that enhance resilience and cultural relevance. Efforts to build an Arid Cities Network and common framework for resilience have required coordination across diverse government sectors, private stakeholders, and state instruments highlighting the deep interconnection between sustainability and political frameworks in the GCC.

Results & Impact

Results have largely been qualitative, cantered on building a knowledge framework that advances sustainability and resilience capacity. In Qatar, development approaches reflect a clear divide between service sector employees (blue-collar) and government or private sector professionals (white-collar). Any new planning framework must therefore address social sustainability with sensitivity, as a one-size-fits-all model is not feasible. Yet, the growing awareness of sustainability provides an entry point for more cohesive, inclusive, and bottom-up systems to emerge. By embedding resilience within both social and environmental planning, future frameworks can bridge these divides and foster equitable participation in sustainable urban development.

Replication & Scale Up

The aim is to develop a framework in Qatar and be able to monitor and export this knowledge framework based on clear results. An Arid Cities network, does however catalyse the need for more solution oriented approaches in arid climates where there is little or n

The implementation of contextualised design solutions has profound impacts on climate mitigation, energy consumption and resilient building models. The proposal is the first of its kind and seeks to be a forerunner in Arid Cities Housing Developments.

Policy Uptake

This housing practice has informed or been partially integrated into policy discussions, strategies, or pilot-level policy instruments.

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We have organised test-beds for sample set data to be collected. These test beds are centred on design parameters and set benchmark goals. The outcome of the test-beds is to provide a benchmark.