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An innovative nutrition delivery model to scale small fish nutrition for vulnerable communities in Bangladesh

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Photo Credit: Harun Or Rashid

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To learn more about CGIAR Scaling for Impact (S4I) program, please contact:

scaling@cgiar.org

About CGIAR Scaling for Impact (S4I) program

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AUTHORS

Samiul Islam, Senior Nutrition Specialist, WorldFish

PHOTOS

Harun Or Rashid, Research Associate, WorldFish
Samiul Islam, Senior Nutrition Specialist, WorldFish

DESIGN SUPPORT

Palash Dhar, WorldFish

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List of Acronyms

BNNC	Bangladesh National Nutrition Council
CC	Community Clinic
CGIAR	Consultative Group on International Agricultural Research
CHCP	Community Health Care Provider
CHW	Community Health Workers
CYS	Courtyard Session
FWA	Family Welfare Assistants
HA	Health Assistants
IPHN	Institute of Public Health Nutrition
IYCF	Infant and Young Child Feeding
NGO	Non-government Organization
SBCC	Social and Behavior Change Communication
SIS	Small Indigenous fish Species
WASH	Water, Sanitation and Hygiene

Introduction

Despite progress, malnutrition remains a major public health challenge in Bangladesh, driven largely by nutrient-poor diets and widespread hidden hunger. National data show very high level of malnutrition (stunting 24%, 12.9% wasting, and 23% underweight) among children under five ([BDHS, 2022](#), and [MICS, 2025](#)), while 37% of reproductive-aged women suffer from iron deficiency anemia ([World Bank, 2023](#)). According to [National Micronutrient Survey 2019-20](#), micronutrient deficiencies are alarmingly high: over half of children are deficient in vitamin A, one-third in zinc, and one-fifth are anemic, while women face high deficiencies in vitamin D, vitamin A, zinc, iodine, vitamin B12, and folate. Poor dietary diversity persists, with nearly two-thirds of women and young children failing to meet minimum dietary diversity, and two-thirds of households experiencing mild to severe food insecurity ([BDHS, 2022](#); and [MICS, 2025](#)). Bangladesh ranks among the top five countries globally for acute food insecurity, underscoring the urgent need for affordable, food-based nutrition solutions that can be delivered at scale ([FAO, IFAD, UNICEF, WFP and WHO, 2025](#); and [Global Report on Food Crisis, 2025](#)).

Fish and aquatic foods provide 44% of animal-source protein in Bangladesh and are critical sources of essential nutrients ([FAO, 2024](#)). Among them, small indigenous fish species (SIS) offer a uniquely powerful, low-cost solution to micronutrient deficiencies. Species such as mola are rich in vitamin A, iron, zinc, calcium, vitamin B12, and omega-3 fatty acids, particularly when consumed whole. Evidence from Bangladesh and other countries shows that even small amounts of dried or powdered SIS can significantly improve micronutrient intake among young children and may reduce stunting more cost-effectively than fortification approaches. Despite their proven benefits and cultural acceptability, SIS remain largely absent from mainstream nutrition programs and counselling tools.

Community health workers (CHWs) are a highly scalable and trusted platform for addressing this gap. In Bangladesh, government and non-government organization (NGO) CHWs play a central role in delivering maternal, newborn, and child health, nutrition counselling, and behavior change communication, with regular contact with pregnant women, lactating mothers, caregivers, and adolescents. Yet aquatic food-specific nutrition messages are largely missing from their counselling materials and from national nutrition indicators.

To address this gap, WorldFish under CGIAR Scaling for Impact Program piloted a CHW-led model that integrated SIS nutrition messaging into routine health and nutrition counselling. CHWs were trained in the nutritional importance of small fish and equipped with simple visual job aids to promote dietary diversity, appropriate child feeding, and practical use of SIS at household level.

This report presents the rationale, approach, training progress, and early learning from piloting this CHW model, along with recommendations for scaling SIS nutrition messaging in vulnerable communities across Bangladesh.

CHW channel innovation for SIS nutrition capacity development

The CHW channel represents an innovation in capacity development because it moves beyond conventional training approaches to embed specialized nutrition knowledge, specifically SIS nutrition—within an existing, trusted frontline workforce. Rather than creating parallel delivery systems, this approach upgrades CHWs' competencies with context-specific, food-based nutrition knowledge and practical counselling skills that can be applied immediately through routine household and community interactions. This integration transforms CHWs from general service providers into skilled agents of dietary change using locally available aquatic foods.

The innovation lies in leveraging minimum cost and CHWs' frequent contact with nutritionally vulnerable populations to enable continuous learning, reinforcement, and adaptation of messages—features rarely achieved through one-off training or mass communication. By equipping CHWs with user-friendly learning aids and practical demonstration techniques, the model strengthens both individual and system-level capacity while remaining cost-efficient and scalable within government and NGO health structures. As a result, the CHW channel functions not only as a dissemination mechanism but as a sustainable capacity development platform aligned with long-term nutrition and food system transformation goals.

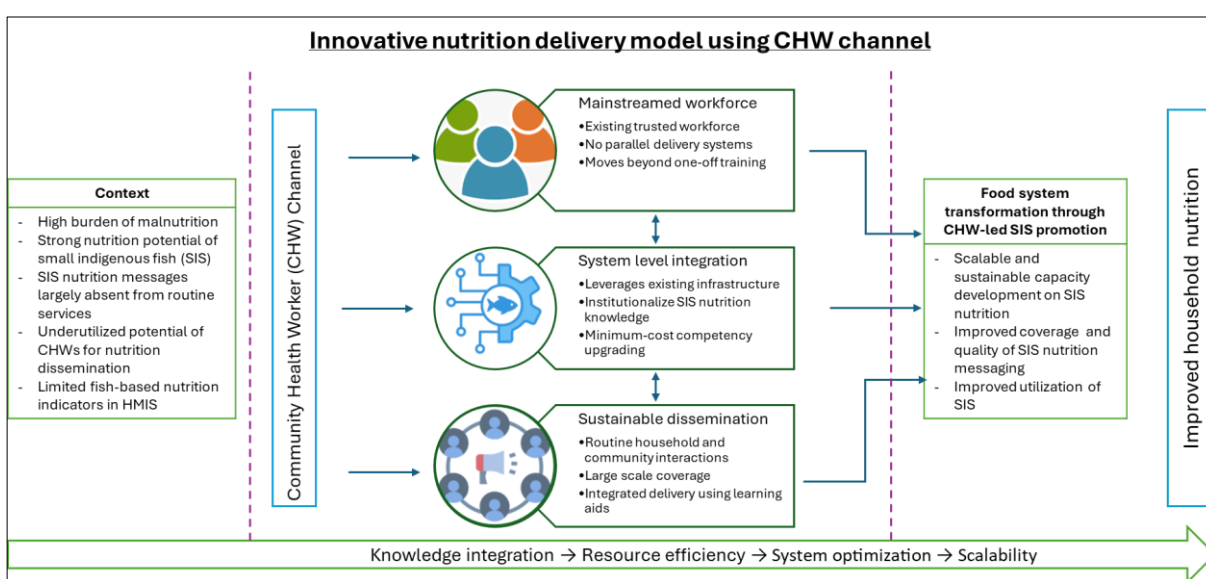


Figure 1: Innovative nutrition delivery model using CHW channel to scale small fish nutrition for vulnerable communities in Bangladesh

Suitability of CHWs for SIS nutrition dissemination

CHWs are exceptionally well positioned to promote small fish nutrition due to their strong community trust and routine engagement with nutritionally vulnerable populations. As locally selected frontline workers, CHWs maintain close social proximity with households, making their nutrition advice credible and actionable. Their regular interactions with pregnant and lactating women, caregivers of young children, and adolescent girls provide a natural entry point for integrating micronutrient-rich SIS into household diets.

In Bangladesh, the CHW platform is extensive and well established. The country has 14,467 Community Clinics (CCs), each staffed with a Community Health Care Provider (CHCP), supported by more than 50,000 Health Assistants (HAs) and Family Welfare Assistants (FWAs) delivering maternal, newborn, and child health services. In addition, over 80,000 NGO-affiliated cadres support health, nutrition, and extension services nationwide. According to the [Bangladesh National Nutrition Council \(BNNC\) Dashboard](#), 67 organizations implement 209 nutrition-related projects across the country, with health, maternal and child nutrition, women's empowerment, WASH, and food security as leading focus areas. Social and behavior change communication (SBCC) accounts for the largest share of these interventions.

Since CHWs already provide counselling on maternal and child nutrition, infant and young child feeding (IYCF), anemia prevention, and dietary diversity, SIS nutrition messaging can be integrated into existing workflows with minimal disruption. Their proven ability to influence dietary behaviors, reinforced through frequent household contact and practical demonstrations, enhances the effectiveness of this approach.

Embedded within nationwide government and NGO health systems, CHWs offer a scalable and cost-efficient platform well aligned with long-term nutrition outcomes and Scaling for Impact objectives.

Key integration steps for SIS nutrition messaging

The CHW model for promoting SIS aimed to strengthen both knowledge and practical nutrition support at the community level. The key components included:

- Stakeholder consultations with individual NGOs, initiated during the CGIAR Research Initiative on Asian Mega-Deltas, continued thereafter. Consensus was reached to pilot the innovation, and participants were selected in consultation with NGO focal points on the ground.
- Development of a new and user-friendly, pictorial handout ([Islam, 2025](#)) focusing on small fish nutrition alongside basic nutrition concepts, for use by CHWs.
- Development and distribution of a leaflet ([Islam and Ali, 2024](#)) targeted at women and other stakeholders to reinforce key messages.
- Capacity-building [training for CHWs](#) to enhance their skills in fish nutrition counselling and communication.
- Dissemination of messages by CHWs through multiple points of contact, including household visits, courtyard sessions, and community meetings including awareness events at school.
- Monitoring and documentation of activities and outcomes to ensure proper reporting and continuous improvement.



Figure 2: The cover pages of the Small fish nutrition: Manual for community health and extension workers, and the leaflet.

CHW capacity building: training updates

The project conducted training sessions for 50 CHWs across selected coastal and inland districts to strengthen their capacity to promote SIS nutrition. A total of 50 participants (female- 42 and male-8) from 14 different organizations participated across two batches training in Khulna and Patuakhali. Participants were selected from a pool of [102 CHWs who had received prior training](#) under the Asian Mega Deltas initiative in the previous year using a customized module by [Islam, Ali, and Nahar \(2023\)](#), allowing the project to build on existing knowledge and skills.

The training was conducted in a highly participatory manner, featuring group work and team activities. Several visual and printed materials were used and distributed among participants, including a [handout](#) and [leaflets](#) on small fish nutrition.

The training covered a comprehensive set of topics, including:

- Basics of food and nutrition, including dietary diversity
- Malnutrition classification, its causes, consequences and prevention measures
- The nutrient richness of SIS for maternal and child health, and household nutrition
- Nutritional and health benefits of SIS
- Safe preparation practices without losing nutrients
- Counselling technique and dissemination methods
- Use of flipcharts and job aids



Figure 3: CHWs participating the training on small fish nutrition in Khulna and Patuakhali, Bangladesh

Pre- and post-tests were conducted to assess participants' learning outcomes. The results demonstrated a substantial improvement in knowledge, with the mean score increasing from 48.7% (pre-test) to 87.6% (post-test). The lowest and highest pre-test scores of 12 and 48 (out of 25) rose to 60 and 100, respectively, in the post-test. These results indicate that small fish nutrition was a relatively new topic for most participants and that they gained significant knowledge through the training sessions.

Participants' evaluation of the training indicated a high level of satisfaction, with an overall rating of 4.69 out of 5. Among them, 70% rated the training as excellent and 30% as very good. Their feedback highlighted that the facilitation style was simple, interactive, and easy to understand, and the training manual was well-prepared and useful. Participants particularly appreciated the sessions on small fish nutrition, dietary diversity, a video clip on small fish nutrition, and a demo session of counseling, which they found most engaging, informative and helpful. However, several participants suggested that allocating more time for the training would enhance their learning experience as well as engaging many of their colleagues to get wider coverage.



Figure 4: Participants pre- and post- test scores from the training for CHW on small fish nutrition

Coverage achieved by trained CHWs

The reach data for 2025 by the trained CHW was collected and it reveals that more than 77,000 individuals were covered by them. On average CHW reached 1,540 individuals while one individual got more than three times of session. The maximum individual reach was through courtyard session (CYS) (46%) while 38% were covered by household level counseling and 16% were reached by events in school, adolescent clubs, bazar and in periodic meetings.

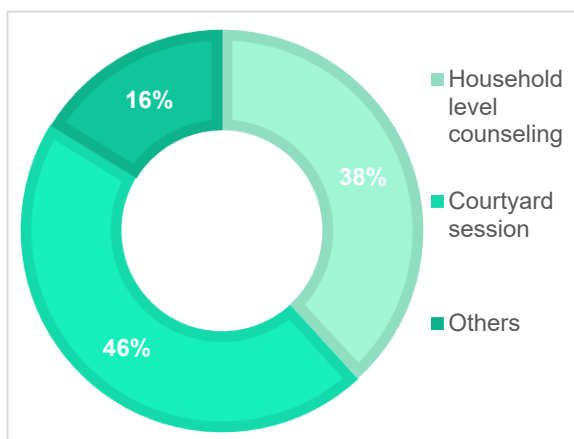


Figure 4. Coverage of individuals reached by the CHW through different sessions

Based on the number of trained CHWs and their routine activities, among the different NGOs, the best coverage achieved by a partner named Shushilan, followed by CSS, Esho Desh Gori, NSS, Wave Foundation, SDA and Saint Bangladesh presenting them as potential future collaborating partners in this regard.

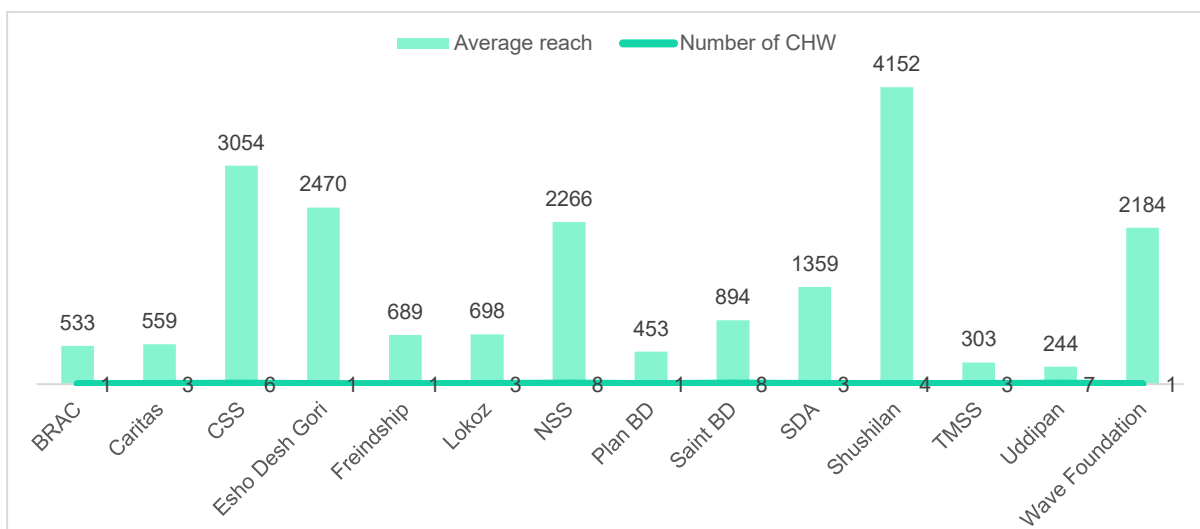


Figure 5: Average reach by the trained CHW from different organizations during 2025.



Figure 6: Trained CHW facilitating discussion on fish nutrition in a courtyard session in Bakerganj, Barishal and in a Community Clinic in Rampal, Bagerhat.

Although the quality of message dissemination and related outcomes were not formally evaluated, initial field observations suggest that small fish nutrition has gained a new dimension within communities and among CHWs.

Prior to the intervention, many women were unaware of the nutritional benefits of small indigenous fish and the loss of key nutrients due to inappropriate processing practices, such as removing the head of mola fish, which results in significant vitamin A loss. Through CHW-led counselling and demonstrations, women increasingly recognized whole small fish as a nutrient-dense food.

These early observations indicate strong potential for scale-up if additional districts are included and suggest that, with appropriate training, monitoring, and follow-up support, CHWs can rapidly develop competency in SIS nutrition messaging and contribute to improved household nutrition practices.



Figure 7: A fish loving child is happily eating fish at Rampal, Bagerhat

Challenges

While the CHW platform offers a highly promising and innovative channel for delivering small fish nutrition messages, its full potential has yet to be realized. Gaps in capacity, availability of standardized tools, system integration, and institutional support constrain the effective adoption and scaling of SIS nutrition within routine CHW services. In addition, implementation and sustainability are affected by the following challenges:

- Weak monitoring, ownership, and accountability mechanisms
- Difficulty in measuring outcomes and impact of SIS nutrition promotion through the CHW model
- Absence of formal agreements (MoUs) with NGOs and government partners to ensure coordinated implementation
- Expectation of financial incentives or additional support among NGOs and CHWs

Recommendations

To strengthen the effectiveness, scalability, and sustainability of SIS nutrition dissemination through the CHW platform, the following actions are recommended:

- Institutionalize SIS nutrition within national systems by integrating SIS messaging into the standard CHW training curriculum under the Institute of Public Health Nutrition (IPHN) and the Bangladesh National Nutrition Council (BNNC), ensuring long-term ownership and alignment with national priorities.
- Standardize tools and materials through the development and nationwide dissemination of user-friendly SIS nutrition job aids for all CHW cadres, ensuring consistency in messaging and counselling quality.
- Strengthen CHW capacity and performance by conducting periodic training initiatives combined with supportive supervision, focusing on practical counselling skills, demonstrations, and problem-solving.
- Expand geographic and population coverage by scaling the pilot to underserved settings—including rural, coastal, haor, and low-income urban areas—using nutrition hotspot mapping to prioritize high-need locations.
- Leverage digital platforms to reinforce and coordinate SIS nutrition messaging by integrating them into information and communication channels, supporting continuous learning, monitoring, and peer-to-peer knowledge exchange.
- Enhance implementation partnerships and coverage by collaborating with NGOs to train unserved frontline health and extension workers, reducing duplication and achieving broader, more sustainable outreach.

Conclusion

CHWs offer a powerful, low-cost, and trusted channel for promoting small fish nutrition across Bangladesh. The strong training results and significant household coverage potential demonstrate that integrating SIS messages into routine counselling is both feasible and impactful. Scaling this approach nationally could enhance dietary diversity, improve micronutrient intake, and strengthen food and nutrition resilience, especially for women and children in vulnerable communities.

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For further information, please refer to the original materials by contacting the first author of this publication at the following email address:

carla.baldivieso.s@gmail.com