



# Fish for Livelihoods

## Social and Behavior Change Strategy

# **Fish for Livelihoods *Activity***

## **Social and Behavior Change Strategy**

Prepared by:

Andrea L. S. Bulungu

Kyra Hoevenaars

Khaing Kyaw Htoo

Quennie Vi Rizaldo

June 2022

## TABLE OF CONTENTS

---

<b>Abbreviations.....</b>	<b>3</b>
<b>Introduction.....</b>	<b>4</b>
Programmatic context .....	4
SBCC strategy objective .....	5
Process for developing the SBCC strategy .....	5
About this SBCC strategy .....	6
<b>Part I .....</b>	<b>10</b>
<b>Background.....</b>	<b>11</b>
Nutrition Situation .....	11
SSA Situation .....	11
WASH Situation .....	14
Communications Channels .....	14
<b>Part II .....</b>	<b>15</b>
<b>Defining Success.....</b>	<b>16</b>
Nutrition Indicators.....	16
SSA Indicators .....	16
<b>Strategic Approach .....</b>	<b>16</b>
Guiding Principles .....	16
Theory of Change.....	18
<b>Part III .....</b>	<b>21</b>
<b>Recommendations .....</b>	<b>22</b>
Cross-cutting recommendations.....	22
Nutrition recommendations .....	26
SSA recommendations .....	32
<b>Annexes.....</b>	<b>39</b>
Annex 1: Percentage of farmers per township that implemented the listed BMPs .....	40
Annex 2: SSA survey indicators do not align with the project BMPs .....	41
Annex 3. F4L <i>Activity</i> logic model .....	42
<b>References.....</b>	<b>43</b>

## ***Abbreviations***

BA	barrier analysis
BAPs	best aquaculture practices
BMPs	best management practices
DDS	dietary diversity score
DGLV	dark green leafy vegetables
F4L	Fish for Livelihoods
FBDGs	food-based dietary guidelines
FBPPs	fish and fish-based processed products
IWMI	International Water Management Institute
KMSS	Karuna Mission Social Solidarity
MDD-W	minimum dietary diversity for women
MFF	Myanmar Fisheries Federation
MSA	market-based system approaches
SBCC	Social Behavior Change Communication
SEM	social ecological model
SSA	small scale aquaculture
USAID	United States Agency for International Development
WASH	water, sanitation, and hygiene



## INTRODUCTION

---

### PROGRAMMATIC CONTEXT

The Fish for Livelihoods (F4L) *Activity* (2019-2024) focuses on improving the nutritional status of small-scale farmer households in Central and Northern Myanmar by promoting inclusive and sustainable aquaculture growth. The F4L *Activity* in Myanmar is implemented by WorldFish with funding from the United States Agency for International Development (USAID) and support from the International Water Management Institute (IWMI), BRAC, Pact, Karuna Mission Social Solidarity (KMSS) and the Myanmar Fisheries Federation (MFF). The *Activity* aims to provide a means of ensuring improved availability of diverse, safe and affordable nutrient-rich foods, especially for women and young children from poor and vulnerable households. F4L will stimulate aquaculture sector growth, increase employment and income, and improve food and nutrition security for households. It will serve a facilitating role by coordinating linkages among the value chain actors in the private and civil society sector of Myanmar.

The development goal of F4L is inclusive and sustainable small-scale aquaculture growth to increase income and dietary diversity, and reduce poverty of beneficiary populations, especially women and children, in central and northern Myanmar. The specific objectives are to:

1. Increase small scale aquaculture (SSA) production through strategic activities, including improved land and water use, increased access to high quality inputs (feed, seed and equipment), capacity development and research into production, and access to credit;
2. Further develop market-based system approaches (MSA) and utilize those to increase access of food safe fish and fish products by poor people; and
3. Deliver enhanced nutrition and water, sanitation, and hygiene (WASH)<sup>1</sup> practices through Social Behavior Change Communication (SBCC) activities.

The F4L *Activity* is implemented in five inland states and regions in Central and Northern Myanmar: Mandalay, Magway and Sagaing in the Central Dry Zone, and Shan and Kachin in the Upland area. (See **Figure 1**)



**Figure 1. Map of the F4L *Activity* operational areas.**

---

<sup>1</sup>According to the objectives, maintenance and adoption of F4L recommended nutrition and WASH practices will be improved through SBCC. In the call for EOI for this SBCC strategy, however WASH was replaced by SSA BAPs. Therefore, although the WASH situation in F4L *Activity* operational areas is summarized, this SBCC strategy focuses primarily on recommended practices for nutrition and SSA. The strategy will need to be extended if WASH practices need to be included.

The F4L *Activity* development goal is the inclusive and sustainable small-scale aquaculture growth to increase income and dietary diversity, and reduce poverty of beneficiary populations, especially women and children, in central and northern Myanmar. The F4L *Activity* specific objectives are to: (1) increase SSA production through strategic activities, including improved land and water use, increased access to high quality inputs (feed, seed and equipment), capacity development and research into production, and access to credit; (2) further develop market-based system approaches (MSA) and utilize those to increase access of food safe fish and fish products by poor people; and (3) deliver enhanced nutrition and water, sanitation, and hygiene (WASH) practices through SBCC activities.

SBCC STRATEGY OBJECTIVE

The objective of this SBCC strategy is to increase adoption and maintenance of positive behaviors among mothers of young children and small-scale fish farmers. The strategy is developed to be achievable within the F4L *Activity* period, and in recognition of two major constraints: COVID-19-related restrictions and uncertainties due to an ongoing political crisis. This strategy is intended to be used by WorldFish and WorldFish's F4L *Activity* implementation partners as a roadmap of the communication activities and platforms that *Activity* will pursue.

PROCESS FOR DEVELOPING THE SBCC STRATEGY

SBCC is the use of communication to change behaviors and promote social change by positively influencing knowledge, attitudes, and social norms. SBCC is a process that is widely understood to include five major stages: (1) understanding the situation, (2) focusing and designing the strategy, (3) creating the interventions and materials, (4) implementing and monitoring, and (5) evaluating and replanning. Each stage of the process draws upon the results of the stage that came before. This so-called "C-planning" process is illustrated in **Figure 2**. (C-Change, 2012)



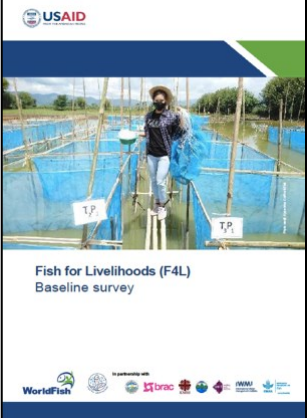
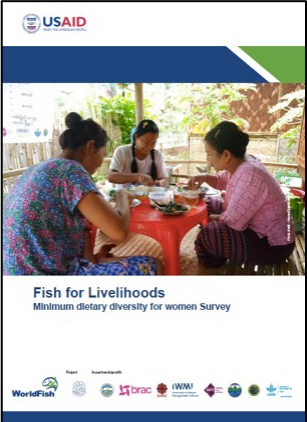
**Figure 2. The five steps of C-Planning. Reproduced from (C-Change, 2012).**

This strategy is the final deliverable of the focusing and designing stage (C-planning stage 2). The strategy draws upon a series of C-planning stage 1 activities, including a desk review of published research, additional formative research to understand the barriers and enablers to the F4L *Activity* selected best practices, mapping of the barriers and enables to communications platforms, and a stakeholder review of the findings and recommendations, which took place on 25 May 2022. Specifically, the literature informing this SBCC strategy is presented in **Table 1**.



## ABOUT THIS SBCC STRATEGY


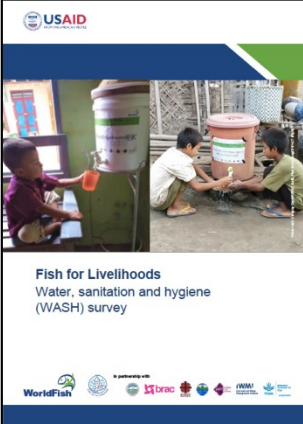

In **Part I**, this strategy will summarize the situation in F4L *Activity* areas of operation regarding nutrition, SSA, WASH, and communications channels. In **Part II**, the goals and objectives of the SBCC strategy are reviewed, as well as the strategic approach, which summarizes the behavior change theories that underlie the recommendations presented in **Part III**, and linkages to the F4L *Activity* theory of change. Recommendations for the F4L *Activity* are presented (in **Part III**) separately for nutrition and SSA.

**Table 1. Key F4L publications consulted for this SBCC strategy.**

Graphic	Reference	Objective	Nutrition	SSA
	<p>WorldFish. 2021. Fish for livelihoods (F4L): Baseline survey. Penang, Malaysia: WorldFish. Program Report.</p>	<p>To understand the current levels of aquaculture production, access to inputs, best aquaculture practices (BAPs), extension services, income, food security, and water, sanitation, and hygiene (WASH) practices, as well as nutrition-conscious household decisions of the project beneficiaries,</p>	<p>Yes</p>	<p>Yes</p>
	<p>WorldFish. 2021. Minimum dietary diversity for women (MDDW) survey. Penang, Malaysia: WorldFish.</p>	<p>To determine the proportion of female participants consuming at least five food groups over a 24-hour period; the frequency of consumption of fish and fish-based processed products (FBPPs) among respondents over a 7-day period; and who decides to harvest fish and to manage income among the respondents' households.</p>	<p>Yes</p>	<p>No</p>



 <p>Fish for Livelihoods Barrier analysis study</p> <p>WorldFish</p> <p>in partnership with Save the Children USAID</p>		<p>Rizaldo Q, Soe ZY, Saw Eden S and Akester M. 2021. Barrier analysis study. Penang, Malaysia: WorldFish. Program Report.</p>	<p>To explore the [...] of two behaviors that were identified by implementing partners to be poorly adopted among the priority groups: (1) consumption of diverse food among mothers with under 5-year-old children, and (2) stocking of recommended size and number of fingerlings by SSA farmers.</p>	<p>Yes</p>	<p>Yes</p>
 <p>Fish for Livelihoods Fish Production Report – Small-scale Aquaculture (SSA) Farmers</p> <p>WorldFish</p> <p>in partnership with MTRAC USAID</p>		<p>WorldFish. 2021. Fish Production Survey – Small-scale Aquaculture (SSA) Farmers’ Survey. Penang, Malaysia: WorldFish.</p>	<p>To verify the fish production on average in SSA farmers ponds; and analyze consumed, shared, and sold fishes in SSA farmers and study how many SSA have sold their harvested fishes for income generation purposes.</p>	<p>No</p>	<p>Yes</p>

		<p>WorldFish. 2021. Better management practices: Smallscale fisheries farmers survey. Penang, Malaysia: WorldFish. Program Report.</p>	<p>To verify and observe that SSA farmers from the project area are using better management practices (BMPs) in an aquaculture system; and promote BMPs among SSA farmers and check for any difficulties in applying them.</p>	<p>No</p>	<p>Yes</p>
		<p>WorldFish. 2021. Water, sanitation, and hygiene (WASH) survey. Penang, Malaysia: WorldFish.</p>	<p>To investigate the state of WASH facilities that F4L provided in 2020 as well as the WASH practices among the project's participants in eight [F4L] townships.</p>	<p>No</p>	<p>No</p>
		<p>2022. Social Behaviour Change Communication Strategy, WorldFish Fish for Livelihoods, Myanmar: Research Results.</p>	<p>To summarize research conducted looking at barriers and enablers for adoption and adherence to diet- and SSA-related best practices.</p>	<p>Yes</p>	<p>Yes</p>



## **Background**

### NUTRITION SITUATION

The F4L *Activity* baseline study, conducted in July 2021, indicated that the mean dietary diversity score (DDS) for women was 4.7 (out of 10 food groups) and that nearly 60% of the women were achieving the minimum dietary diversity (MDD-W) threshold of 5 or more food groups. (WorldFish, 2021a) Also In 2021, results from the F4L *Activity* MDD-W study showed an average DDS among women of 5.4, with 73% of women achieving MDD-W. (WorldFish, 2021b) Results of the MDD-W survey report indicated higher than DDS and MDD-W than those reported in the baseline survey report.

The MDD-W study (2021) also provides insight into the relative consumption of the different food groups that make up the DDS indicator for women (i.e., grains, white roots and tubers, and plantains; pulses; nuts and seeds; milk and milk products; meat, poultry and fish; eggs; dark green leafy vegetables (DGLV); other vitamin-A-rich fruits and vegetables; other vegetables; and other fruits). (WorldFish, 2021b) This report indicates that staple foods (97.4%); meat, poultry and fish (86.8%), and other (rather low-nutrient density) vegetables (78.2%) are the most commonly consumed food groups, whereas eggs (39.8%), nuts and seeds (10.3%), and milk and milk products (9.7%) are the least commonly consumed food groups.

The MDD-W combines animal-source flesh foods (meat, poultry and fish) into a single food group. Given the focus of the F4L *Activity* on aquaculture production, it is also useful to note that, among the women surveyed, fish consumption over the previous seven days ranged from 75% in Pinlaung to 100% in half of the areas surveyed.

The F4L *Activity* barrier analysis study (2021) explored the barriers and enablers, for women of SSA households, to eating a "diverse diet" rather than any individual food group. (Rizaldo, Soe, Eden, & Akester, 2021) The study concluded that major barriers to eating a diverse diet for women include a lack of money to buy diverse foods, lack of time to prepare diverse foods, beliefs about negative health consequences from eating a diverse diet, and disapproval from some family members (sisters, primarily).

A follow-up study conducted in April / May 2022 concluded that barriers and enablers vary by food group (and sometimes by food within each food group); accessibility and affordability were the major challenges, especially in rural areas or regions vulnerable to seasonality; and that there was opportunity to increase consumption of several nutrient-rich food groups.

### SSA SITUATION

The F4L project has done a lot of work on improving implementation of Best Management Practices (BMPs) for SSA farmers in the project area. WorldFish has conducted several studies to evaluate the effectiveness of F4L activities, such as training of SSA farmers provided through their implementing partners.

The Fish Production Survey – Small-scale Aquaculture report (2021) describes the average fish production and income generation from SSA farmers' ponds. Average production varied between townships from 411 to 2593 kilograms per hectares of fishponds. The average income per farmer ranged between 50,000 and 1,548,000 Myanmar Kyat per farmer per year. The price farmers fetched for their fish ranged from 1,530 to 4,090 Myanmar Kyat per kilogram. Among the townships surveyed, fish production was highest in Pindaya township and lowest in Salin township.

The BMPs farmer survey (2021) report described the adherence of F4L SSA farmers to the following ten BMPs, and identified issues in their application: (1) Testing natural food adequacy in water (transparency of 10-25 inches); (2) Maintaining stock density at 3,000-5,000 fingerlings (3''- 4'') per acre; (3) Species selection according to the 3 layers concept; (4) Liming (during pond preparation and during grow-out period); (5) Providing antibiotic free supplementary feed (3-8% body weight based on fish size); (6) Fertilizers application; (7) Appropriate harvesting and post-harvest handling, of aquaculture products within the farm should be practiced minimizing contamination and physical damage. Fish should be cleaned properly and put in ice if the market is long distance; (8) Use quality fish seeds from a hatchery; (9) Aquaculture facilities should be located in areas where the risk of contamination is minimized or where sources of pollution can be controlled or mitigated; (10) All veterinary drugs and chemicals for use in aquaculture shall comply with national regulations, as well as international guidelines.

Results of the BMP survey showed a high rate of adoption of BMPs and concluded that most F4L SSA farmers implemented BMPs as advised by the project. However, not all farmers implement all suggested practices. Implementation of BMPs by farmers ranged between 45 and 99% for the different BMPs. (See **Annex 1** for results by township.) Three major challenges in the implementation of BMPs were identified. First, use of fertilizer was implemented by only 45% of farmers. Farmers that did not use fertilizers indicated that they did not have the knowledge on how to use fertilizer. Second, pond preparation (i.e., use of lime) was implemented by only 60% of farmers. Some farmers reported not using lime because they think it is not needed for new ponds. Third, use of supplementary feed was implemented by only 65% of SSA farmers. Farmers who did not apply feeds indicated that either they did not have sufficient money or access to purchase the feeds.

The remaining BMPs were implemented by 82% or more of the SSA farmers, except for the use of drugs and chemicals. This BMP was however presented in the BMP survey as "No use of drugs and chemicals" instead of "Veterinary drugs and chemicals for use in aquaculture shall comply with national regulations, as well as international guidelines", as written in the BMPs. Survey respondents who reported using drugs and/or chemicals indicated, when probed, that they used natural herbs. The specific substances used were not specified but it is possible that these are allowed for use by national and international guidelines, and thus actual adoption of the BMP may be higher.

For SSA, the Barrier analysis study (2021) explored the barriers and enablers, for farmers in Salin and Taunggyi townships, to stock fingerlings of the correct size and quantity to optimize production. The key barriers identified include predators that eat the fish; theft and poisoning of fish; lack of money and/or access to buy fingerlings and feed; lack of time; slow (fish) growth; and drying up of the ponds. SSA farmers indicated that enablers for engaging in aquaculture were to have healthy fish to eat; to be able to give fish as presents; easy access to food; and provision of income.

The follow-up study, conducted in April / May 2022, identified additional barriers and enablers were identified for each BMP, which are shown in **Table 2**. As illustrated in the table, some BMPs comprise more than one behavior. The major challenges identified during the KIs and FGDs were the lack of water resources; lack of access and / or affordability of pellet feed; and fish loss due to predators and theft. However, challenges differ per area. For example, some F4L *Activity* areas suffer floods whereas others are challenged with lack of water.



**Table 2: Barriers and enablers identified by key experts, aquaculture promoters and SSA farmers per behavior.**

BMP	Behavior	Barriers	Enablers
1	Site selection (availability of water, distance to pond)	Many farmers are dependent on rainwater except when water is sources from a dam. Farmers only own land far away from their house.	Farms are close to farmers' homes; water is available year-round
	Protect ponds from flooding	Lack of funding for investment for high pond bank embankment and drainage. Farms are far from the house, so monitoring is hard.	Weather prediction
	Protect ponds from theft	Lack of time to guard ponds	Farms are close to the house of farmers
2	Pond preparation: drying and liming	No possibility to dry and lime ponds (in wet zones). Lack of knowledge.	In dry zones ponds can be sundried, lime is easily available and affordable
3	Use of fertilizer when needed	Lack of knowledge	Animal manure available
4	Testing water quality (transparency, temperature, pH, ammonia) and management	Lack of knowledge and equipment. Lack of water resources for exchange	
5	Use high quality and uniform seed from hatchery (3-5 Inch)	Fingerlings are not uniform in size. Price of seed is getting higher. Some farms are far from the hatchery.	Hatchery produced seed available (support by project)
6	Stocking correct number of fingerlings	Lack of fingerlings available	Hatchery produced seed available (support by project)
7	Growing silver barb, rohu, common carp, climbing perch, tilapia and pangasius	Restricted to species available from hatchery	Species are grown in hatcheries
8	Use of supplementary feed pellet feeds	Price of feed, access to feed, lack of awareness	Easy to use, fast growth of fish
	Use of supplementary feed- rice bran, peanut cake etc.		Easily available and affordable for most farmers
9	Post-harvest procedures are correct– use of ice	Access to ice, misperception that fish on ice is not fresh	Support from buyers with packing and transport
10	Disease management (only use veterinary drugs and chemicals from authorized sources)	Lack of knowledge, no fish health specialists available	

## WASH SITUATION

WASH is not a focus of this SBCC strategy; however, it is a component of the F4L *Activity*, and therefore the evidence regarding the WASH situation in F4L *Activity* areas is summarized.

The baseline survey (2021) assessed handwashing before and after key activities among F4L households. (WorldFish, 2021a) Handwashing was least commonly performed after returning from outside the home (28.7%), after cleaning the baby (70.9%), and before feeding the child (73.3%). For handwashing, most F4L *Activity* households used a station in the yard / plot (51.3%); a bucket, jug or kettle (24.3%), or a station inside the home (23.6%). The majority of F4L *Activity* households had access to improved toilet facilities (85%).

The WASH survey (2021) indicated that 46% of F4L *Activity* households had access to running water, 52% had access to water that was not running, and for 2% water was not available. (WorldFish, 2021d) In all households, soap or detergent was available for handwashing, usually within hand reach. For drinking water, the most used methods of treatment were a ceramic or clay water filter (55%) or cloth water filter (14%). Using purified drinking water from a company (3%) and chlorine (4%) were the least commonly used methods for treating drinking water.

## COMMUNICATIONS CHANNELS

Very little information was available regarding communications channels used by F4L *Activity* households. The barrier analysis study (2021), however, indicated that women's dietary practices were influenced by their sister(s), and SSA farmers practices were influenced by their grandfather(s) and mother. (Rizaldo et al., 2021)

Considering the restrictions in place due to COVID and political unrest, information about the availability and use of communications channels was explored in follow-up research conducted in April 2022. Findings from these interviews suggest that the most effective and commonly used platforms prior to the COVID- and political-related crises (e.g., community events, inter-personal communication, and mass media) were currently the most severely curtailed, and that therefore the best opportunities for SBCC may be in adapting and/or optimizing traditional channels.



## *Defining Success*

As noted in the Introduction, the objective of this SBCC strategy is to increase adoption and maintenance of positive behaviors among mothers of young children and small-scale fish farmers. To determine if the F4L *Activity* has been successful, the prevalence of recommended practices at the end of the *Activity* will be compared with results at baseline. It is critical, therefore, that the SBCC activities and messages drive towards the specific indicators that will be measured.

### NUTRITION INDICATORS

The indicators for nutrition, DDS and MDD-W, are straightforward and well-defined. There is data from the baseline survey (2021) and MDD-W study (2021) with which to compare progress at the end of the F4L *Activity*. (WorldFish, 2021a, 2021b) To increase adoption, requires identifying the best opportunities for increasing the variety of foods consumed by women in F4L *Activity* households. Notably, this means focusing on increasing consumption of food groups that are less commonly consumed, i.e., adding food groups to the diet rather than replacing one food group for another.

### SSA INDICATORS

The indicators for SSA are based on the BMPs defined by the F4L *Activity*. The BMP survey results and the results of the Fish Production Survey – Small-scale Aquaculture can be as a baseline study. Indicators would include the percentage of farmers implementing the BMPs correctly and the production per hectares and the income per hectare.

Caution in the interpretation and use of some BMP survey results for the purpose of monitoring and evaluation may be warranted. Some survey indicators did not align with the project BMP standards. (See **Annex 2**) Some BMPs are highly context specific. For example, the need for the application of lime to fishponds and application of ice to fish depend on location and / or proximity of the farm. Information given by participants of the follow-up KIs and FDGs sometimes contradicted findings from the BMP survey. These issues are important because the evaluation of the F4L *Activity* assumes accurate baseline data. Also, to increase the likelihood of success, F4L *Activity* behavior change communication activities should directly target the behaviors that will be measured.

## *Strategic Approach*

### GUIDING PRINCIPLES

The recommendations included in this strategy are guided by long-standing behavior change theory. Although most behavior change theory emerges from the health sector, it is equally applicable to other areas. There are three main theories underlying the recommendations: the social ecological model (SEM), the health belief model, and the stages of change. These models were developed over time and in complement of each other.

#### **The Social Ecological Model (SEM)**

The social ecological model (SEM) conveys two inter-related principles. First, that behavior both affects, and is affected by, multiple levels of influence; and second, that individual behavior both shapes, and is shaped by, the social environment. That is, individuals are influenced by not only their own knowledge, attitudes, and beliefs, but also those of the people around them – their partners, family, and friends, and

members of their communities – as well the policies, laws, economic conditions, religious systems, etc. governing life at the societal level.

The implication of SEM for this SBCC strategy is that, to increase the likelihood of improving nutrition and SSA practices, the F4L *Activity* needs to target communications not only to primary beneficiaries (i.e., women and fish farmers) but also to their families and friends and other members of their communities that influence them.

### Health Belief Model

The health belief model conveys that an individual's readiness to act depends on their perceptions (i.e., beliefs) of their susceptibility to the risk; the benefits of taking action; barriers to taking action; threats to taking action; and sense of self-efficacy.

The implication of the health belief model for this SBCC strategy is that, to increase the likelihood of improving nutrition and SSA practices, the F4L *Activity* needs to develop a communications campaign that defines the risks; explains what actions can be taken and their benefits; supports individuals make change by addressing concerns, correcting misinformation, and providing incentives; provides opportunities for skill-building; and employs frequent calls to action.

### Stages of Change Model

The stages of change model conveys that behavior change is a process comprising pre-contemplation, contemplation, preparation, action, and maintenance and / or relapse. In the pre-contemplation stage, individuals have no intention of changing their behavior. At the contemplation stage, individuals are aware of the problem but have not committed to action. At the preparation stage, individuals are intent on action to address the problem. At the action stage, individuals are actively modifying their behavior. At the maintenance stage, the new behavior is sustained.

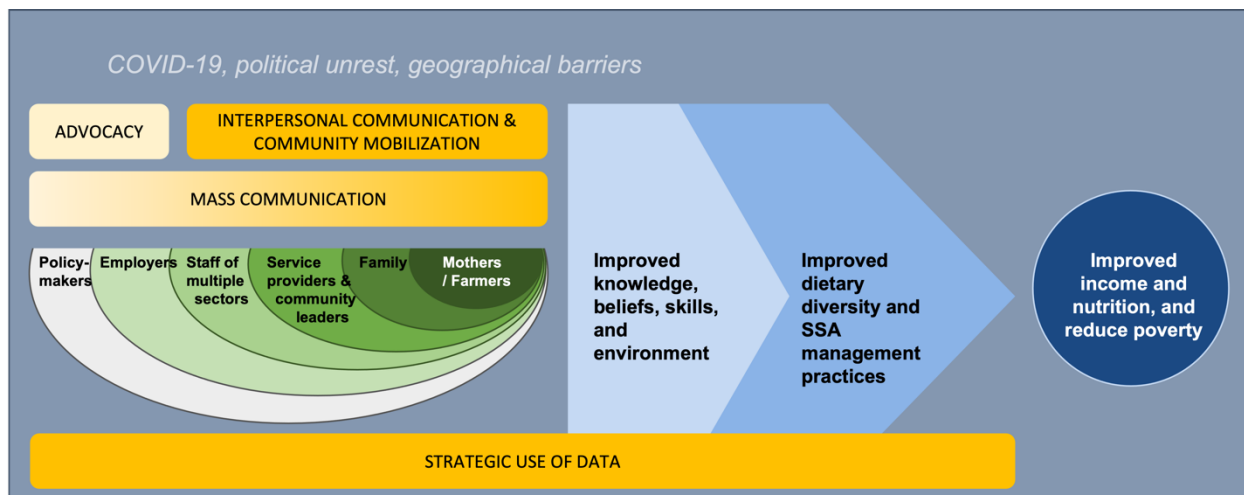
The implication of the stages of change model for this SBCC strategy is the need for messaging to vary, depending on where the individual is on the pathway to change, and to continue to provide motivation and support as individuals pass from one stage to the next.

### Putting it All Together

Each of behavior change theory - SEM, the health belief model, and the stages of change model - comprise principles that have withstood the test of time. **Figure 3**, adapted from FHI 360 / Alive & Thrive, illustrates how they can be taken together to inform an overall SBCC strategy that drives towards the F4L *Activity* goal of improving income and nutrition and reducing poverty.

In the diagram, SBCC channels are illustrated in proximity to their pertinent SEM sphere. Advocacy can be best leveraged, at the outmost spheres, to influence policymakers and employers. Interpersonal communication and community mobilization is best leveraged to influence program staff, service providers, community leaders, friends and family, and target beneficiaries. Mass communication can be used to address all audiences. Importantly, SBCC activities should be driven and continually informed by evidence. The illustration also conveys the concept - intrinsic to both the health belief and stages of change models - that behavior change is process that builds over time.





**Figure 3. An integrated model of the social ecological change, health belief, and stages of change models. Adapted from FHI 360 / Alive & Thrive.**

Due to the current COVID- 19 and political-related restrictions and challenges, the F4L Activity SBCC strategy will necessarily focus primarily on the inner spheres of the SEM. Interpersonal communication, community mobilization and mass communication targeted at F4L Activity beneficiaries, their families and friends, and communities, where possible, should be prioritized.

#### THEORY OF CHANGE

The F4L *Activity* theory of change states that if the capacity of SSA farmers is developed on improved aquaculture management practices and they adopt better aquaculture practices (BAPs) and market systems functions well, then this will improve production, income and nutrition for rural poor, especially for women and children, in central and northern Myanmar. (WorldFish, 2021c) The accompanying logic model is provided in **Annex 3**. It contains a few explicit linkages to SBCC, which are highlighted in **Table 3** below.

The goal of the F4L *Activity*, as illustrated in the logic model, is inclusive and sustainable SSA growth to enhance integrated agriculture nutrition pathways by means of improved production and market systems approaches to increase the availability of fish, income, and dietary diversity, dietary and agriculture practice behavior change, reduce poverty of beneficiary populations, especially women and children, in central and northern Myanmar.

Following the logic model backwards, to achieve the F4L *Activity* goal requires increased sustainable SSA production, which in turn relies on achieving increased SSA production efficiency. It is envisioned that increased SSA production efficiency will be achieved through the adoption of better fish farming practices, as promoted by WorldFish and its partners.

Similarly, to achieve the F4L *Activity* goal requires improved nutrition diversity and safety and increased WASH access, especially in childbearing-age women and children under five, which in turn relies on: (1) increased nutrition awareness and improved WASH; (2) increased access to diverse, safe and nutritious food; and (3) increased fish consumption in reproductive age women and young children. It is envisioned that these short-to-medium-term outcomes will be achieved through establishment of an effective nutrition and WASH extension network; [improved] knowledge and practices to produce safe, nutritious, and diverse food; and improved the capacity of local stakeholders on (fish) nutrition.

There are a few important disconnects along the logic model pathways from inputs to the F4L *Activity* goal, which will be briefly reviewed here and further discussed in the sector-specific recommendations in **Part III**.

First, as previously noted, achieving WASH-related outcomes appears to rely on promotion through F4L SBCC activities, however this component is missing from this strategy. Similarly, increased dietary diversity among children under five years of age is included as an outcome in the F4L logic model, although it too is not specifically addressed in this strategy. To increase the likelihood that WASH- and child dietary diversity-related goals are achieved, these components should be incorporated into the SBCC strategy and / or linkages to other interventions should be described in the logic model.

For outcomes such as the adoption of "better fish farming practices", wherein SSA farmers are wholly dependent on supplies from others in the value chain (e.g., for fingerlings or pellet feed), and "increased access to diverse, safe and nutritious food", SBCC interventions are necessary but insufficient. That is, some of the outcomes included in the logic model are not within the locus of control of women or SSA farmers. Other F4L *Activity* inputs will be needed, therefore, to achieve these outcomes.

Finally, the logic model seems to imply that increasing fish consumption among women of F4L households will contribute to increased dietary diversity. However, as noted in **Part I** of this strategy, fish consumption is already quite high among mothers of young children. The biggest opportunities for improving MDD-W, therefore, are likely increasing consumption of food groups other than fish.

**Table 3. SBCC-related components of the F4L Activity logic model.**

<b>Input &amp; Activities</b>	<b>Outputs</b>	<b>Short-Medium term Outcomes</b>	<b>Medium-Long term development outcomes</b>	<b>Goal</b>
Identify and engage private sector and other organizations in promoting the adoption of BMPs.	Better management and fish farming practices adopted.	Increased production efficiency.	Sustainable SSA production increased	Inclusive and sustainable SSA growth to enhance integrated agriculture nutrition pathways by means of improved production and market systems approaches to increase the availability of fish, income, and dietary diversity, dietary and agriculture practice behavior change, reduce poverty of beneficiary populations, especially women and children, in central and northern Myanmar.
Identifying platforms and partners to engage.	Effective nutrition and WASH extension network established. Knowledge and practices to produce safe nutritious and diverse food. Improved the capacity of local stakeholders on (fish) nutrition.	Increased nutrition awareness and improved WASH. Increased access to diverse, safe and nutritious food. Increased fish consumption in reproductive age women and young children.	Improved nutrition diversity and safety and increased access WASH, especially in childbearing-age women and children under five.	
Provide nutrition and WASH education and packages supported by SBCC.				



## Recommendations

In this section, high-level recommendations regarding messages, channels and activities that are pertinent to both nutrition and SSA SBCC are laid out. (See **Box 1**) These are followed by specific recommendations for nutrition and SSA.

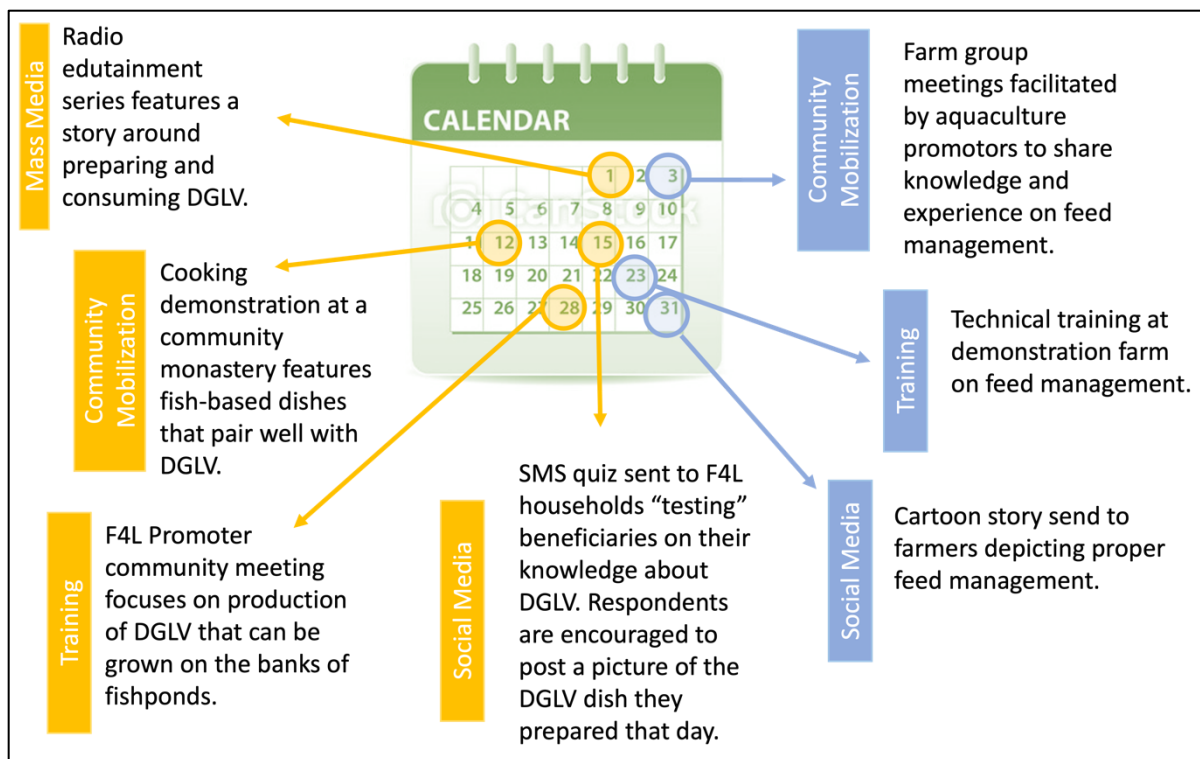
### CROSS-CUTTING RECOMMENDATIONS

#### **Box 1. Cross-cutting recommendations**

- Develop a few simple and specific key messages.
- Harmonize nutrition and SSA messaging and integrate delivery.
- Use multiple mutually reinforcing channels to achieve high message intensity.
- Prioritize communications channels that are reliably available.
- Address multiple “stages of change” levels.
- Engage trusted community leaders and leverage available community platforms.
- Promote active engagement through use of adult learning techniques, games, practical and iterative skill building, and social accountability.
- Use innovative approaches and technologies to bridge capacity limitations and/or geographic barriers.

Use multiple mutually reinforcing channels to achieve high message intensity. Behavior change campaigns are successful when the target audience is repeatedly exposed to the same simple messages frequently and by multiple trusted sources. **Figure 4** illustrates a few key interrelated concepts. Carefully consider the purpose for each *Activity* planned, e.g., awareness-raising, motivational, skill-building, social support, and/or improving the enabling environment. Some - most, even - activities may have multiple purposes but at the very least the F4L *Activity* will want to ensure that all the stages of the stages of change model are covered by at least one *Activity*.





**Figure 4. Illustrative SBCC calendar of events.**

First, a few key messages need to be developed that drive towards F4L *Activity* outcome indicators, are actionable (i.e., within the locus of control) by the target audience and speak to specific barriers identified in the research undertaken for this strategy. (Recommendations specific to nutrition and SSA are provided in the following sections.) Message development is a distinct research activity, separate from - but informed by - the SBCC strategy. To develop key messages, it is recommended to work with an individual or agency that specializes in behavior change message development, which utilizes a method (such as TIPS - see **Box 2**) of testing the messages as part of the development process.

**Box 2. What are TIPS (Trials of Improved Practices)?**

TIPS is a method for testing program recommendations. Program target beneficiaries are given a choice of recommendations to act on, questioned about their reasons for that choice, and then followed up to see what actually happened. Did they try the new practice, and if so, how did they feel about it? Did they modify it? Or if they didn't try it, why not? In this way the proposed recommendations are tested in a real environment, and information is gathered on their acceptability.

A series of interactive activities should be strategically planned to build off one another over a period. To maximize message coverage, it is recommended to use a variety of channels, leverage trusted local leaders, and engage not only the target member of the F4L *Activity* household, but their key influencers as well. Using a variety of communication channels also increases the likelihood that the campaign will reach targeted beneficiaries as well as their key influencers, no matter where they are in the stages of change (See **Part II** of this strategy). IEC materials (e.g., posters, brochures, flyers) can be developed that explicitly address the barriers noted in the health belief model.

In the example illustrated in **Figure 4**, increased consumption of DGLV consumption was selected as the key message. This fictionalized month of SBCC activities kicks off with a radio-based edutainment series promoting recipes using DGLV. (See **Box 3. What is edutainment?**) Later in the month, a community-wide cooking demonstration event - located outdoors at the local monastery - is planned, which features recipes created by a local chef using DGLV. The entire community is invited to participate, and attendees are given a chance to taste the foods prepared. Later in a month, a SMS-based quiz is sent to F4L *Activity* beneficiaries that tests their knowledge (based on what they would have learned in the radio episode and cooking demonstration) and encourages them to share the quiz with their friends and family as a form of friendly competition, or to post their own pictures of dishes featuring DGLV they made at home. These types of activities, although fun in nature, also function as a sort of social accountability.

For the farmers, the key message selected was use of supplementary feed. Here the SBCC activities start with a farmers group meeting facilitated by an aquaculture promotor sharing experience on feed use and feed management and identifying gaps. During the second *Activity*, the farmers will receive training on feed management including finances of different feed types, feed storage and feeding methods. Finally, key messages will be shared with farmers through social media and/or apps in a fun way, for example using cartoons or short videos. These messages will repeat key learnings from the farmer group meetings and the training.

Finally, at the end of the month, F4L promoters conduct a training for *Activity* households - engaging both mothers of young children and fish farmers - demonstrating how to grow DGLV on the banks of their fishponds.

**Box 3. What is edutainment?**

Edutainment is the process of entertaining people at the same time as you are teaching them something, and the products, such as television programmes or software, that are used to do this.

The nutrition and SSA components of the F4L *Activity* target different members (usually) of the same household. As per the example above, therefore, for best effect, the nutrition and SSA key messages should be distinct but harmonized. That is, key messages primarily aimed at promoting recommended dietary practices should also reinforce messages aimed at promoting recommended SSA practices. In the example provided above, among the F4L *Activity* activities carried to promote consumption of DGLV (nutrition) is a training where F4L promoters teach both mothers and fish farmers how to grow DGLV on the banks of their fishponds. Such integrated messages and activities help to amplify both sets of messages. (See **Box 4. On integration**)

**Box 4. On integration**

In practice, cross-sectoral program integration is carried out on a spectrum. (Harris & Buchsbaum, 2014; Matturi & Pain, 2016) At its simplest, programs with different sectoral focuses (e.g., nutrition and aquaculture) are simply **co-located** - that is, implemented in the same geographic area with similar targeting. In **coordinated** programs, activities and their respective messages are harmonized although still carried out separately. In a program using cross-sectoral **collaboration**, staff trained according to their respective sectors of expertise, carry out program activities jointly. Program staff, having expertise in one sector, can be **cross-trained** in the other sector while still carrying-out activities either separately or jointly. In a fully **integrated** cross-sectoral program, program staff receive the same training and each carry-out all program activities.

Given the extenuating circumstances, regarding both COVID-19 and political-related restrictions effecting movement, gathering, and access to electricity and internet, it is recommended that the F4L *Activity* prioritize communications that are reliably available. For example, community events should be held in outdoor areas where masks are required, and handwashing facilities provided. Edutainment programming can be delivered via listening groups where public broadcasting is unavailable. Mobile phone-based activities can be carried out using simple SMS- and/or voice-based technologies, which are device-agnostic, relatively low impact on battery life, and little dependence on internet. F4L *Activity* promoters can be equipped with guides and materials that help to bridge capacity limitations and / or geographic barriers, standardize the messages delivered, and maximize beneficiary engagement through the use of adult learning techniques, games, practical and iterative skill building. See the spotlight on Mobile Kunji in **Box 5**.

**Box 5. Spotlight on Mobile Kunji**

Mobile Kunji is an audio-visual job aid for community health workers, created by BBC Media Action. A deck of 40 cards designed to work with pre-recorded audio clips accessible from a (rudimentary) mobile phone. It's designed to be used by frontline workers during their counselling sessions with program beneficiaries to overcome beneficiary challenges such as lack of smartphones, illiteracy, lack of skills to operate a rudimentary mobile phone to send an SMS, unaffordability of data; and frontline worker challenges, such as limited technical knowledge and inadequate communication skills.



## NUTRITION RECOMMENDATIONS

The food groups that comprise the MDD-W indicator (i.e., grains, white roots and tubers, and plantains; pulses; nuts and seeds; milk and milk products; meat, poultry and fish; eggs; DGLV; other vitamin-A-rich fruits and vegetables; other vegetables; and other fruits) are a good foundation for developing SBCC messages and activities. These ten food groups, however, can be further prioritized, first regarding nutrition quality and second regarding the baseline prevalence of consumption.

### **Box 6. The Food-Based Dietary Guidelines**

Designing F4L *Activity* key nutrition messages based on the food groups of the MDD-W indicator has the additional benefit of aligning with the food groups of the new FAO-UNICEF Food-Based Dietary Guidelines for Myanmar. The FBDG are designed for pregnant and lactating women but are equally applicable to all women of reproductive age. Materials are already designed - illustrated with foods that are available and commonly consumed in Myanmar - and available for use. Beneficiaries who are recipients of communications from multiple campaigns will benefit from aligned messages. It is important to note that food group-based system marks a shift from the star-based systems previously used.

For improving the nutritional status of mothers of young children in F4L *Activity* households, it is recommended to prioritize promotion of nutrient-rich food groups. These include pulses; nuts and seeds; milk and milk products; meat, poultry and fish; eggs; DGLV; and other vitamin-A-rich fruits and vegetables. (See **Box 6. The Food-Based Dietary Guidelines**)

For some of these food groups, however, the window of opportunity for improving the prevalence of consumption is quite limited. For example, according to the F4L *Activity* MDD-W study, already 87% of the target beneficiaries are already consuming meat, poultry and / or fish. There is little room for improvement. F4L *Activity* resources invested in increasing animal-source flesh food consumption would only have the potential benefit for the 13% of the population that was not already eating it. Conversely, according to the MDD-W study, only 10% of the population is consuming milk and milk products, 10% are consuming nuts and seeds, and 40% are eating eggs, and 50% are eating pulses. The same F4L *Activity* resources invested in increasing consumption of these food groups has a much greater likelihood of improving their consumption (and therefore the MDD-W indicator) among a much larger proportion of the population.

Promoting fish consumption, for example, is good, but to see an improvement in the MDD-W indicator, the *Activity* needs to increase consumption of food groups that are less commonly consumed, in addition to fish. (See **Box 7. Harmonizing diverse diet and SSA promotion**) There are trade-offs, of course. This recommendation should be taken with consideration of the barriers to consuming these less popular food groups. Some barriers are more or less amenable to change via SBCC interventions. Lack of awareness, motivation, and skill for preparing nutritious foods are easily ameliorated through SBCC interventions, whereas barriers such as availability and affordability may require additional interventions beyond just communications (e.g., activities to increase supply or decrease the price for these foods). For example, if milk and milk products are not traditionally consumed, not reliably available in the market, and prohibitively expensive, they may not be a good candidate for prioritization. This concept is illustrated in **Figure 5** using findings from F4L *Activity* formative research.

**Box 7. Harmonizing diverse diet and SSA promotion**

Given that fish consumption among the F4L *Activity* population is already high, the most effective path towards improving DDS and MDD-W is likely to promote consumption of other nutrient-rich food groups. An option for harmonizing these messages, however, is to consider promoting nutritious foods traditionally consumed with fish e.g., as a side-dish that are promoted in the F4L home gardening component.

Barriers: Amenable to change via SBCC Interventions		
Strong	Partial	Weak
<p><b>Awareness</b></p> <ul style="list-style-type: none"> <li>Lack of knowledge regarding the health benefits of nutrient-rich foods.</li> </ul> <p><b>Motivation:</b></p> <ul style="list-style-type: none"> <li>Some nutrient-rich foods (e.g., dark green leafy vegetables) are not considered to be tasty.</li> <li>Some nutrient-rich foods are time-consuming to prepare.</li> <li>Some nutrient-rich foods (e.g., milk and milk-based products) are not traditionally consumed.</li> <li><i>Causes dizziness, vomiting, food poisoning, and sickness, especially when foods are not appropriate.*</i></li> </ul> <p><b>Skill</b></p> <ul style="list-style-type: none"> <li>Lack of knowledge and skills for preparing tasty nutritious dishes.</li> </ul>	<p><b>Social support:</b></p> <ul style="list-style-type: none"> <li>Meals are taken family-style, so nutrient-rich foods that are not enjoyed by all may not be prepared.</li> <li>Some nutrient-rich foods are traditionally avoided during key periods.</li> <li><i>Sisters disapprove of consuming at least five of the food groups every day.*</i></li> </ul>	<p><b>Environment:</b></p> <ul style="list-style-type: none"> <li>Lack of regular availability of nutrient-rich foods.</li> <li>Some nutrient-rich foods are expensive, especially in rural areas and / or areas where the foods are not produced.</li> <li>Some nutrient-rich foods have food safety issues.</li> <li><i>Lack of time to purchase and prepare a variety of foods.*</i></li> <li><i>Lack of money to purchase different types of food.*</i></li> </ul>
<i>*Indicates a finding from the barrier analysis study</i>		

**Figure 5. Illustration of nutrition-related barriers that are and are not amenable to change via SBCC interventions.**

SBCC interventions that have successfully improved dietary practices have taken two approaches. The first approach, used by the Lulun program in Ecuador as an example, focuses on increasing consumption of a single food group, in this case eggs using a social marketing approach. (See **Box 8. What is social marketing?**) This approach allows for simple messaging. If a widely underutilized food group is selected, and the campaign is successful, then the prevalence of consumption of that food group will increase as well as DDS and MDD-W.

**Box 8. What is social marketing?**

Traditional commercial marketing aims are primarily financial, though they can have positive social effects as well. In the context of public health, social marketing would promote general health, raise awareness, and induce changes in behavior.



An alternative approach, used by the 5-a-day program in the United States, promotes increased consumption of multiple MDD-W food groups: DGLV, other vitamin-A-rich fruits and vegetables, other vegetables, and other fruits. The messaging here may be a bit more complex, but would offer multiple paths towards improving DDS and MDD-W. This diverse diet approach also aligns with the FAO-UNICEF FBDGs key recommendation to "enjoy a wide variety of foods in appropriate amount from the 6 food groups every day is the key to healthy diet: protein foods, nuts and seeds, vegetables, fruits, fats& oils, cereals and products (mostly whole grain) and tubers."

It is recommended that both approaches are tested during message development. Regardless of the approach taken, specificity is important. Promote increased consumption of individual food groups (and/or their corresponding individual foods) rather than a "diverse diet". Provide guidance for the amount and frequency of consumption for each food group promoted.

**Table 4** summarizes recommended activities for the nutrition component of the F4L *Activity*. A few examples are provided in the following pages.

**Table 4. Recommended activities for the nutrition component of the F4L Activity.**

Channel	Description	Awareness	Motivation	Skills	Social Support	Environment
Mass media (e.g., radio or TV) with cross-posting on Facebook and supported by F4L promoter-facilitated “listening groups”.	Weekly “edutainment” series that integrates key diet / SSA messages.	X	X	X	X	
	Weekly cooking show featuring “celebrity” chefs demonstrating traditional and/or new recipes using nutritious ingredients					
Community mobilization using available and pertinent venues, e.g., markets; schools, places of worship, health centers, etc.	Monthly food-related special events for the whole family, e.g., cooking demonstrations and tastings, cooking competitions, games.	X	X	X	X	
	Engagement with formal and informal food venues to provide nutritious foods and promote F4L key messages.				X	X
Hands-on training on production of complementary foods at demonstration ponds.	Monthly integrated training for men and women from F4L households in the production of nutritious foods in home gardens and/or the banks of fishponds.			X	X	X
Social media via SMS, Facebook, and/or Viber	Reminders (e.g., did you take your 5 today?); games (e.g., food-to-food group matching); commitment-making and social accountability (e.g., with friends!)	X	X		X	

### Nutrition Example 1: Edutainment

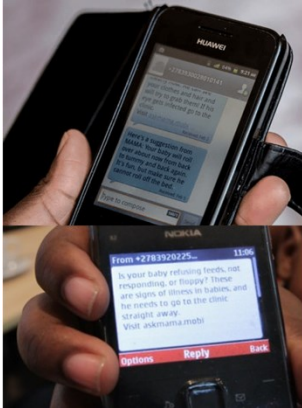
The Mediae Company specializes in production of edutainment programming in East Africa. They have produced a wide variety of award-winning television and radio shows all aiming to promote positive behavioral change, such as:

 The image shows the logo for 'Shamba Shape Up' in purple text. Above the text is a vibrant collage of various fruits including apples, oranges, grapes, and bananas. Below the text is a photograph of a person in a white protective suit and mask working in a kitchen or food preparation area.	<p><b>Shamba Shape Up</b></p> <p>A reality TV program with 12 million viewers and more than 10 seasons running, Shamba Shape Up has taught millions of farmers how to improve their operations in very practical and easy to implement ways.</p>
 The image shows the logo for 'Shamba Chef' in purple text. Above the text is a collage of fresh vegetables like tomatoes, onions, and leafy greens. Below the text is a photograph of various food items including bread, cheese, and eggs.	<p><b>Shamba Chef</b></p> <p>Another reality TV show in which the Shamba Chef crew travel across Kenya, meeting families and discussing the challenges and problems that are common to kitchens throughout the country. With the help of a team of experts, we delve into real households and offer practical solutions to improving the cooking experience - making it cleaner, quicker, safer and at half the cost.</p>
 The image shows the logo for 'Makutano Junction' in purple text. The logo is surrounded by several small, overlapping photographs of people in various settings. Below the logo is a photograph of a street scene with a car and buildings.	<p><b>Makutano Junction</b></p> <p>A Kenyan soap opera, set on a fictional village named Makutano, that premiered in 2006. It captured different themes that affected the normal African society. The main contemporary issues that were mostly stressed in the drama were, corruption, education, early marriages, Female Genital Mutilation and pregnancies, HIV/AIDS, human rights, social justice, values, and perceptions, conflict resolution.</p>

Even if broadcast radio or television are not available due to COVID-19 and/or political-related restrictions, the F4L *Activity* could still produce edutainment series for use in *Activity*-sponsored **listening groups**. F4L *Activity* promoters could be provided with equipment required to play the episode and a guide to facilitate conversation among beneficiaries and other members of their households and community in attendance. Listening group meetings could conclude by asking participants to **make a pledge or commitment** to the

group, related to the topic of the edutainment episode. At the next listening group meeting, participants can be asked to report back on their pledges. How did they do? What challenges did they face? How did they overcome them?

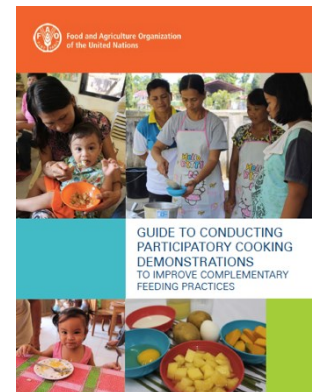
### Nutrition Example 2: SMS-based promotion



The Mobile Alliance for Maternal Action (MAMA) was a free maternal mHealth SMS text messaging service that was offered to pregnant women in South Africa, Bangladesh, Nigeria, India and beyond, with the goal of improving maternal, fetal, and infant health outcomes. The MAMA approach used age- and stage-based messaging simple mobile platforms - voice or text/SMS - to reach millions of women in Asia and Africa with life-saving messages, to foster behavior change and improve maternal and child health outcomes.

### Nutrition Example 3: Participatory cooking demonstrations

Participatory cooking demonstrations of dishes using locally grown and affordable ingredients are a practical way to promote healthy diets for the whole family (not just infants and young children). They help to enable caregivers build food preparation skills through hands-on participation in meal preparation, e.g., washing or cutting ingredients; develop their confidence in preparing improved or new dishes; create awareness of under-utilized nutritious food ingredients readily available at home or in the area; and provide an opportunity for caregivers and their families to taste prepared dishes and give feedback on the color and appearance, aroma/smell, and taste of the improved dish.



## SSA RECOMMENDATIONS

Firstly, it is important to prioritize behaviors that have a significant effect on the production results of SSA farms and that are amenable to change via SBCC interventions. (See **Table 5**) These behavior changes can target solving current production issues or improve effective practices. Secondly, when selecting priority behaviors, it is key to determine the role that behavior change communication can play in the change of behavior. (See **Table 6**) If the change is dependent on other factors as well such as access and availability to farm inputs and supplies, then the impact of behavior change communication will be low. Additionally, the current behaviors should be analyzed. If a behavior is already widely implemented, there may be no need for focused communications to promote adoption or maintenance.

**Table 5: Impact and behavior change potential for behaviors related to BMPs.**

BMP	Behavior	Impact	Behavior change potential
1	Site selection (availability of water, distance to pond)	High	Low
	Protect ponds from flooding	High	Medium
	Protect ponds from theft	High	Low
2	Pond preparation: drying and liming	High	Low (when ponds do not dry up)
			Medium (dry zones)
3	Use of fertilizer when needed	Medium	Medium
4	Testing water quality (transparency, temperature, pH, ammonia) and management	Medium	Medium
5	Use high quality and uniform seed from hatchery (3-5 Inch)	High	Low
6	Stocking correct number of fingerlings	High	Low
7	Growing silver barb, rohu, common carp, climbing perch, tilapia and pangasius	High	Low
8	Use of supplementary feed pellet feeds	High	Medium
	Use of supplementary feed- rice bran, peanut cake etc.	Medium	High
9	Post-harvest procedures are correct– use of ice	Medium	High
10	Disease management (only use veterinary drugs and chemicals from authorized sources)	Medium	Low

**Table 6: Barriers identified and their amenability to change using SBCC interventions.**

Strong	Partial	Weak
<p><b>Awareness:</b>                      Lack of awareness on importance of use of pellet feeds                      Lack of awareness of benefits of ice                      Lack of awareness on importance of record keeping</p> <p><b>Motivation:</b>                      Some ponds are far from the house                      Lack of time to guard and work on farm</p> <p><b>Skill:</b>                      Lack of knowledge and skill regarding pond preparation, fertilizer use, water quality testing, disease management, and record keeping</p>	<p><b>Social support:</b>                      Help on the farm from family and community members (especially during pond preparation and harvesting times)</p>	<p><b>Environment:</b>                      Lack of water resources or flood events                      Lack of quality fingerlings (availability or access)                      High price of pellet feed                      No fish health specialists available</p>

*BMP 1: Aquaculture facilities should be located in areas where the risk of contamination is minimized or where sources of pollution can be controlled or mitigated*

Site selection is of key importance since if a site is not suitable for aquaculture it can cause many issues during production. In the project area, several issues were identified that are related to site selection, such as lack of water resources, floods, and ponds are located far from the place where the farmer lives (resulting in theft of fish and lack of monitoring of ponds). However, source of water, distance to ponds and occurrence of floods were not likely considered when farmers select their farms.

The impact that these factors have on the production are very high but because these barriers are not influenced by the behavior of the farmer once the farm is established, potential to change behavior through SBCC is generally low.

Two aspects that can be changed through SBCC related to this BMP:

1. New farms or ponds are selected considering all factors important to site selection (risk of contamination, water availability, distance to pond, weather etc.)
2. Ponds can be protected from flooding by increasing the height of pond dikes. Weather forecasts should be followed so fish can be contained in nets in case a flood is predicted.

*BMP2: Liming during pond preparation (62 viss/acre) and during grow-out period (16-25 viss/acre)*

Liming is key during pond preparation to kill vectors of disease and predators. This can also be accomplished by drying the pond between batches. Therefore, this BMP can be adapted to the area specific context.

Lime is easily available and affordable. SBCC should be tailored to the type of areas (dry/wet). In dry areas ponds can be disinfected by sun drying or liming. In wet areas, both can be difficult. Ponds need drainage to remove water and liming can be done with a small layer of water in the pond.

*BMP 3: Use of fertilizers*

Fertilizer can improve natural pond production and thus decrease needs for supplemental feed. Fertilizer should be added depending on the transparency. If the transparency is good, there is no need to add fertilizers so the communication on this should be clear. It should also be specified what type of fertilizer should be used.

*BMP4: Testing natural food adequacy in water (transparency 10-25 Inches)*

Testing transparency is part of testing water quality and indicates the amount of natural food and solids in the water. Farmers indicate that through experience they can tell by the color if the transparency is sufficient. The BMP survey results shows that 82% of the farmers had good transparency level in their ponds. Therefore, SBCC targeting this behavior would not have a high impact.

However, measuring different water quality parameters such as pH, temperature and dissolved oxygen combined with management action when parameters are outside their optimal range can improve production.

*BMP 5: Use quality fish seeds from hatchery*

The quality of fish seed is highly important to achieve a good production. However, the SSA farmers are dependent on the supplier of seed to provide these good quality seed and therefore behavior change potential through SBCC is low. In case hatcheries are targeted, this BMP should be prioritized.

*BMP 6: Maintaining stock density (3,000-5,000 fingerlings 3''- 4'' per acre)*

Just like for BMP 5, farmers are partly dependent on the hatcheries. If hatcheries do not produce the correct size or enough fingerlings, the farmer cannot change behavior. Behavior change communications can, however, target farmers that stock more than the recommended number of fish.

*BMP 7: Species selection using 3-layer concept (upper layer: silver barb and catla, middle layer: rohu, bottom layer: common carp, mrigal, perch, all layers: tilapia, pangasius)*

For this BMP, the SSA farmers are again dependent on the hatchery. If the hatchery does not produce the recommended species, the farmer can do nothing to change behavior. In case hatcheries are targeted, this BMP can be promoted through SBCC.

*BMP 8: Providing antibiotic free supplementary feed (3-8% body weight based on fish size)*

There are two types of supplementary feed that can be provided to the fish: commercial pellet feeds and feed ingredients such as rice bran and peanut cake. According to a study by F4L (annual report), pellet feeds are the most cost efficient and therefore have the highest impact on production. Lower quality supplementary feeds still have a positive impact on fish growth.

Since pellet feed is expensive and not always available to SSA farmers the behavior change potential through SBCC is lower for pellet feeds. Therefore, it is recommended to look at the local situation of the SSA farmers when deciding on which to promote. Either way, the use of supplementary feed should be prioritized.

*BMP 9: Proper post-harvest handling (cleaning, use of ice for long transport) to minimize contamination and physical damage*

Fish quality has an influence on the sales price of the fish. Once the fish are harvested and killed, the fish starts to deteriorate. Post-harvest activities, such as the use of ice and clean containers and materials has an impact on the fish quality and ultimately the price that farmers get for their fish. Depending on where and when the fish are sold (distance from the farm, time after harvest), the impact of post-harvest activities might differ, and messaging should be adjusted to the local situation. Behavior change potential is high since the importance of post-harvest procedures can be conveyed through awareness raising and training.

*BMP 10: All veterinary drugs and chemicals for use in aquaculture shall comply with national regulations, as well as international guidelines*

Since Myanmar has very little expertise in fish health and very few fish veterinarians, it is hard for SSA farmers to access knowledge about diagnosing and treating fish diseases and thus change behavior. Therefore, it is recommended to focus SBCC on disease prevention (e.g., stocking healthy seed, maintaining water quality).

When selecting priority target behaviors, some additional considerations should be taken into account.

- There are some practices that can improve production that are not directly related to current BMPs, for example protection of ponds from predators and theft. Other practices are the result of a combination of BMPs, such as growing fish to market size to get higher price.
- Besides the selected BMPs, record keeping (financial and technical) is important to monitor farm activities and results. It can also be used to identify problems at the farm which is useful for the farmer but also to identify practices that can be improved with the help of SBCC.
- The farm location and situation should be considered (e.g., dry or flood area) when selecting behaviors for SBCC since BMP applicability might differ per area or farm.
- Some BMPs are dependent on the availability of inputs (fingerlings and feed) and cannot be changed solely using SBCC. The accessibility, availability and affordability of these inputs should be ensured to change behavior marked with a low potential of behavior change through SBCC only.
- Influencers (trainers and aquaculture promoters) should be well trained, and their activities should be monitored and evaluated to ensure correct transfer of information.



**Table 7. Recommended activities for the SSA component of the F4L Activity.**

Type	Channel	Description	Awareness	Motivation	Social Support	Skills	Environment	What's needed
Social media and applications	Facebook and other platforms and applications (Shwe ngar, greenovator, Htwet toe)	Games, experience sharing, goal setting and monitoring	X	X	X	X		Internet connection, creative manager, technical expert
Community mobilization	Farmers groups (aquaculture field school)	Discussions, sharing experiences, guidance from aquaculture promoters	X	X	X	X	X	Training-of-trainers for aquaculture promoters, organizing farmers groups, meetings and activities
	Training	Face to face training, visiting demonstration farms, discussions	X	X		X	X	Technical experts, training materials, pilot/demo farm
Mobile phone	Messages and calls	Reminders, help line, voice messages	X	X	X			Mobile phone, technical expert

### SSA example 1: Farmer to farmer extension

The concept of the Aquaculture Field School brings farmers together to improve the capacity of the aquaculture farming community using a discovery-based approach. It is without walls- farmers groups that meet regularly. The concept is based on farmer field school for agriculture. It consists of a group of 20-25 members where fish farmers are the experts (learn by doing) and the farms are the learning place. Extension workers do not teach but work with the farmers and are supported by scientists. They work collectively to initiate community action to solve problems. Find more information on the Aquaculture Field School [here](#).

The F4L *Activity* where farmers located in different townships form geographical groups of which many already have existing farmers groups and are supported by implementing partners from F4L is ideal to implement farmer to farmer activities.

### SSA example 2: Aquaculture training combined with provision of inputs



The Community development project in Zambia aims to improving farm practices for small holder farmers in Zambia. The participants of the project received both training on best management practices and farm inputs (fish feed from Skretting). The project promoted collaboration between the private sector (aquaculture input suppliers) and farmers. Farmers performance was monitored closely using a mobile application. Find more information on the project [here](#).

Since most farmers think they cannot afford pellet feeds, only technical training will not change this behavior. Financial training and awareness raising is necessary. The F4L project has conducted a study on the effectivity of different feeds showing that the total revenue and net income was highest when using commercial pellet feeds. The results of this study can be used for awareness raising. Additionally, experiments can be conducted with the farmers with one group of fish fed with pellets and another one with their regular feeds so they can first hand see the differences.

### SSA example 3: Farmer help line

[Farmerline](#) developed a farmer training model that increases adoption, is cost effective and scalable. They tested several training models (1. in-person training, 2. in-person training and voice messaging, 3. in-person training and talking books, 4. mobile voice messaging and phone call support and 5. in-person training, voice messaging and follow up calls). In-person training combined with voice messaging and phone call support showed the highest adoption rate. They also found that voice messages are useful for reminders, reliable and easy way to keep in touch with farmers.



KIs raised the concern that people do not answer their phones when the number is unknown. Therefore, one phone number available for the project that will provide messages to the farmers and at the same time is functioning as a helpline would be suitable for the project.



ANNEX 1: PERCENTAGE OF FARMERS PER TOWNSHIP THAT IMPLEMENTED THE LISTED BMPs

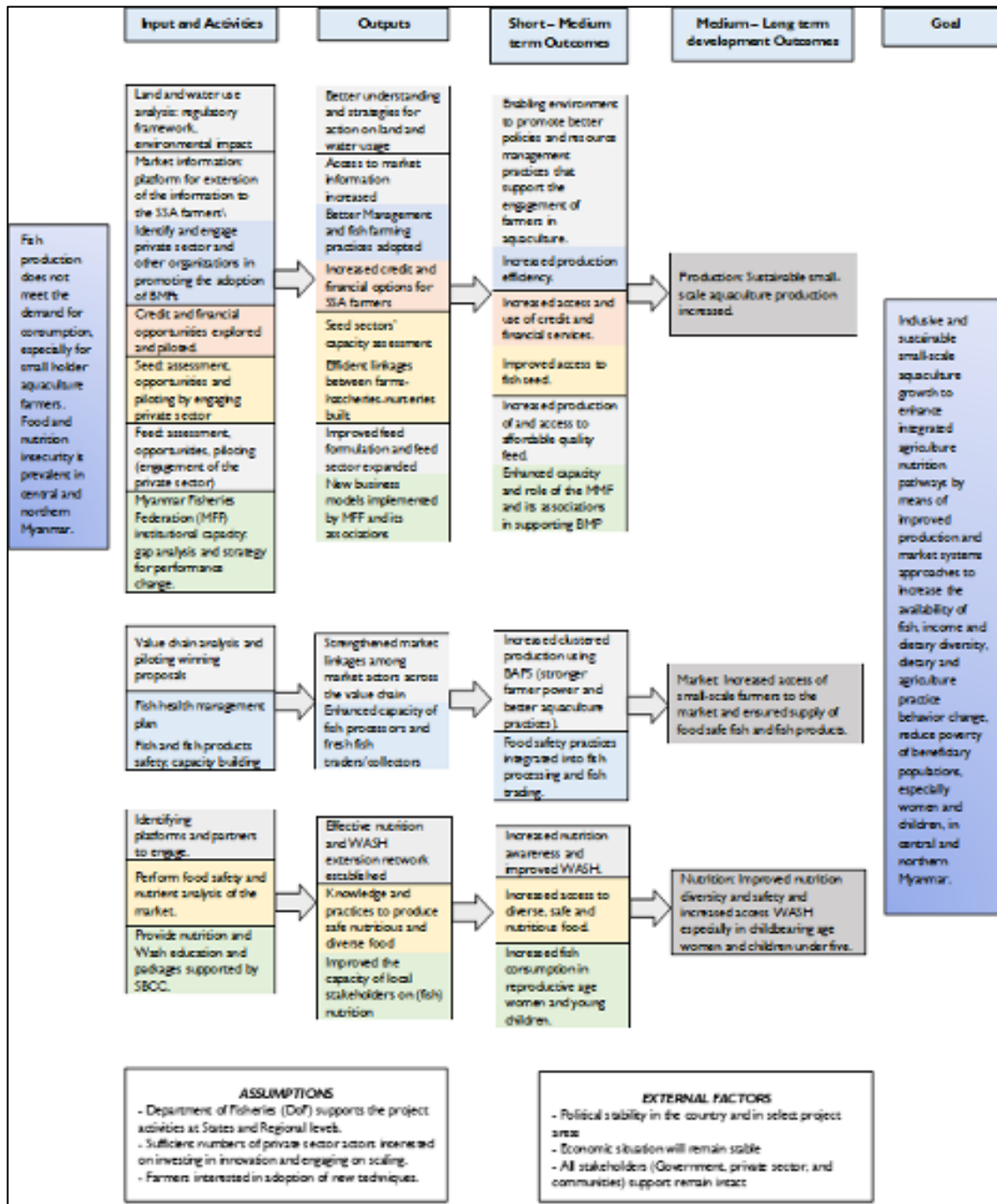
Region	Township	Proper location	Use of liming	Use of fertilizer	Testing transparency	Use of quality fish seed	Proper stocking density	Use of correct species	Use of supplementary feed	Proper post-harvest handling	Use of drugs and chemicals
Shan (South)	Pindaya	95	90	95	95	95	100	100	90	100	100
Shan (South)	Taunggyi	93	18	18	97	98	100	100	100	100	95
Sagaing	Khin U	90	97	97	25	100	100	100	98	100	65
Mandalay	Madaya	82	37	35	92	100	100	100	17	100	13
Magway	Ngape*	100	10	10	100	100	n/a	n/a	n/a	100	100
Kachin	Waingmaw	79	100	93	93	100	100	100	100	75	64
Shan (South)	Pekon	92	62	15	81	96	88	88	92	100	23
Magway	Salin	100	0	0	100	100	100	100	0	100	100
Kachin	Bhamo	0	100	50	75	100	100	75	75		75
Kachin	Mogaung	50	100	75	100	75	75	100	100		75
Kachin	Myitkyina	50	75	75	100	100	100	100	100	50	75
Shan (South)	Pinlaung	100	100	0	33	100	100	100	100		0
Shan (East)	Tachileik	92	88	69	92	100	100	100	100	100	100

*\*Enumerators were not able to visit the site so these BMPs could not be verified.*

ANNEX 2: SSA SURVEY INDICATORS DO NOT ALIGN WITH THE PROJECT BMPS

BMP as identified by F4L project	Corresponding Baseline Survey Practice
Aquaculture facilities should be located in areas where the risk of contamination is minimized or where sources of pollution can be controlled or mitigated	Ponds are located in a suitable site (good conditions and not polluted)
Liming during pond preparation (62 viss/acre) and during grow-out period (16-25 viss/acre)	Ponds are prepared with lime before stocking and during grow-out
Use of fertilizers	Use of fertilizers (Urea, T-super, compost, cattle dung)
Testing natural food adequacy in water (transparency 10-25 Inches)	Natural food adequacy in water (transparency 10-25 Inches)
Use quality fish seeds from hatchery	Use of quality fish seed from hatchery
Maintaining stock density (3,000-5,000 fingerlings 3''- 4'' per acre)	Maintaining proper stocking density
Species selection using 3-layer concept (upper layer: silver barb and catla, middle layer: rohu, bottom layer: common carp, mrigel, perch, all layers: tilapia, pangasius)	Use of correct species
Providing antibiotic free supplementary feed (3-8% body weight based on fish size)	Use of probiotic free supplementary food
Proper post- harvest handling (cleaning, use of ice for long transport) to minimize contamination and physical damage	Proper post-harvest handling
All veterinary drugs and chemicals for use in aquaculture shall comply with national regulations, as well as international guidelines	No use of drugs and chemicals

ANNEX 3. F4L ACTIVITY LOGIC MODEL



From the mall-Scale Aquaculture Investments for Livelihoods in Myanmar Fish for Livelihoods (F4L) 2021 Annual Report.

## REFERENCES

---

- C-Change. (2012). *C-Modules: A Learning Package for Social and Behavior Change Communication (SBCC)*. Washington, D.C.: C-Change/FHI 360.
- Harris, J., & Buchsbaum, A. (2014). *Growing together? Experiences of intersectoral integration in an NGO nutrition program: A study of HKI's enhanced homestead food production model in Burkina Faso*. (September).
- Matturi, K., & Pain, C. (2016). Managing an Integrated Project - Experiences from the Realigning Agriculture to Improve Nutrition project. *Project Management Research and Practice*, 3, 5035. <https://doi.org/10.5130/pmrp.v3i0.5035>
- Rizaldo, Q. V., Soe, Z. Y., Eden, S., & Akester, M. (2021). *Barrier analysis study*. Penang, Malaysia: WorldFish.
- WorldFish. (2021a). *Fish for livelihoods (F4L): Baseline survey*. Penang, Malaysia: WorldFish.
- WorldFish. (2021b). *Minimum dietary diversity for women (MDDW) survey*. Penang, Malaysia: WorldFish.
- WorldFish. (2021c). *Small-Scale Aquaculture Investments for Livelihoods in Myanmar Fish for Livelihoods (F4L): Annual Report 2021*. WorldFish.
- WorldFish. (2021d). *Water, sanitation and hygiene (WASH) survey*. Penang, Malaysia: WorldFish.



