



August 2021

Integrating nutrition and gender into Community Fish Refuge-Rice Field Fisheries system management: A practitioner's guide

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Citation

This publication should be cited as: Shieh J, Eam D, Sok S, Long H, Try V, Sean V, Sun V, Ou P, and Freed S. 2021. Integrating nutrition and gender into Community Fish Refuge-Rice Field Fisheries system management: A practitioner's guide. Phnom Penh, Cambodia: WorldFish Cambodia.

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WorldFish is an international, nonprofit research organization that harnesses the potential of fisheries and aquaculture to reduce hunger and poverty. Globally, more than one billion poor people obtain most of their animal protein from fish and 800 million depend on fisheries and aquaculture for their livelihoods. WorldFish is a member of CGIAR, a global research partnership for a food-secure future.

Acknowledgments

The authors wish to acknowledge the government partners of the Rice Field Fisheries Enhancement Project (RFFEP) and the Feed the Future Cambodia Rice Field Fisheries II project, including the Director General of the Fisheries Administration; the Fisheries Administration (national and cantonment levels); and local authorities in Pursat, Battambang, Siem Reap and Kampong Thom provinces. The authors also wish to acknowledge the non-governmental organizations (NGOs) who have partnered with WorldFish in the implementation of both projects: Aphiwat Neary Khmer Organization (ANKO), Cambodia Organization for Women Support (COWS), Trailblazer Cambodia Organization (TCO) and Village Support Group (VSG).

The authors also wish to acknowledge the many people who have contributed to this publication, particularly Mr. Kosal Mam (WorldFish Cambodia) who provided thoughtful feedback and expertise. Special thanks to the project participants who took the time to speak with us about their experiences.

In addition, the authors acknowledge the members of the 140 Community Fish Refuge (CFR) committees and other supporting community members who have improved and managed community fish refuges with support from the Fisheries Administration Cantonment offices, contributing to increased numbers of fish and improved food and nutrition security in surrounding areas.

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This publication is made possible by the generous support of the American people through the United States Agency for International Development (USAID) under the Feed the Future initiative. The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development nor the United States Government.

Table of contents

Table of contents	ii
List of acronyms	iii
1. Introduction	1
1.1 Rice field fisheries and Community Fish Refuge systems	1
1.2 Why integrate nutrition?	1
1.3 Why integrate gender?	2
1.4 Who is this guide for and what is the aim of this guide?	2
2. Conducting nutrition and gender activities	3
2.1 Caregiver training on nutrition and WASH.....	5
2.2 Household visioning	5
2.3 Village fair	6
2.4 Women’s leadership and participation in CFR committee activities.....	7
3. Cross-cutting enablers and barriers	8
3.1 Enablers	8
3.1.1 Build relationships with community and enable community ownership	8
3.1.2 Establish and maintain relationships with local authorities and government agencies	9
3.1.3 Integrate into existing structures	10
3.2 Barriers.....	11
3.2.1 Pervading inequitable gender norms	11
3.2.2 Perceived low literacy and frequent migration of participants	11
4 Activity-specific enablers and barriers.....	12
4.1 Caregiver training and household visioning.....	12
4.1.2 Enablers.....	12
4.1.3 Effective training strategies	13
4.1.4 Barriers and recommendations.....	14
4.2 Women’s leadership and participation in CFR committee activities	14
4.2.1 Enablers.....	14
Conclusion	16
References	17
Annex 1: Key nutrition and WASH concepts and messages for caregiver trainings	18
Annex 2: Guide for conducting household visioning sessions	21
Annex 3: Guide for conducting village fairs.....	23
Annex 4: Poster on how to prepare fish powder	25

List of acronyms

CFR	Community Fish Refuge
FiA	Fisheries Administration
FiAC	Fisheries Administration Cantonment
RFF	Rice field fisheries
SBCC	Social behavior change communication
VHSG	Village health support group
WASH	Water, sanitation, and hygiene

1. Introduction

1.1 Rice field fisheries and Community Fish Refuge systems

Rice field fisheries, or fishing done in and around rice fields especially during the flood season, is an integral source of income, food, and nutrition in Cambodia. Many rural households are involved in rice field fisheries for subsistence and/or to supplement their livelihoods. In the Tonle Sap region's rice farming areas, rice field fisheries provide households with 62% of the fish they consume and up to 65% of households regularly or occasionally sell their catch (Freed et al. 2020).

Community Fish Refuge (CFR) establishment and management is one effective way to enhance the productivity and biodiversity of fish in this vital fisheries system. A CFR is an aquatic habitat that is available year-round within the rice field landscape. When the refuge is managed sustainably through habitat improvements and protection from fishing, it can increase fish populations in rice field fishery areas, thereby improving fish access for local households.

Recognizing the value of these CFRs, the Royal Government of Cambodia has promoted their establishment and management since 2005 (Joffre et al., 2012). Since 2012, WorldFish has worked with the Fisheries Administration (FiA), with support from USAID, to pilot and scale application of best management practices at FiA-designated Community Fish Refuge sites.

1.2 Why integrate nutrition?

Food and nutrition insecurity continue to be significant challenges in Cambodia, resulting in negative consequences on the health, economic productivity, and overall national development of the country. Currently, Cambodia is especially in need of improving maternal and child nutrition (Development Initiatives Poverty Research, 2020). Many factors contribute to childhood malnutrition in Cambodia, including challenges with feeding practices, maternal nutrition and health, and diarrhea and other illnesses that are easily contracted when water, sanitation and hygiene (WASH) are lacking.

In Cambodia, the nutrient-rich fish available from rice field fisheries have the potential to improve food and nutrition security in rural households, including for mothers and children. In 2016, researchers and implementers adapted the approach to CFR management with the hypothesis that implementing nutrition and gender-focused interventions alongside other management activities could help realize the potential of rice field fisheries for achieving local nutrition and food security gains.

1.3 Why integrate gender?

Women provide essential, albeit often under-valued and overlooked, contributions to small-scale fisheries. Fisheries management continues to be male-dominated: in management of Cambodia's rice field fisheries, women have mostly been involved indirectly through savings and credit groups as well as self-help groups (The WorldFish Center, 2010). To ensure women's contributions and interests in rice field fisheries are more directly represented, the CFR best management practices stipulate that communities elect and train women for leadership roles on the CFR management committee. This best practice can improve community trust and support for the committee and often results in the achievement of management objectives beyond habitat and patrolling measures, including objectives to support nutrition and well-being of local households.

1.4 Who is this guide for and what is the aim of this guide?

The target audience of this guide are practitioners or implementers working in rice field fisheries in Cambodia or elsewhere. The aim of this guide is to help close the gap between rice field fishery production and community-wide benefits, especially maternal and child health and nutrition and men and women's co-leadership. This guide describes:

- the steps and process of integrating nutrition and gender activities into the management of rice field fisheries and Community Fish Refuge, and
- implementation barriers and enablers of these activities.



Image 1: A caregiver feeds her child porridge mixed with small indigenous fish species.

2. Conducting nutrition and gender activities

The following nutrition and gender activities were conducted alongside activities promoting best practices for rice field fisheries and community fish refuge management:

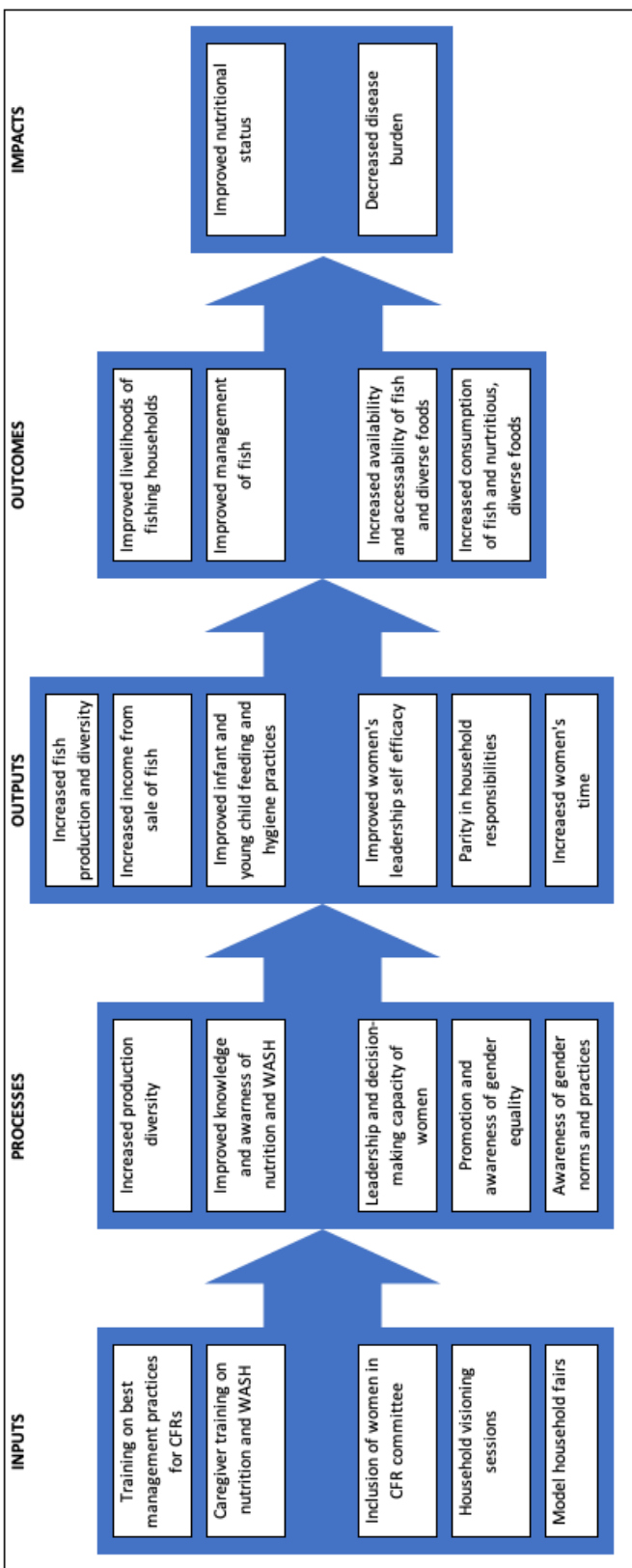
- caregiver training on nutrition and WASH;
- household visioning; and
- inclusion of women in CFR committees.

These activities were conducted in tandem, each complementing and contributing to each other to provide impacts through a Theory of Change (**Figure 1**). While rice field fisheries and community fish refuge management activities were expected to increase the accessibility and availability of fish, other aquatic animals, and aquatic plants, the nutrition-sensitive social behavior change communication activities were expected to improve local consumption and nutritive benefits of fish, especially for children under 5 years of age, by increasing caregiver and household knowledge, attitudes, and practices around positive nutrition and WASH behaviors. At the same time, gender equality sensitization activities were expected to contribute to both effective rice field fisheries and community fish refuge management as well as improved nutrition and WASH outcomes.



Image 2: A local NGO implementer conducts a training on handwashing.

Figure 1: Theory of Change for nutrition and gender activities in rice field fisheries.



2.1 Caregiver training on nutrition and WASH

This activity provides training, support and behavior change communication for improved complementary feeding, nutrition, hygiene and sanitation, targeting pregnant and lactating women and young children. Specifically, training and support sessions are conducted with individual caregivers and groups of caregivers of young children (from birth through 5 years of age). For trainings, facilitators provide information and demonstrations of improved complementary feeding, hygiene and sanitation practices. For the demonstrations, groups of caregivers may gather to participate in the preparation of nutritious meals from local ingredients such as nutrient-rich small fish species and locally available vegetables or to observe ways to improve the cleanliness and sanitation of the home environment. To accommodate the limited time of caregivers, trainings and demonstrations take no more than two hours and are coordinated either in the mornings or afternoons based off availability. A detailed list of training topics as well as sample training tools and activities can be found in [Annex 1](#).



Image 3: A father washes his hands with his child at their household washing station.

2.2 Household visioning

Household visioning sessions foster discussions on improving household hygiene, particularly in food preparation and sanitation areas, and encourage equality around male and female roles in the household. While each household will develop its own aims, the overarching goals for this activity are to facilitate household member participation in improving the home environment while also improving equitable sharing of household tasks, and facilitating women who spend more time at home to pursue an activity outside the home (often an income-generating activity such as gardening and selling vegetables; sometimes participation in local leadership such as the CFR committee). Sessions involved developing one vision map of the current household environment and male and

female roles and a second vision map on future household goals and the agreed upon roles to achieve them. Nutrition and WASH training was integrated into the household goals and action plans. [Annex 2](#) lays out the steps for the household visioning activity in detail.

- Step 1: Provide introductions and probing questions of existing beliefs and practices around the division of responsibilities between men and women.
- Step 2: Facilitate discussions around gendered differences and imbalances of roles in the family, community, and society using the 24-hour day tool, which documents the daily activities of men and women.
- Step 3: Both men and women in the household assess their current access to and quality of food, nutrition, and WASH (e.g., nutritious food, diverse foods, toilet, washing station, rubbish bins, etc.). Discuss any improvements needed for their household environment.
- Step 4: Support men and women in developing goals and aspirations for the future of their household using their assessment of their current status and needed improvements. Facilitate an agreed division of tasks to achieving those goals that households themselves consider to be fair and balanced.
- Step 5: Document household goals, define the steps to how these goals will be achieved, determine who in the household is responsible for what tasks to achieve these goals, and establish the proposed time frame for these goals onto their vision maps.



Image 4: A family discusses their household goals using the household visioning map.

2.3 Village fair

Village fairs are an opportunity for model households (those with positive changes in nutrition, hygiene, and gender behaviors) to share their experiences in implementing their

household visioning action plan successfully, and the benefits from those changes, with other households in the community. This learning exchange is meant to have a broader impact at the community level by inspiring other households to participate in a household visioning session and improve their home environment and sharing of household tasks. [Annex 3](#) lays out the steps for the household visioning activity.

- Step 1: Select model households with positive changes in nutrition and WASH behaviors and balanced division of household responsibilities between husband and wife.
- Step 2: Invite members of the community, including local authorities and volunteer health support groups, to participate in the event.
- Step 3: Explain the objective of the household fair to participants.
- Step 4: Support model households in presenting their pre- and post-intervention visioning maps and their experiences implementing their vision maps, allowing for questions and discussions with community members.

2.4 Women's leadership and participation in CFR committee activities

The inclusion of women in CFR committee leadership and activities is meant to increase the representation of women's voices, ideas, and objectives in community development, to ensure the community development plan is diversified and provides benefits to all people, strengthen the capacity and self-efficacy of women to lead and take on leadership roles, and improve the management of CFRs for increased fish productivity and availability. The CFR committee selection process, CFR committee training, community-level CFR management planning, and monitoring and evaluation processes all include women. This is ensured through collaboration of practitioners and local authorities by:

- Developing criteria for the selection of committee members, including a 30% quota of women, in collaboration with community stakeholders and local authorities who disseminate the roles of the committee to the broader community.
- Establishing a selection committee that commits to supporting the required number of female candidates and collaborates with local authorities to encourage and nominate potential women to be CFR committee candidates.
- Informing, encouraging, and nominating women to join the selection meeting for CFR committee, while also sharing the advantages of involvement so they are motivated to join. For example, women participants gain experience that can empower them to take other community leadership roles.
- Facilitating collective participation of women and men in developing community visions, defining possible action plans to address Rice Field Fishery issues.
- Facilitating inclusion of women's ideas and decisions in all stages of management: the planning, implementing, monitoring and evaluation.
- Assessing the CFR committee's performance on women's participation and action on women's issues during annual performance evaluations.

3. Cross-cutting enablers and barriers

3.1 Enablers

There were several enablers that implementers identified across all the different nutrition and gender activities in Rice Field Fisheries-Community Fish Refuge management: 1) building relationships with the community and enabling community ownership, 2) engaging with local authorities, and 3) integrating into existing structures.

3.1.1 Build relationships with community and enable community ownership

Building good relationships with community members, such as group elders, group influencers, and ethnic minorities, prior to the start of activities is important in ensuring that activities were implemented effectively. NGO implementers explained that, across all activities, building relationships with communities enabled trust between implementers and participants, encouraged continued engagement by participants, and incentivized participants to join trainings because they were motivated by the potential benefits of participating. For example, by establishing relationships with community members prior to the start of household visioning sessions, households were receptive to discussing, exploring, and shifting existing gender roles due to pre-built trust between training facilitators and community members.

Building community ownership is another key aspect of successful integration of nutrition and gender activities into rice field fisheries work. Community ownership means that the community, or those who have a stake in the product of interest, not only own the product but also the process itself. For CFRs, this means that all those involved in rice field fisheries own the CFR as well as the process of establishing, managing, and representing activities of the CFR through a committee. Community ownership can be built by increasing community capacity, building linkages with people in power, and promoting community recognition processes.

One way practitioners can strengthen community capacity is to take on a facilitation role, rather than a “lecturing” role, when delivering trainings. In this way, community members can gain the skills needed to problem solve and advocate for community needs on their own, as described by one WorldFish implementer in the following quote:

Providing linkages between community leadership and local authorities is another important strategy to build community ownership, allowing communities to leverage these relationships for resources and problem-solving. As one WorldFish implementer explains in the subsequent quote, because the incorporation of nutrition and gender equality promotion in CFR

“For our team, we use the same tool, we use the same approach, but we provide more coaching, provide more skill on facilitating, provide more skill on empowering, and how to speak, how to talk with the people and empower them to speak out, then the result is more concrete, stronger.”

-Male, WorldFish implementer

management planning is a multi-sectoral issue, connecting communities with relevant local authorities can provide additional avenues of support.

If [CFR committees] want help or support from health and sanitation, we can link them with a village health support group or village health centers. And if they want technical support in terms of fisheries, then bring [CFR committees] to the fishery administration. We just show [CFR committees] what is the channel that they should look at in order to get their [CFR] plan implemented. –(Male, WorldFish implementer)

Furthermore, community recognition, both by other community members and local authorities, is important in all activities. It can be an effective way to facilitate knowledge diffusion to other members of the community, incentivize, and motivate sustainable improvements in nutrition and gender behaviors.

We do [household] visioning and then when you achieve your visioning, [model households] become a resource person to share [their] experience to the neighbor in the whole village. Then also we invite the higher-ranking government official like a commune chief to come and hand over incentive certificate to this household. Then [model households] put that certificate at their household - they are proud about their work. When they are proud about their work, they want to show another level of pride, another level of achievement. So, that is the result of community visioning and household fair. –(Male, WorldFish implementer)

3.1.2 Establish and maintain relationships with local authorities and government agencies

Across all activities, establishing relationships and maintaining engagement with local authorities, including Fisheries Administration (FiA), Fisheries Administration Cantonment (FiAC), Children and Women Commune Councils (CWCC), provincial governors, district governors, commune chiefs, and village chiefs, is integral. For example, collaborating with local authorities was an important first step to women's inclusion and involvement in CFR leadership. Local authorities played a key role in ensuring women in the community attended the selection meeting for the CFR committee. Local authorities encouraged women to volunteer for CFR committee leadership, and also nominated women who they identified as being suitable for CFR committee leadership.

Continued engagement with commune councils is also important, particularly for the sustainability of activities. Examples of commune council engagement include lobbying for the incorporation of nutrition and gender activities in the commune investment program, and for the continued allocation of the commune budget for implementation of these activities after the end of the project.

We think that to be sustainable on nutrition, hygiene and sanitation training and dissemination process to caregivers in long term, the project operation closely collaborates with the Children and Women Commune Councilor (CWCC) core person at commune level and the Women, Children Councilor Committee (WCCC) at provincial level, and the National Council for Women and Children (NCWC) to engage in their functions to encourage the commune councilors, especially the

CWCC, functioning and allocate the commune budget for caregivers development process. –(Male, Local NGO implementer)

3.1.3 Integrate into existing structures

Integrating project activities into existing structures, such as the community village health support group (VHSG) and health centers, is crucial to effective incorporation of nutrition and gender activities. Working within these structures allowed for a key channel of messaging for and coordination with community households, continual follow up and monitoring of nutrition behaviors and household implementation of their vision map, and coherence in messaging across different practitioners. Specifically, for nutrition and WASH trainings, this project used Ministry of Health posters on infant and young child feeding practices and soundbites and videos from the Save the Children-led NOURISH project and UNICEF, but adapted these tools to include fish-specific messaging through practical demonstrations and videos. Furthermore, this integration allowed for feedback and problem-solving mechanisms between practitioners and community members, as described in the subsequent quote:

“ [We] made relationship between village health support group (VHSG) and health center officer can sit around and discuss the problems of caregivers, meet and participate to solve the issues. ”

-Male, Local NGO implementer

Additionally, integrating the institutions built by the project into the existing government structures is essential for the sustainability and accountability of nutrition and gender outcomes. For example, linking CFR committees into the commune council planning process allows them to integrate the CFR plan into government plans, but also provides a formal structure to monitor and follow-up on the progress of community-driven plans.



Image 5: Children eating food prepared using small indigenous fish species during a cooking demonstration.

3.2 Barriers

There were also some cross-cutting barriers to nutrition and gender activities identified by project implementers: 1) pervading inequitable gender norms, 2) perceived low literacy and 3) frequent migration for work.

3.2.1 Pervading inequitable gender norms

“Mostly only women participated in the household visioning session because the men think that it is the women’s job. And the men have to go out for work.”

**-Female, Local NGO
implementer**

Across caregiver trainings, household visioning sessions, and inclusion of women in CFR committees, existing gender norms (e.g., perceptions that women are responsible for roles in the household and men are responsible for roles outside the household) were perceived to hinder effective implementation of the activities. Low male engagement was observed in both caregiver trainings and household visioning sessions due to community and household perceptions that nutrition and household visioning are women’s responsibilities and income generation is men’s responsibility.

Low male engagement in household visioning sessions also indirectly had an impact on women’s participation in CFR committee leadership. Implementers explained that women who were not able to join CFR leadership most often gave reasons such as: they were busy with household responsibilities, their husbands do not allow them to, they are fearful that their husbands will be jealous.

NGO implementers also explained that women were “not brave enough” to join CFR leadership, with some also mentioning that there was low encouragement from husbands, family members, and communities. Even when women were included in CFR committee leadership, they often took on non-decision-making roles such as record keeping or note taking. This may suggest that there is a disabling environment for women to be involved in leadership roles, rooted in inequitable access to education for women and perceptions by women that they are not suitable to lead.

NGO implementers therefore recommended focusing on gender sensitization activities, such as discussions around the meaning and importance of gender equality, perceptions around gendered roles, and how they affect households and communities. However, alongside gender sensitization, it is important to address the capacity needs of women, not only in leadership capabilities and self-efficacy, but also in rice field fisheries work, so that they are confident and able to contribute to CFR management in a meaningful way.

3.2.2 Perceived low literacy and frequent migration of participants

NGO implementers found it difficult to deliver trainings because they perceived some participants to have low literacy levels. This made it difficult for participants to grasp nutrition concepts, draw and write the household vision map, and imagine a future household. To adapt, NGO implementers focused on visual and auditory tools like posters and videos and provided examples from their own experiences. NGO implementers also

explained that low literacy of some women hindered them from being able to join CFR committee leadership, as some positions required reading and writing.

Another challenge described by NGO implementers was the frequent migration of participants. Men, and sometimes women, of participant households often migrated to cities or bordering countries, making it difficult to both provide training and ensure that nutrition and gender knowledge were practiced. Specifically, many NGO implementers said they were unable to conduct household visioning sessions with both husbands and wives together because husbands often migrated for work. Although NGO implementers adapted by encouraging wives to share knowledge learned from trainings with their husbands, it was difficult to monitor and ensure.

4 Activity-specific enablers and barriers

4.1 Caregiver training and household visioning

4.1.2 Enablers

Households are more likely to respond to trainings and apply the lessons they learned from trainings when practitioners thoroughly explain the advantages and benefits of the activities. For example, implementers noted that the household visioning activity was occasionally difficult to understand, but once they provided examples and explained that implementing their household vision map would be beneficial for the health and harmony of their families, participants were encouraged to do so.

Diffusion of knowledge from participants to the rest of their household, neighbors, and other community members also facilitates successful impacts of the nutrition and gender activities.

The key successes of the caregiver training was caregivers understood well about the topics of lessons, took the knowledge to practice in their families and share to neighbor. –(Male, Local NGO implementer)

For household visioning specifically, when the entire household (husband and wife) joined this exercise, it was more likely to have a positive impact.



Image 6: Wife and husband tend to their homestead garden together.

4.1.3 Effective training strategies

NGO implementers described a number of effective training strategies and tools:

- Recognition: Publicly or privately recognizing the achievements of households (either formally or informally), especially by local authorities, to acknowledge household improvements and motivate other households to participate.
- Follow-up: Conduct continual and regular visits to check household progress and provide refresher activities if needed.
- Practical demonstrations: The project provided hands-on demonstrations of how to prepare nutritious meals using small indigenous species fish.
- Audio and visual tools: Posters and leaflets that are picture-dominant are more helpful in aiding understanding. Soundbites and videos are a convenient way to disseminate information to a wide audience. Videos can also aid in-person demonstrations; For example, cooking demonstrations can be time consuming for participants and by using pre-recorded videos, implementers can decide what aspects to focus on and what additional information to supplement.
- Social media: For example, some implementers set up Facebook groups or connected participants through Facebook messenger to share training videos.

NGO implementers also noted that participatory activities such as cooking demonstrations were particularly impactful. During household visioning sessions, husbands and wives were able to understand and plan for the future of their household when they drew household vision maps themselves:

“When they draw the visioning map by themselves, they will know clearly what they to do in the next future. They know which are the priority tasks that they should complete first.” –(Male, Local NGO implementer)



Image 7: An NGO implementer leading a cooking demonstration on using fish and diverse vegetables.

4.1.4 Barriers and recommendations

A number of implementation barriers were identified by implementers across the four provinces. Almost all NGO implementers mentioned the large amount of time it took to complete all the trainings, making it difficult for participants to absorb the information. Each session took around half a day, largely due to the cooking demonstration times, with technical instruction being up to two hours long. NGO implementers instead recommended shorter and more frequent trainings (although they noted this would depend on funding availability and staff time), and short recaps of previous trainings at the beginning of each training. Additionally, to overcome the challenge of low literacy among participants, NGO implementers recommended delivering simple, key messages, as they “will be easier to go into their heart.” –(Female, Local NGO implementer)

A few NGO implementers mentioned the need to update training manual content. For example, households were encouraged to eat at least 3 different food groups a day during the project, but now the government recommendation is to eat 5 different food groups a day.

4.2 Women’s leadership and participation in CFR committee activities

4.2.1 Enablers

For women to want to participate in the CFR committee leadership, a number of factors needed to be in place. First, encouragement by women’s families, communities, and local authorities increased the likelihood that women would be able to join CFR committee leadership.

In order for the participation of women in the CFR management committee to continue in the long run: 1) have the support and encouragement of the woman's husband and family members, 2) have the participation and encouragement of relevant authorities such as local authorities and community elders. –(Male, Local NGO implementer)

Additionally, women’s time and self-efficacy were key factors in women’s ability to participate in CFR committee leadership. For women whose families shared household tasks, they had more time for income-generating activities and capacity building trainings.

“We can see some results based on the past experience, we can see some households share tasks. And because of shared tasks, women have the time to do some income. So when they got a better income, and they also attend some of the trainings from our project, provided by our project, they are able to be selected as a candidate for the committees at the committee level because they are now confident, they are also now have some income, and they also recognize that they are the one who can share roles and responsibilities, not only at the household level but at the higher level.”

-Male, WorldFish implementer

These women's self-efficacy around leadership in the community also improved, and they felt they had the agency and empowerment to join CFR committee leadership. Improvements to women's leadership self-efficacy also allowed community members to recognize their leadership capacity and potential. For example, one woman CFR committee member was hired as commune council assistant, partly because the community and commune council were able to see her leadership work and capacity as a CFR committee member:

When I participated as a CFR committee member, I show my capacity and my responsibility and honesty to the community and to the local authority. So one time the commune council they need a commune council assistant so I applied for this position. And then the commune council, they know me before and know my work in the community and my capacity as well, so later on the commune council selected me as commune council assistant. –(Female, CFR committee member)

In addition to inclusion and representation of women in CFR committees, it is important to ensure that women have the capacity, motivation, and time to contribute to a CFR committee effectively, and that their decisions are respected and considered in their CFR committee. Supporting an informed selection process, in which women are made aware of the skills, capacity, responsibilities, and time required of CFR committee members, through prior orientation of the community is one way to recruit women who are willing and able to meaningfully support the management of CFRs. Following their selection into the CFR committee, it is also necessary to continually support women committee members, and build their leadership capacity targeting the skills they desire.



Image 8: A woman CFR committee member managing and leading fundraising for their CFR.

Conclusion

Explicit incorporation of nutrition and gender interventions alongside rice field fisheries management activities have the potential to enable improvements in food security and nutrition outcomes, particularly among women and children. The enablers to the successful implementation of these activities identified by implementers largely focused on community ownership while barriers revolved around underlying determinants of malnutrition and gender inequality. From these lessons learned, future rice field fisheries activities aiming to integrate nutrition and gender activities should consider:

1. Supporting community ownership: build relationships with communities and local authorities, encourage linkages between community leadership and local authorities, and integrate nutrition and gender activities into existing (formal and informal) community structures.
2. Using innovative tools: to accommodate the wide spectrum of literacy levels, use tools that emphasize audio and visual messaging, as well as conducting training through interaction, coaching, and learning-by-doing. When in person cooking demonstrations are too time consuming or not feasible, recorded cooking demonstrations can be a useful alternative.
3. Addressing underlying drivers: support transformative norms of gender equity and women's empowerment as well as women's education to increase their self-efficacy and capacity to be involved in decision-making and leadership.
4. Implementing context-specific activities: understand the barriers to positive nutrition and WASH behaviors and women's participation in CFR committees, adapting guidelines to meet the specific needs of each community.



Image 9: A local NGO implementer conducting a training on the benefits of consuming small indigenous fish species.

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Annex 1: Key nutrition and WASH concepts and messages for caregiver trainings

N	Topic & Associated Messages	Communication Mediums		
		Poster	Video & Audio	Game/Activity
1	<i>Appropriate diet for pregnant & lactating women, and for children from 6-24 months of age</i>			
1.1	3 groups of food for energy, growth, and protection	Poster of three groups of food	NOURISH animal source food soundbite	
1.2	Nutrition of small fish	Poster of small fish & its micro-nutrient components	WorldFish small fish video	
1.3	Different nutrition requirements of children as they grow	Poster of different children at different ages		
2	<i>How to include fish in the family diet</i>			
2.1	Quantity of food for children of different ages	Poster of feeding quantities at different ages	NOURISH food quantity soundbite	Practical demonstration
2.2	Frequency of feeding children for different ages	Poster of feeding frequency at different ages	NOURISH food consistency soundbite	Practical demonstration
2.3	Active complementary feeding	Poster of active feeding		
2.4	Ways to incorporate food from the family pot into children's meal	Poster of how to take food from the family pot & mash to make suitable for children's meal		Cooking demonstration
2.5	Preserve and store small fish for the dry season	Poster of fish powder	NOURISH Fish Powder video & soundbite	Cooking demonstration
2.6	Ways to incorporate whole	Poster of fish soup		Cooking demonstration

	small fish in children's diet: fish soup			
2.7	Ways to incorporate whole small fish in children's diet: sticky fish patties	Poster of sticky fish patties		Cooking demonstration
2.8	How to make and feed healthy snacks for children	Poster of healthy snacks		
3	<i>Benefits of, and how to set up and manage, home garden</i>			
3.1	Home garden		World Vegetable Center Video NOURISH home garden soundbite	Practical demonstration
3.2	Micro-garden			
3.3	Solid compost			
3.4	Liquid compost			
4	<i>Good WASH practices</i>			
4.1	Clean residential environment	Good house & poor house sanitation poster	Clean House & Home hygiene videos WorldFish dramatization video	
4.2	Wash hands with soap and water	Included in posters on Basic Hygiene, Quantity of Food	Handwashing, UNICEF, BBC & NOURISH videos & soundbite	Practical demonstration of installation
4.3	Drink clean water	Included in posters on Basic Hygiene, Sources of Diarrhea	1001 Fontaines, Malteser & NOURISH videos & soundbite	
4.4	Hygienic food preparation & storage	Included in posters on Quantity of Food, Sources of Diarrhea, 5 Keys for Food Safety		

4.5	Defecation practices	Included in poster on Sources of Diarrhea	Toilet, 17 triggers, UNICEF & NOURISH videos & soundbite	
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Annex 2: Guide for conducting household visioning sessions

Steps	Processes
Step 1: introduction	<ol style="list-style-type: none"> 1. Let everyone introduce themselves: Name, role, and family/relationship status 2. Facilitator informs farmers the objectives and ethics in taking photos and information to be used 3. Make attendant list of the family members (Name, Sex, Education level, Role in the family) 4. Bridging questions to next steps: <ol style="list-style-type: none"> a. Ask family members about current beliefs and practices that have put more pressure to the males & females in the village and in the family to adopt new knowledge, skills, development, and innovations (eg. growing small fishes, eating small fish, nutrition, hygiene...). b. How do you think about those norms, traditional beliefs? Why?
Step 2: The daily work activities (24-hour day)	<ol style="list-style-type: none"> 1. Ask family members to identify and list on one piece of flipchart paper, activities carried out by men in the family, and on another piece of flipchart paper, all those activities carried out by women. Facilitator takes note the list of activities done by men & women on flipchart and ask them to continue complete their activities for 24-hour day. 2. Introduce them to the concept of productive and reproductive roles, Ask How family members (males and females) perceptions on how you define work? why? Then return everyone to indicate next to each activity that they have listed for men and women whether the activity is a 'reproductive' activity, a 'productive' activity, or a 'Community' activity, by using below table.
Step 3: Family visioning and planning	<ol style="list-style-type: none"> 1. Dream building: The visioning process lies at the planning of household dream. Spending time thinking about what is important to your family and your life is important. Write down dreams that are relevant to the project goals. 2. Self-assessment: Ask husbands and wives to do self-assessment based on the level 1 to 5: Level 1: Know but never do; Level 2: Know/hear and have a plan to do it (but not yet started); Level 3: Do sometimes; Level 4: Do more often; Level 5: Do as habit. Family members (Husband, wife, and children) are asked: Where are these dreams now or how is the current status of those dreams and why? How to make it happen in three years' time? How everyone help each other to make the dream come true? 3. Priority dream: Vote on priority dream elements that can be implemented for 1 year based on your resources and your abilities. The prioritized dream element(s) that obstacle to improve the aquaculture and agriculture productivity, market and

	<p>prices, AAS technologies, and Family Nutrition & Hygiene. Participants/family members can discuss and vote for the most prioritized dream element. Documenter/note-taker has to record all discussion, how family members make decision (Husband, wife and children), who are always challenges to the family members</p>
<p>Step 4: Family action plan</p>	<ol style="list-style-type: none"> 1. Facilitator reminds participants about prioritized dream element and timeframe. 2. Facilitator brainstorms the discussion to refine objective for each prioritized dream element. 3. Facilitator presents the table of family planning and meaning of each column. 4. Participants discuss and start to complete the table of family action plan with supported from facilitator

Annex 3: Guide for conducting village fairs

Stakeholders	Roles
1-Selected HH (1 or 2 or 3)	<ol style="list-style-type: none"> 1. Display visioning maps (before intervention and after intervention) then explain these two maps to the plenary. 2. Display selected HHs house to demonstrate their achievements such as home vegetable garden, installed rubbish bin, cleaned house environment, washing station/place to the visitors/other villagers who participated in the village fair. Visitors can see and touch the positive changes. 3. Tell story about challenges they have faced and how did they solve those problems 4. Tell about the benefits of household changes.
2-Facilitator	<p><u>General roles:</u></p> <ol style="list-style-type: none"> 1. Invite a certain number of people (20-40 people) to participate in this event. 2. Ensure selected households have properly displayed their materials in order and the way participants are sitting is ok. 3. Welcome to participants and explain to them on the objective of today event. 4. Invite local authorities and commune health center/VHSG to give short speech. 5. Invite model HH to present their materials and results that listed above. 6. Facilitate the question and answer between selected HHs and participants. 7. Reflection and commitment from the participants <p><u>Actual role during session:</u></p> <p>Part-1</p> <ul style="list-style-type: none"> • Explain the objective of this HH fair to participants, <p>Part-2</p> <ol style="list-style-type: none"> 1. Facilitator ask model HHs to present their HH visioning map that they develop before project implementation, including their HHs photos before project intervention. 2. Facilitator ask model HHs to present their HH visioning map that they updated after project implementation, including their HHs photos for example photo of husband helps to cook, feeding children, cleaning house, good household environment and vegetable garden and explain these photos to the plenary. 3. Facilitator ask model HHs to tell the actual story about challenges they have faced and how did they solve those problems. 4. Facilitator ask model HHs to share their perception of benefit from this approach (HH visioning). Use the photo to respond to the answers.

	<ol style="list-style-type: none"> 5. Facilitator ask model HHs to check their next action plans and feedback sustainability of this approach. 6. Allow participants to question to the model HHs for clarification and better understanding. <p>Part-3: Facilitate three role plays as triggering tool to encourage community people actively participate in practicing hygiene, nutrition and sanitation at home. Those are listed below:</p> <ol style="list-style-type: none"> 1. Facilitate role play to explain the challenges of changing behavior. 2. Present photos of not thing is impossible (4 photos) and ask them to say together on (practicing hygiene, sanitation and nutrition for our children are possible to do) 3. Facilitate HH vision map with photos (poor household environment, good HH environment, pictures of possible activities to improve HH environment and picture of family members ranging from children to grandparent. 4. Ask for their commitments and plan to visit their households.
3-Participants (wife and husband)	<ol style="list-style-type: none"> 1. Learning from selected households, share their experience and challenges they have faced to implement their action plans listed in their HH visioning map. 2. Look for recommendations and answers from selected HHs/VHSG/facilitators/others 3. Share commitment at least one activity when return back home.
4-VHSG	<ol style="list-style-type: none"> 1. Play roles as model household in the village. Ensure their own houses can be a model HH in relation to hygiene and sanitation. 2. Record commitment of participants and help them to achieve those actions. 3. Support selected HHs and participants on technical of hygiene and sanitation.
5-Commune health center staff	<ol style="list-style-type: none"> 1. Recognize and support VHSG through inviting them to the meetings, training, workshops and ensure they perform their roles as agreed between VHSG and commune health center staff. 2. Regular ask VHSG to report to them on the progress of model HHs in their villages. 3. Provide recommendation and support based on their roles and responsibilities to model HHs through VHSG or directly visit them.

Annex 4: Poster on how to prepare fish powder



Making Fish Powder



Step 1: Wash fish, then drain in colander



Step 2: Add drained fish to dry wok



Step 3: Cook over medium heat, stirring constantly, until all moisture has gone



Step 4: Grind cooked fish into powder using mortar & pestle



Step 5: Store fish powder in a sealed jar for up to 4 months



Step 6: Add fish powder to prepared food before serving



About WorldFish

WorldFish is an international, nonprofit research organization that harnesses the potential of fisheries and aquaculture to reduce hunger and poverty. Globally, more than one billion poor people obtain most of their animal protein from fish and 800 million depend on fisheries and aquaculture for their livelihoods. WorldFish is a member of CGIAR, a global research partnership for a food-secure future.

For more information, please visit www.worldfishcenter.org