Science, sea, and the self: a woman's journey in marine sustainability in Aqaba

By Hala Ghazi

Abstract

This piece reflects on a woman's perspective on climate and marine sustainability in Aqaba— an often-underrepresented voice in the Global South. It draws on the personal experience of a female researcher working to localize SDGs 13 and 14 while engaging with the unique culture and challenges of the coastal fishing community. The piece highlights how science, gender, and local voices can come together to drive meaningful environmental change

Introduction

The Red Sea coastline of Aqaba is not just a geographic boundary—it is a living ecosystem, a livelihood source, and, for me, a stage of personal and professional growth. My work on localizing SDGs 13 and 14, focused on climate action and life below water, was deeply informed by scientific approaches and my lived experience as a woman navigating the challenges of community engagement and marine governance. Between 2020 and 2025, the Aqaba Marine Reserve (AMR) underwent a significant transformation—from governance restructuring to advanced reef restoration. As someone involved in observing and engaging with these shifts, I had a front-row seat to witness how policy, nature, and people intersect, sometimes smoothly, but often with some tension.

Listening Before Leading: Community and Gender Dynamics

One morning, just after sunrise, I walked down to the South Beach Marina hoping, once again, to connect with a group of fishermen I had met briefly the day before. They were preparing nets, drinking tea, and joking quietly—until they noticed me. I smiled and asked if I could sit for a while. A senior man, Abu Hamzah—grey-haired and weathered by the sun and sea— nodded toward an overturned crate.

He began speaking—not about climate change or SDGs—but about his life. About the coral reefs that used to shimmer with colors "like a painting," about the fish that were once predictable, and about his grandson who now works in a tourist resort and "doesn't care for fishing anymore." He sighed and looked out at the sea and said something I will never forget:

"You people with your science… you come and go. But we stay. So don't just study the reef. Study us."

His words struck me deeply. I had been so focused on reef health indicators, temperature trends, and conservation frameworks—but in that moment, I understood the missing piece: the people. From that day forward, my research lens widened. I started seeing climate change not just as a natural crisis, but a social one. I began to connect policy gaps to human stories, and I carried Abu Hamza's words with me like a compass.

Governance Innovations Backed by Field Realities

My experience aligned with—and at times challenged—the institutional reforms under the AMR. The establishment of a semi-autonomous Marine Reserve Management Directorate (MRMD) within ASEZA was a commendable step toward streamlined marine governance. Legal advances such as Aqaba Marine Reserve Bylaw (2022) complemented by its Management Plan and Zoning Plan, and the Coastal Zone Management Bylaw (2024) showed clear intent to balance conservation and development.

However, these legislative advances provide the foundation, while they still need regular revision, update and embrace. I observed that participatory mechanisms, like the AMR' Management Committee and Stakeholders' Advisory Board, were useful but needed more official effort and probably even intervention with the AMR's Bylaw to better gain community trust and real engagement. This emphasizes the necessity for policy to walk beside people not ahead of them.

Science in Action: Restoration, Monitoring, and Innovation

The science-driven aspect of the AMR's management deeply enriched my work. I observed reef health assessments using standardized methods and reviewed pilot projects on coral rehabilitation projects reported to achieve coral survival rates reaching 70%—a sign of success in this fragile ecosystem. Modern restoration methods such as micro-fragmentation and 3D-printed coral tiles are in plans and actual work on the ground is in progress to have them realized.

But data alone did not tell the full story. I saw how young trainees—especially women—engaged

in eco-tourism and reef monitoring as a new livelihood path. This blend of ecological science and social empowerment reflected the dual goals of resilience and inclusion that SDG 13 and 14 demand.

Photo: Meeting on a Glass Bottom Boat with the Managing Board of Aqaba Touristic Glass Bottom Boats Society for Finalizing and Clearing of a Proposal to GEF Small Grants, prepared to support cutting oil pollution and Greenhouse Gas emissions

Challenges and Windows for Improvement

I have seen significant improvements and moments of promise, like drone surveillance improving enforcement, infrastructure at AMR's Visitors Centre, marking buoys installed at AMR's different zones, a database of the environmental monitoring results established but not yet openly accessed, IUCN Green List accreditation achieved, UNESCO Natural Heritage Site application completed and community members and societies inspired by the MED4EBM Project example expressing strong will in giving a hand and getting involved in projects' implementation. However, I have witnessed some gaps that provide opportunity windows for improvement. Some examples are — overlapping mandates, need for better balance between projects' resources in terms of numbers and funding and resulting impact and opportunities to the local communities, insufficient consideration of environmental and social safeguards and of transparency in projects' implementation, limited diversification in the projects implementing entities, restrictions of information and data accessibility, restriction of accesses and incidents of the impacted community noncompliance.

Guidance and Inspiration: The Role of Mentorship

In this journey, I was not alone. One of the most inspiring figures who shaped my perspective and encouraged my work was Dr. Mohammad Badran. As both a mentor and a role model, he exemplified how science can be human-centered and how environmental action must start with empowering local communities. His dedication to integrating community voices into environmental governance was not only admirable—it was transformational.

Dr. Badran was among the first to actively engage the people of Aqaba in environmental stewardship. He believed that sustainability begins when people feel included, respected, and heard. His example taught me that effective leadership is not about speaking louder, but about listening deeper. In many ways, his vision continues to guide me, reminding me that real change comes from collaboration—not control.

Conclusion: What the Sea Taught Me

Coastal Zone Management, especially Aqaba Marine Reserve have grown more sophisticated, but also more layered. Localizing SDGs 13 and 14 in marine conservation is not only about natural habitats, but also about relationships. It's about designing solutions that are locally owned, socially just, and scientifically sound. My journey through Aqaba's marine transformation has been both academic and deeply personal. I am determined to carry with me as I grow in career not just lessons from coral bleaching or zoning policies, but also from the voices of all people whose livelihoods depend on the coastal ecosystems, the curiosity of young men and women in training, and the quiet strength I discovered in myself and in the young colleagues with whom I shared this experience.

I learnt to feel the burden and pride of representing not only myself as a professional individual, but also my gender. I try to constantly balance technical credibility with emotional intelligence, especially when navigating through resistance. These moments help significantly in shaping my confidence and building my resilience. This experience reaffirms that being a woman in sustainability is not a limitation. It is a lens that sees both ecosystems and people, science and story, structure and softness. The sea doesn't just need scientists. It needs science champions and I am determined to be a proud one.