

# From office to field: The role of women in Saudi Arabia's small-scale aquaculture and fisheries sector

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*Saudi women actively involved in production tasks.*

Since 2019, the Ministry of Environment, Water and Agriculture (MEWA), in collaboration with the Food and Agriculture Organization of the United Nations (FAO), has promoted aquaculture and fisheries development through the REEF initiative - the Sustainable Agricultural Rural Development Programme. The programme aims to strengthen food security while supporting long-term environmental and agricultural sustainability in line with Saudi Arabia's Vision 2030.

With its extensive coastline, Saudi Arabia offers favourable conditions for small-scale aquaculture and seafood processing. Seafood consumption has risen steadily in recent years due to national dietary shifts and economic diversification. However, artisanal seafood processing remains underdeveloped, particularly in rural regions. At the same time, large volumes of fish waste are generated in fish markets and aquaculture facilities, yet value-recovery systems are limited. A growing number of young Saudis are entering aquaculture and processing, but women's participation still lags, especially in field-based and technical roles.

For many Saudi women, opportunities in aquaculture and fisheries have traditionally been shaped by education, social norms, limited mobility and a lack of field-oriented roles. The development gap between urban and rural areas, combined with transport access, job characteristics and varying education levels, has meant that most women have worked indoors,

in marketing, administration or processing. Participation in field roles, including fish handling, hatchery work and post-harvest operations, has remained relatively limited.

FAO and MEWA are promoting small-scale aquaculture and seafood processing in rural areas for the following reasons:

- **Economic development:** Aquaculture and seafood processing can create new jobs, stimulate local economies and open markets for small households, providing diverse applications and revenue streams. In particular, they can increase employment and income for women working in coastal rural communities (above).
- **Promoting fair employment:** These activities provide opportunities for women with diverse educational backgrounds, reducing the need to commute to urban areas and lowering entry barriers linked to formal qualifications. With short training and sufficient motivation, women can take on productive roles within their communities.
- **Food security and nutrition:** Seafood is nutritious, producible and cost-effective in Saudi Arabia, and can enhance food security. Many traditional processing practices are simple and do not require expensive equipment.



- **Environmental sustainability:** Operational activities do not require large volumes of freshwater or arable land. This is particularly relevant in coastal and rural areas where freshwater resources are scarce.
- **Opportunities for a sustainable value chain:** Targeted interventions can align traditional knowledge with modern practices, strengthening rural livelihoods, empowering women and supporting a bioeconomy within the fisheries sector - key goals of Vision 2030.

Based on these objectives, FAO and MEWA have implemented field projects on small-scale seaweed aquaculture and seafood processing in coastal areas since 2023.



Above, below: Saudi women actively involved in production tasks.



## Empowering women through seaweed farming

Traditionally, Saudi women were involved in office-based roles within the aquaculture value chain. Recent field initiatives have enabled women to enter operational segments such as seaweed farming and hatchery management, reflecting shifts in social and cultural norms. Seaweed farming and processing have also become less intensive, requiring fewer management staff and lower training costs in Saudi Arabia. Compared with fish and shrimp farming, which began in the 1980s, Saudi Arabia has made notable progress in seaweed farming in recent years, although it has not yet reached commercial scale.

In 2024, FAO initiated production of the red seaweed *Gracilaria multipartita* among small-scale producers in the Jeddah area (western coastline) and the Farasan Islands (southern coastline). In both projects, women have been actively engaged in seaweed-farming trials using raft systems. Tasks include tying seedlings onto cultivation ropes, maintaining line spacing, and managing post-harvest drying. Seaweed farming has proven accessible for women because it demands less physical effort, relies minimally on machinery and suits community-based operations. Ongoing



plans under the REEF programme aim to replicate these activities nationwide, enabling more women to take significant roles in small-scale seaweed production.

## From traditional practice to value-added products: women in seafood processing

In parallel with seaweed farming, an FAO-supported initiative focused on improving women's participation in small-scale seafood processing. The project aims to empower women processors and reduce seafood waste in support of sustainability goals in the Farasan Islands in 2025. These areas face a larger urban–rural gap, and women's education and employment resources are relatively scarce.

The project supports women already engaged in traditional processing, such as salting and drying. It offers tailored training and essential equipment, and introduces branding and marketing skills to develop value-added products. The goal is to help these women form structured processing groups and enhance their livelihoods. Training sessions on hygiene, technical skills, teamwork and branding have so far empowered 23 women processors. Initial results show better hygiene practices and strong interest in forming formal cooperatives and using branded packaging. A tuna-canning activity was particularly motivating, demonstrating a potential threefold increase in product value.

## Conclusion and way forward

The development of aquaculture and seafood processing in rural areas holds significant promise for economic diversification, environmental sustainability and food security. The successful implementation of small-scale production along the coastline shows both feasibility and potential. However, several limitations still need to be addressed:

- **Expansion of small-scale production:** Scale up farming projects to other small producers in different regions. Western coastal areas may be especially suitable because they are better placed for subsequent processing for food or feed.
- **Market development:** Establish supply chains and market linkages for seaweed and fish products, domestically and internationally. Form alliances through industry - government - academia collaboration, particularly in food and biomedical fields. Local academic institutions and private enterprises can help deliver these projects, creating employment and supporting industrial development.
- **Capacity building and training:** Provide training for local communities and stakeholders to build expertise in seaweed farming and processing, with a focus on women in coastal rural communities.
- **Product quality control:** Maintain quality during processing. Facilities must meet strict hygiene standards, and producers may require training in best practices. Any quality issues can affect selling price or marketability, so risks should be mitigated through quality assurance.



The seaweed farming project delivers clear benefits: it supports women's groups through food processing activities, creates skilled jobs in mariculture and aligns with environmental sustainability by cultivating a renewable marine resource. Seaweed farming is a modern, sustainable aquaculture opportunity that can thrive within sustainable agricultural rural development, diversifying the economy and making use of the country's extensive coastline for food and biotechnology production.

In Saudi Arabia, seafood processing includes both a growing industrial sector and a traditional artisanal sector. In rural areas, women often use informal, seasonal methods such as salting and sun-drying, sometimes without adequate hygiene or protective infrastructure. Their work, though culturally important, is largely unrecognised in formal markets and is hampered by the lack of dedicated workspaces, training and cooperative models. Communities would benefit from improved equipment and shared facilities, which could enhance both income and product quality. Recommended actions include formalising women's processing groups, providing continuous training, establishing dedicated workspaces, distributing essential processing equipment and forming partnerships with seafood companies. In areas near tilapia farms, these measures can also support wider aquaculture development.

Looking ahead with optimism, the focus will move from feasibility to implementation. Priorities include supporting more rural women's groups, building small-scale aquaculture processing capacity and linking products to domestic markets. Saudi women have strong potential to become a significant part of the aquaculture workforce. With sustained support and inclusive policies, they can move from supporting roles to becoming key contributors in the evolving aquaculture sector.

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