BARRIER ANALYSIS STUDY INLAND MYSAP

Shwebo Township, Sagaing Region, Myanmar
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Acknowledgements

The Myanmar Sustainable Aquaculture Programme (MYSAP) which is funded by the European Union (EU) and the German Federal Ministry of Economic Development and Cooperation (BMZ) and implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH has the following objective:

Support the sustainable intensification of the aquaculture sector, thereby realizing its potential for food security, nutrition and sustainable livelihoods.

MYSAP is promoting small-scale aquaculture and improved human nutrition in five townships in the Shan State and the Sagaing and Mandalay Regions of Myanmar in its component INLAND MYSAP. WorldFish Myanmar is implementing INLAND MYSAP under a GIZ grant agreement. The INLAND MYSAP townships are:

i) Kale (ကလေး - MMR005027) Township, Sagaing Region

ii) Shwebo (ရွှေဘို - MMR005004) Township, Sagaing Region

iii) Kengtung (ကျိုင်းတုံ - MMR016001) Township, Eastern Shan State

iv) Pinlaung (ပင်လောင်း - MMR014009) Township, Southern Shan State

v) Amarapura (အမရပူရ - MMR010006) Township, Mandalay Region

WorldFish Myanmar has had a long-term collaborative working partnership with Save the Children by providing Training of Trainers courses and input on nutrition materials on Improved human nutrition which are being delivered for the field staff of implementing partners of the INLAND MYSAP component within MYSAP and its LIFT funded MYCulture project.

MYSAP is grateful to Save the Children - LEARN project special mention to; Dr. Saw Eden, U Myat Ko Ko Aye, and Miss Julia (Hnin) Weatherson for sharing their expertise by providing training on Barrier Analysis Survey and supervising the actual survey on 26-30 November 2018 in Shwebo Township, Sagaing Region. The barrier analysis survey was conducted using a methodology developed by Bonnie Kittle, Helen Keller International US which is widely used around the world. A total of 17 participants (8 women and 9 men) joined the training course, including Ar Yone Oo (1 man), BRAC Myanmar (8; 4 women), Malteser International (2 women), INLAND MYSAP (4; 2 women) and Mr Myint Naing, and Mr Kyaw Thet Tun from the Myanmar Department of Fisheries (DoF).

This report is the outcome of the barrier analysis survey which was designed to study the behaviours on fish consumption among mothers with children under 5 years of age. The findings of this barrier analysis survey will be widely disseminated to interested stakeholders. The nutrition activities going forward will be designed to cross the barriers identified during the survey and to enable increased frequency of fish consumption especially among the vulnerable groups.

by:

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Team Leader
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BA	Barrier analysis
BMZ	German Federal Ministry of Economic Development and Cooperation
CF	Community facilitators
DBC	Designing behavior change
DoF	Department of Fisheries
IEC	Information, education and communication
INLAND MYSAP	Improving the Production, Nutrition, and Market Value Chains of Small-Scale Aquaculture in Myanmar's Shan State and Sagaing Region
IP	Implementing partners
MDDW	Minimum dietary diversity for women
SIS	Small indigenous fish species
SSA	Small-scale aquaculture
WRA	Women of reproductive age

Executive summary

Background. The Barrier Analysis (BA) Survey is first to be conducted for the INLAND MYSAP component within MYSAP. The assessment identified the barriers and enablers of mothers feeding/giving fish to young children, as well as supporting the INLAND MYSAP team to identify key activities that are being currently integrated into project work plan activities with the aim of increasing consumption of fish and improving nutrition among vulnerable groups especially young children. Additionally, when time and budget allows, the assessment will provide valuable information for the further development of the behavior change communication strategy to further increase adoption of the behavior among the priority group.

The INLAND MYSAP area of coverage is considered fish deficient and has high undernutrition prevalence rates. In particular stunting of children under five years old is twenty-six percent and thirty-six percent in the Sagaing Region and the Shan State respectively. Moreover, INLAND MYSAP baseline data shows low rates of fish consumption among respondents 24 hours prior to interview (Mekong Economics Limited, 2018), when compared to data from other areas such as the Ayeyarwady Delta (unpublished report). For a country like Myanmar that suffers from undernutrition and micronutrient deficiencies, fish plays an important role as it is a rich source of high quality animal protein and essential nutrients. Small fish species in particular when eaten whole are a good source of vitamin A, iron, calcium and vitamin B12 which are needed for growth and development of young children (Thilsted et al, 2012; Vilain et al, 2016; Belton et al, 2015).

Methodology**.** The study was conducted from 28-29 November 2018 in Shwebo Township, Sagaing Region, one of five townships where INLAND MYSAP conducts field activities. The behavior studied was "**Mothers of children under 5 years old feed/ give fish at least three days a week".** The respondents were mothers of children under 5 years old; and the total sample size was 90. There were two stages in the interview process as reflected in the questionnaire *(see annex 05)*; in the first stage mother were classified as either Doers or Non-Doers by asking each individual respondent a series of behavior screening questions. **Doers** were defined as Mothers of children under 5 years old who give/feed fish to their child at least three days a week, while **Non-Doers** were mothers of children under 5 years old who give/feed fish to their child less than three days a week and/or those mothers who did not give/feed fish to their children. Once determined as **Doers** or **Non Doers**, the second individual interview stage was conducted using questions based on the 12 determinants (*see results section and Annex 02 for detailed information on determinants*) that were found to be important in adopting positive health and nutrition behaviors among the priority group; in this study the Mothers of children under 5 years old.

Prior to data collection, a 2-day training was conducted for all survey enumerators. The enumerators were staff of INLAND MYSAP implementing partners namely BRAC Myanmar, Ar Yone Oo and Malteser International, the Department of Fisheries (DoF) and INLAND MYSAP staff. The training was facilitated by Save the Children-LEARN Project team following the methodology of Barrier Analysis as indicated in the "A practical guide to conducting a Barrier Analysis" by Bonnie Kittle (2017). After completing data collection, an additional day was spent on the following series of activities; 1) **workshop** for enumerators on how to code responses, 2) actual **coding of responses, manual tabulation and analysis** by the enumerators, 3) **encoding of responses into an Excel spreadsheet** that automatically calculated the point difference between each group. A 15-point difference meant that it was a statistically significant determinant for the priority group, 4) after highlighting the determinants with statistical difference, the enumerators together with Save the Children team and WorldFish Human Nutrition Coordinator **developed bridges to activities**, and 5) based on the bridges to activities, the

team **identified specific activities** that INLAND MYSAP could do to support adopting the behavior of giving/feeding fish to young children among the priority group.

Results. Based on the analyses, it was found that the main barrier experienced by Non-Doers to not giving/feeding fish to their child at least three days a week was the fear that their child would choke on fish bones. This barrier was reflected both in perceived self-efficacy (the mothers' belief that she can give/feed fish to the child with her current knowledge, skills and resources) and perceived negative consequence (disadvantages perceived by mothers to giving/feeding fish to their child). Whilst for Doers, the main enablers for them were; the child likes fish, the affordability of the fish, and easy access to the market. Additionally, Doer mothers perceived that fish increased their child's appetite and fish made the child more active. The priority group identified that grandmothers of the child have a big influence of giving/feeding fish to their child at least three days a week. In summary, the significant determinants identified by the priority group were perceived self-efficacy, perceived negative and positive consequences, perceived access, perceived social norms, perceived cues to action/reminders, perceived susceptibility, and perceived severity. The results section and Annexes 01-05 of this report provides additional detail on what 'susceptibility' includes and what susceptibility refers to.

Moreover, based on the significant responses, below are the **bridges to activities** identified by the team that will be used by the INLAND MYSAP to change the perception and support the priority group to give/feed fish to their child more often and in greater quantities.

1) Increase the ability of mothers to recognize cheaper and affordable fish species in the market,
2) Increase the capacity of mothers to cook fish using a variety of methods that are safer for the child and will reduce the likelihood of the child encountering and choking on fish bones,
3) Increase the ability of mothers to differentiate fish species with fewer bones, and their awareness of different fish preparation techniques,
4) Increase the ability of mothers to access fish from different sources,
5) Increase the perception that eating fish increases the child's appetite,
6) Increase the perception that there are alternative methods of cooking fish that can soften fish bones,
7) Increase the perception that grandmothers approve the practice of feeding fish to young children,
8) Increase the ability of mothers to remember to feed/give fish to their child, and,
9) Increase the perception that children under 5 years old that regularly eat animal protein (like fish) together with vegetables have less likelihood of becoming sick.

To facilitate in achieving above, INLAND MYSAP and implementing partner staff identified the recommended activities listed below that can be implemented within the INLAND MYSAP timeline (05 May 2020) and budget.

Recommended activities**.** INLAND MYSAP should consider implementing the activities listed below in order to support change of behavior and to promote the continued practice of giving/feeding fish to children by the priority group:

1) **Conduct nutrition education, awareness-raising** activities on the importance of fish, as well as vegetables for improving child nutrition, **market awareness sessions** in order to emphasize that there are many types of fish species that have fewer bones (e.g. aquaculture products); a good source of high quality protein. Incorporate **practical cooking demonstrations in education sessions** that can increase their ability to both prepare and cook fish using various methods that reduce the likelihood of bones being an issue, as well as demonstration of **home based fish processing methods** (e.g. home-made fish powder) suitable for young children;

2) **Development of IEC materials** e.g. tracking calendars that support the priority group to remember feeding/giving fish to their child, recipes books based on local fish dishes that can soften bones;

3) **Forge stronger linkages** between different actors (DoF, private farmers, fishers) in the area that can help the priority group increase their ability to access fish, as well as linkages with health center staff who can reinforce messages on the nutritional benefits of eating fish;

4) **Testing of a locally made fish drier** in selected project areas to prolong fish shelf- life, improve food safety and make fish (an animal source food) accessible even during the dry season for the whole family and especially for young children; and,

5) **Formation of mothers' support groups** with the inclusion of grandmothers who this study has identified as key behavior influencers.

Detailed activities based on the significant determinants and bridges to activities, are provided in the last section of this report.

Introduction

Background

The Myanmar Sustainable Aquaculture Programme (MYSAP), funded by the European Union (EU) and the German Federal Ministry of Economic Development and Cooperation (BMZ) and implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH has the following objective:

Support the sustainable intensification of the aquaculture sector, thereby realizing its potential for food security, nutrition and sustainable livelihoods.

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INLAND MYSAP aims to support 1) sustainable small-scale aquaculture, 2) improve the availability and access to nutritious, affordable food and, 3) increase income for poor rural households in the Mandalay Region (Amarapura township), Sagaing Region (Kale and Shwebo townships) and Shan State (Kengtung and Pinlaung townships). The INLAND MYSAP component, which runs to May 2020, has a target of 1,500 direct beneficiary and 1,500 indirect beneficiary households (WorldFish, 2018).

Myanmar has a high prevalence rate of undernutrition among children under 5 years old, with at least twenty-nine percent being stunted and nineteen percent being underweight (MoHS, 2017). Moreover, almost half of women are anemic with pregnant and lactating women most affected (Ibid). In the Sagaing Region, where INLAND MYSAP operates, at least twenty-six percent of children under 5 years old are stunted and thirteen percent are underweight, while nearly fifty percent of women are anemic; similar to the national prevalence rate (Ibid). An undernourished child has increased risk of impaired mental development, delayed physical development, increased chance of suffering disease, and lower economic opportunities in adult life. Whilst anemia among women has negative consequences for fetal growth and brain development.

One of the immediate causes of undernutrition is the lack of dietary diversity. In Myanmar, it is reported that only one-third of children 6-23 months old receive a minimum acceptable diet (LIFT, 2016). National data on minimum dietary diversity for women (MDD-W) in unavailable, however, INLAND MYSAP baseline data showed that only twenty-eight percent of women have reached the minimum dietary diversity (Mekong Economics Limited, 2018). MDD-W is a proxy indicator for assessing micronutrient adequacy, an important dimension of diet quality of the food consumed by women 24 hours before interview (FAO & FHI360, 2016). Similarly, INLAND MYSAP baseline data showed that only twenty-eight percent of respondents ate fish in the preceding 24 hours before the interview, which is lower than WorldFish data from other areas of the Ayeyarwady Delta (unpublished report).

Fish are a rich source of highly bioavailable animal protein; and small fish when eaten whole are rich in nutrients such as vitamin A, calcium, iron, and essential fatty acids needed for improving nutrition (Bogard et al, 2015; Roos et al, 2007). Multiple studies have demonstrated the importance of fish in addressing food and nutrition security and especially for poor and vulnerable households (Thilsted et al, 2012; Vilain et al, 2016; Belton et al, 2015).

The entry point for INLAND MYSAP nutrition interventions is through the engagement of households with a small-scale pond with potential for fish culture in fish deficit areas, but with the potential for aquaculture production growth. Small-scale ponds, under INLAND MYSAP are defined as being less than 0.5 acres (2,023 m^2) in area and retaining water for at least six months per year. The main project

approaches are; 1) provision of technical expertise and training on improved fish production technologies to improve income, and 2) promotion of the production of integrated nutrient-rich small indigenous fish species (SIS) production together with other larger fish species in homestead ponds and integrated vegetable production on pond embankments to increase the consumption of small fish and to improve dietary diversity and nutrition of women of reproductive age (15-49 years old) and young children under 5 years old.

U Nyunt Shwe, an INLAND MYSAP small-scale aquaculture farmer and SSA group leader, Kone Thar Village, Shwebo Township, Sagaing Region

Interventions are delivered to direct beneficiary households in the MYSAP project areas through Com-munity Facilitators (CFs) of three implementing partners namely Ar Yone Oo, BRAC Myanmar and Malteser International. Currently, the CFs provide training on inte-grated small-scale aquaculture farming and basic nutrition fo-cusing on the importance of fish, vegetables and fruit in the diets to provide better nutrition among households. In addition, the CFs conduct cooking demonstrations on the correct preparation of nutrient-rich small fish (head on and with bones) and show different cooking methods that can support behavioral change of household members for increased fish consumption. In addition to above activities, the CFs distribute information, education and communication (IEC) materials on the benefits of fish for the first 1,000 days of life, different fish cooking recipes, and leaflets on farming small indigenous fish species (SIS).

There are many implementing agencies, including Save the Children, WorldFish, GIZ Food Security and Nutrition, INLAND MYSAP and others conducting nutrition promotion activities in the field. Despite this, it is acknowledged that the uptake of fish and vegetable consumption (both frequency and quantity) by lactating women and feeding of fish to children from six months onwards is not high and requires significant improvement. Reasons for the gap and potential solutions were explored by conducting a study to highlight the barriers and enablers or the determinants in fish consumption among the target group. The findings of this study, which included a staff training element, are already being used to refine and to make INLAND MYSAP operational activity work plans more relevant going forward.

Methodology

The Barrier Analysis (BA) is a rapid assessment tool used to better understand how to successfully promote behaviors by identifying the most significant barriers and enablers of adopting the behavior by the priority group. The BA uses a qualitative study methodology and requires 45 people who are practicing a required behaviour or 'Doers' and 45 people not practicing the behavior or 'Non-Doers'; a total sample size of 90.

In this study, the Doers were mothers of children under 5 years old who were giving/feeding fish to their child at least 3 days a week. While the Non-Doers were mothers of children under 5 years old who were giving/feeding fish to their child less than 3 days a week or those mothers who were not giving/feeding fish at all to their child. The frequency for three days was not based on any recommendation, this value was selected by the INLAND MYSAP team to ensure that a sufficient number of Doers (N = 45) were encountered in the target areas within the limited time available for conducting the study. Moreover, in the screening questions, the amount of one tablespoon of fish (≥ 15 grams) was also used as a minimum requirement to classify Doers; similar to the MDD-W guidelines.

The priority group were first individually interviewed in their homes using screening questions indicated in the questionnaire which then classified as Doers or Non-Doers. Thereafter once categorized as either Doers or Non-Doers, individual interviews continued using a specific Doer or Non-Doer question set. The questions were devised and field-tested according to the standard BA format questionnaire which explores 12 determinants (*see Annex 02*) that can influence behaviors. The BA format questionnaire format in dual language (English and Myanmar) is attached with this report (*see Annex 05*).

In addition, the BA survey results were used to create Bridges to Activities in the Designing for Behavior Change (DBC) framework. The DBC framework (*see Annex 01*) presents key elements (Behavior, Priority Group or Influencing Groups, Determinants, Bridges to Activities, and Activities) that help in developing and reviewing a behavior change strategy.

The BA tool was used by the component for the following reasons:

1) it requires a small sample size to conduct the study, but still provides results with a high level of probability (95%),
2) it is less costly and less time consuming than other formative research study methods,
3) it helps in building ownership among the team members as they are involved in the whole process from development of questionnaire, interviews, coding, tabulation and designing of key activities, and,
4) it supports both team spirit and capacity building of the project staff on conducting field research. (*See Annex 01 for additional information on DBC and BA methodology).*

Objectives of the study

To strengthen the human nutrition activities of the INLAND MYSAP component and its implementing partners (IP's) and to develop the capacity of project and IP staff to achieve the key target human nutrition indicator results within the limited remaining timeframe of the project component[1]. The BA was conducted with the following objectives:

1. To identify barriers and enablers of feeding/giving fish to children between 6 months and under 5 years old by mothers in Shwebo Township.
2. Based on the Designing for Behavior Change (DBC) framework, to determine bridges of activities and key project activities that can support the further develop a Behavior Change Communication Strategy as a means to increase behavior adoption among the priority group.

Behaviors studied

The behavior identified was fish consumption among children from six months to under 5 years old, as small-scale aquaculture ponds and fish are the entry point for INLAND MYSAP nutrition interventions. Mothers of children under 5 years old were identified as the priority group or the respondents, as they are mainly responsible for feeding their children; a cultural norm in Myanmar. Hence the selected study behavior, "**Mothers of children under 5 years old feed/ give fish at least three days a week".**

In addition, although there are multiple nutritional benefits of eating fish especially for young children, the INLAND MYSAP baseline report suggests that there is a low consumption of fish in most project areas. In Myanmar, there are no current recommendations on the amount of fish and the frequency of fish that should be consumed by individuals. However, the Ministry of Health and Sports is promoting a four-star food group model (1-Starchy, fats and oil, 2-plant-based protein, 3-animal protein source including fish, 4- vegetables and fruits); where a meal containing all 4 aforementioned food groups is rated 4 stars, or the equivalent to having a balanced meal. Furthermore, consumption of fish (and other animal protein sources) is a crucial World Health Organization (WHO) essential nutrition action recommendation to prevent malnutrition of young children (WHO, 2013). The three-day a week frequency of fish consumption by young children was chosen after a pre-test to confirm that an appropriate number of Doers would be encountered in the target area, during the limited time available for the field survey.

Barrier analysis questionnaire development

The study questionnaire was based on the BA Questionnaire standard format, developed by Bonnie Kittle of Helen Keller International US (Kittle, 2017), and was presented during the DBC and BA workshop hosted by Save the Children and facilitated by Bonnie Kittle herself, October 2017, in Yangon, Myanmar. The questionnaire was revised according to the behavior statement by the INLAND MYSAP team in consultation with the Save the Children Myanmar BA Survey technical expert.

The questionnaire was translated from English language into Burmese language, the main spoken language of the priority group. Among the 12 determinants, only one determinant was excluded from the study, namely policy. The team decided that policy was not a relevant determinant of fish consumption in the study area. The translated questionnaire was presented during the training and was revised taking into account feedback from the enumerators who were also project field staff.

[1] The component closes on 05 May 2020, with activities in the field ending on 31 March 2020, i.e. less than 10 months.

Moreover, the questionnaire was field tested for half a day, after which the supervisors provided comments, suggestions and mentored the enumerators on effective interviewing.

Barrier analysis training

The BA training was conducted over two days on 26 and 27 November 2018 at the BRAC Myanmar field office, Shwebo Township and was facilitated by Save the Children Myanmar technical specialists including a medical doctor and a nutritionist. Thirteen enumerators were trained from the INLAND MYSAP component, BRAC Myanmar, Ar Yone Oo and Malteser International. The majority of the enumerators were Community Facilitators or technical field staff who were responsible for conducting field activities to deliver small-scale aquaculture (SSA) and nutrition training, disseminating fish and vegetable seeds and feeds, monitoring fish growth in SSA ponds and conducting nutrition awareness raising activities for INLAND MYSAP direct beneficiary households. Two Department of Fisheries (DoF), and one WorldFish Myanmar staff also attended the training (*see Annex 04 for the data collection team members*). The training covered the main components of the DBC framework/ BA study (*see Annex 03 for Topics and training schedule details*).

Sampling

The study used purposive sampling from 11 project villages in Shwebo Township. At the time of study, INLAND MYSAP had been conducting small-scale aquaculture and improved human nutrition activities with direct beneficiary households in the identified study villages for 7 months. The SSA farmers received training, fish seed, fish feed, vegetable seeds and IEC materials (e.g. posters, leaflets) from the project through the implementing partner, BRAC Myanmar. However, the respondents were not necessarily project farmers as they only needed to fit into the selection criteria detailed in the Methodology section.

A selection of villages near, middle distance and far from the Shwebo town centre were chosen. In addition, the villages were grouped into clusters that were in close proximity to each other; Cluster 1 was located near the town centre - approximately 10 minutes by motorcycle, Cluster 2 was northwards from the town - approximately 45 minutes travel by motorcycle from the town centre, while Cluster 3 was southwest of the town - approximately 30 minutes travel by motorcycle from the town centre (*see Annex 04 for list of villages and the teams collecting the data).*

A total of 100 respondents were interviewed individually; 50 Doers and 50 Non-Doers. Prior to conducting the study, a random pre-study spot check was conducted in the town centre to confirm that sufficient numbers of Doers and Non-Doers would be encountered during the limited survey sampling time period.

Data collection

The data collection was conducted on 28 and 29 November 2018 in Shwebo Township. Before starting the actual survey, an official travel authorization letter and permits were sought with the support of the DoF. Moreover, two DoF staff were present during the BA training and joined the survey and helped in coordinating with various village officials. Three teams each comprised of four enumerators

and one team leader (*see Annex 04 for the data collection team members*) were assigned per cluster. The team leader's role was to ensure interview quality, to provide mentoring feedback on interview technique to the enumerators, to keep track of the number of respondents reached by the team and to report the number of respondents interviewed to their supervisors who were tracking the overall number of respondents surveyed per cluster.

Daw Khin Moe Oo and U Sai Noot conducting interview

The enumerators worked in mixed sex pairs (one woman and one man) with local staff paired with staff from other project townships. During the actual interview, one enumerator was assigned the lead interviewer role, while the other supported and took notes. The enumerators swapped roles after each interview. Each lead interviewer led the interview process from start to finish for a single respondent, so that there was no disruption during each individual interview process.

Coding, tabulation and result analysis

After two days of data collection, manual coding, tabulation, and analysis followed. The process, which took another day, was facilitated by the WorldFish Myanmar Human Nutrition Coordinator, with the support of the Save the Children Myanmar team. Although a total of 50 Doers and 50 Non-Doers were interviewed, the team agreed to analyze the data from 45 Doers and 45 Non-Doers, the required sample size for the BA methodology. Hence, five Doers and five Non-Doers were randomly removed, leaving 90 survey respondents for analysis, being 45 Doers and 45 Non-Doers.

Prior to coding, a brief introduction and coding game based on the BA guide was conducted to familiarize the enumerators with the coding process. The Doers questionnaires were coded first; the questionnaires were split into two batches to make the coding easier for the enumerators. Once the coding for the Doer questionnaires was completed, coding of the Non-Doer questionnaire was conducted.

Coding exercise prior to data tabulation

After manual tabulation onto flip charts, which required the active participation of all the survey team members, the results were entered into a standard Microsoft Excel tabulation sheet. The Excel tabulation sheet was provided as part of the DBC and BA workshop package during the training hosted by Save the Children Myanmar, and follows the same process and steps as in the "A Practical Guide to Conducting a Barrier Analysis".

The Excel tabulation sheet automatically calculates and highlights where there was a 15-point difference between Doer and Non-Doer responses and identifies those determinants which were statistically significant. These significant responses were then used in developing Bridges to Activities

and development of activity recommendations for the project component. The tabulation sheet provides the magnitude of each response (e.g. Doers were 3.3 times more likely to respond that fish increases the appetite of young children to eat rice than Non-Doers).

Challenges and limitations

When conducting the survey, despite attempting to minimize issues and to implement appropriate solutions, there were some challenges and limitations that may have implications for the results.

a) *Quality of Interviews.* All the field enumerators were new to BA survey and despite mentoring by experienced BA Save the Children Myanmar staff, this may have had impacted on the quality of data collected. The majority of the team were experienced at conducting interviews using a structured questionnaire with closed questions, but were less experienced as qualitative interviewers, especially on topics related to health and nutrition; and they were not fully conversant with probing and asking follow-up questions in order to triangulate and to confirm the appropriateness of respondent responses. Although the BA survey questions were translated in Burmese and were tested by the team, the enumerators still found it very difficult to phrase the survey questions in such a way that the respondents fully understood the exact question meaning. This was particularly the case for perceived self-efficacy, perceived positive consequences and perceived negative consequences.

   Additionally, translation of words like would/ should was challenging as there are various similar words with slightly different meanings in Burmese and it was difficult to choose the most accurate action verb that was closely aligned with the English language and thus this may have had negative implications during the interview.

   For future BA surveys, training and coaching on effective probing and asking follow-up questions or on effective qualitative interviews will be prioritized during the training schedule. Also, it will be helpful if BA teams document specific phrasing of questions which work well, and additional effective techniques when asking questions, probing or re-phrasing the questions spoken in Burmese language (as is the current experience) for the project team to share with others during subsequent BA surveys.

b) *The identified frequency of fish consumption in the behavior statement.* As mentioned above, while there are no current recommendations on the amount and frequency of fish consumption for children <5 years old in Myanmar, the project has deemed it crucial to identify different barriers and enablers for practicing this behavior among the priority group if positive nutrition outcomes are to be achieved for target children and families.

   As explained in the methodology section, the frequency of consuming fish three days in the week prior to the interview was chosen by the project team to provide sufficient Doers (N = 45) in the target areas within the limited time available for the BA survey. In addition, in the screening questions, the amount of one tablespoon of fish (≥ 15 grams) was also used as a minimum requirement to classify Doers, to follow the guidelines when assessing dietary adequacy. Hence, for future BA surveys, the validity of the results will be enhanced if Fish-Agri food system experts with BA experience can provide guidance on the quantities and frequencies of fish consumed, taking into account the field context.

Significant study results

The responses from Doers and Non-Doers were analyzed and responses with a 15-point difference between the groups were considered significant. Table 01 shows a brief summary of the key barriers and enablers for the behaviour, "**Mothers of children under 5 years old feed/give fish at least three days a week".** The significant determinants were perceived self-efficacy, perceived negative consequence, perceived positive consequence, perceived access, perceived social norms, perceived cues for action, and perceived severity and susceptibility. It was found that fear of choking on fish bones was the most important barrier for mothers as indicated both in perceived self-efficacy and perceived negative consequences.

Table 01: Significant findings and key determinants

Barriers	Enablers
Perceived self-efficacy • Fear of choking on fish bones • Family does not eat fish **Perceived negative consequence** • Child will choke on fish bones **Somewhat difficult to access** **Somewhat difficult to remember practicing behavior** **Low perceived severity and susceptibility**	**Perceived self-efficacy** • The child likes fish • Fish price is cheap • Easy to buy fish from the market **Perceived positive consequence** • Fish help to increase the appetite of the child to eat rice • Eating fish makes the child more active **Perceived social norms or key influencer** • Grandmother of the child

Self-efficacy

The determinant refers to the mothers' belief that she can do the behavior with her current level of knowledge, skills, and resources. The mother was asked what makes (or would make) it easier and difficult for her to practice the behavior. Significant responses in making it easier to feed the child fish at least three days a week, were that the child likes fish, fish price was cheap and fish was easy to buy at the market. Non-Doers were 2.5 times more likely to give a response that they found it difficult to practice the behavior because they feared that the child would choke on fish bones, and the family does not eat fish. While Doers were 4.2 times more likely to respond that they did not find it difficult to practice the behavior.

Positive and negative consequences

The determinant refers to positive (and negative) consequences that the mothers think will happen when practicing the behavior. The mother was asked what are (or would be) the advantages (and disadvantages) of practicing the behavior. Comparing the significant responses, Doers were 3.3 times more likely to respond that fish helped in increasing the appetite of the child to eat rice and were 11.4 times more likely to respond that eating fish made their child more active. While Non-Doers were 2.5 times more likely to say that, the disadvantage of eating fish was that their child might choke on fish bones. The response was aligned to their response above in self-efficacy.

Social norms

The determinant refers to the mother's perception of who she thinks approves or disapproves of her practicing the behavior. The data revealed that the grandmother of the child had an influence on the mother in practicing the behavior. Grandmothers were enablers for the priority group to feed/ give fish to children under 5 years old at least three days a week.

Different types of fish found at the market in Shwebo Township

Access

The determinant refers to the degree of availability of the products or services for mothers to practice the behavior. The mothers were asked the difficulty in feeding/giving fish their child at least three days a week. Non-Doers were 4.2 more likely to respond that they found it somewhat difficult to practice the behavior compared to Doers. In contrast, Doers were 3.3 times more likely to respond that they did not find it difficult to practice the behavior.

Cues for action/ reminders

The determinant refers to the mother's ability to remember to feed/ give fish to her child at least three days a week. Non-Doers were 6.8 times more likely to respond that they found it somewhat difficult to remember practicing the behavior. Whereas, Doers were four times more likely to state that they did not find it difficult at all.

Susceptibility

The determinant refers to the mother's perception of how vulnerable or at risk her child is of becoming sick. Doers were 3.8 times more likely to state that it was not likely at all that their child would become sick.

Severity

The determinant refers to the mother's perception of how serious the problem is when the child becomes sick. Non-Doers were 2.1 times more likely to state that it was somewhat serious. Whereas, Doers were 2.5 times more likely to state that it was not serious at all when the child became sick.

Discussion and recommendations

The results above revealed multiple barriers and enablers in practicing the behavior among the priority group. Below are recommendations that can be applied by the project component, depending on availability of budget and the timeline of INLAND MYSAP with field activities running until 31 March 2020 and the contract closing on 05 May 2020.

Self-efficacy

The barrier mentioned by Non-Doers highlights the need to undertake market awareness sessions that highlight which locally available fish species that have fewer bones and are affordable by the target group including poor and vulnerable households. Additionally, strengthen nutrition education on the benefits for child nutrition of consuming fish; a relatively cheap highquality animal source food. Incorporating the activity with cooking demonstrations and practical lessons focusing on selecting fish types that have fewer bones and fish preparation methods that are more suitable for young children. This might mean preferential selection of large fish species that are easier to fillet out the bones, however, multiple studies mentioned above, show that eating small indigenous fish species (SIS) whole (with head, eyes and bones) provides better nutritional benefits. Hence, it is vital that balanced messaging is provided by MYSAP to the priority group, as well as providing information on and demonstrating alternative preparation and cooking methods for SIS.

In addition, homemade fish powder can be piloted based on WorldFish experience from neighbouring Bangladesh and Cambodia. INLAND MYSAP can pilot test homemade fish powder with a few farmers who have children between 6-23 months old to obtain feedback on its applicability despite their limited resources. The homemade fish powder can be introduced as a complementary food for children over 6 months-old. It should be noted that this activity will increase time and work load of women, and increase the demand for cooking fuel. Any such activity will also require careful food safety considerations with associated time and budget implications.

Moreover, INLAND MYSAP will pilot test home based fish processing technologies like a collapsible portable fish drier to prolong the shelf life of surplus aquaculture fish products; ensuring available fish during the lean season for vulnerable groups. However, from WorldFish experience in other project areas most SSA farmers sell their harvest fresh to middle-traders to gain income and for convenience

and only a small amount of the fish produced was consumed by the family. Additionally, buyers prefer to buy fresh fish, with vendors usually only resorting to processing when they have a surplus that they cannot sell. Currently few SSA producers produce a surplus that they cannot sell fresh, though this will change as beneficiaries adopt project recommendations on improved culture practices. Project staff in collaboration with DoF staff will promote the benefits of post-harvest processing technologies which can also be another entry point for women to participate in value chain activities. The project will be mindful of the impacts, promoted activities for women have on work load, nutrition, household income and intra-family relationships.

One of the responses from Non-Doers - that it was difficult to give/feed fish to their child because the family did not eat fish - was not explored further during the interview, thus the reasons for this response are unknown. For future BA studies such responses will be followed up by a key informant interview to determine why some households do not consume fish.

Positive and negative consequences

The Doers responses indicated that as well as the nutritional benefits, fish increases the appetite of young children to eat rice making it easier to ensure that young children eat sufficient food. The responses by Doers can be highlighted in behavior change communication activities (e.g. drama, role-plays) as well as in education sessions and in developing IEC materials to promote positive behaviors among the priority group. Another way is to develop a tracking calendar that can be posted in the kitchen to remind the priority group of the time they need to prepare and cook fish for their child. INLAND MYSAP will arrange fish preparation and cooking demonstrations for priority groups and key influencers to minimize concerns that young children are at risk of choking on fish bones.

Social norms

Grandmothers are enablers for the priority group to feed/ give fish to under 5 years old at least three days a week. The response reinforces that in Myanmar culture, household nutrition and feeding of young children is a female domain. Hence, future activities should consider involving key influencers like grandmothers to increase the likelihood of the priority group practicing the behavior. Depending on the project timeline, support groups for mothers may be formed with grandmothers invited.

A woman selling salted and fresh fish at the market in Shwebo Township

Access

This implies a need to increase the mother's ability to access fish in order to feed/ give fish to her child(ren). Reflecting on some of the self-efficacy responses, the priority group indicated that they found it difficult to practice the behavior when vendors did not come to their village and when mothers were unable to travel to the market; both responses were related to access. Hence the importance of linking the priority group to fish farmers and fishers, for cultured and wild caught fish respectively to enhance their access to fish for family nutrition.

Cues for action/ reminders

INLAND MYSAP will develop materials, e.g. a tracking calendar, posters that can be placed in the kitchen or in other areas where they can be clearly seen by caregivers/ mothers to remind them to give fish to their child at least 3 days a week. Days on the calendar can be ticked each time fish is given/fed; the calendar can be checked by IP and project staff to follow progress. The project can sponsor small gift and prizes as a reward for the efforts of caregivers/ mothers. However, monitoring and review after implementation will be required to assess the impact of the reward system.

Susceptibility and severity

The response of Non-Doers indicated that they understand or were aware of the severity, if or when their child became sick, probably from a previous child illness or sickness episode. In contrast, the response of Doers suggests that the sickness or illness was considered a less severe problem, possibly because with good immune systems their children fight off infections and recuperate quickly and do not incur the additional expense of seeing a doctor and buying medicines. However, the project should follow-up to clarify the responses of both Doers and Non-Doers on this issue. Meanwhile the project can still emphasize in its IEC messages the negative consequences of child malnutrition and sickness and the burden, including financial, that child illness can put on the entire household.

Bridges to activities and recommended activities

To address these determinants, the project team together with Save the Children team, developed bridges to activities that link to recommended activities for promoting social behavior change in the INLAND MYSAP intervention area. The results were presented to the group for discussion, feedback and suggestions. Although the recommended activities are specific to Shwebo Township, it may be applicable to replicate the recommended activities in other project areas with similar geographical, social and cultural context. Below are the bridges to activities and recommended activities identified by the BA survey team.

Dr. Saw Eden, Save the Children, discussing the bridges to activities

Bridges to activities

- Increase the ability of mothers to recognize cheaper and affordable fish species in the market.
- Increase the capacity of mothers to prepare and cook fish in a variety of methods that are safer for the child and will reduce the likelihood of young children encountering and choking on fish bones.
- Increase the ability of mothers to differentiate fish species with fewer bones, and awareness of different techniques for fish preparation and/or fish bone removal that will improve the ability of young children to eat cooked fish.
- Increase the ability of mothers to access fish from different sources (e.g. fish farmers or demonstration farmers and wild caught fish from fishers, streams and rice fields) that are relatively cheaper in their area.
- Increase the perception that eating fish increases a young child's appetite.
- Increase the perception that there are alternative methods of cooking fish that can soften fish bones, making them safe for young children to eat.
- Increase the perception that grandmothers of the child approve of feeding fish at least three days a week.
- Increase the ability of mothers to remember to feed/give fish to their young children.
- Increase the perception that children under 5 years old that regularly eat animal protein (like fish) together with vegetables have less likelihood of becoming sick and that this will save the household money.

Table 02: Summary of bridges to activities, and recommended activities

Determinant	Significant Response	Doers vs. Non-Doers	Bridges to Activities	Activities
Self-Efficacy	• The child likes to eat fish (motivator) • Fish price is cheap (motivator) • Fish is easy to buy from the market (motivator) • Fish is easy to feed to the child (motivator) • Fear of choking on fish bones (barrier)	• Non-Doers were 2.5 times more likely to give this response than Doers	• Increase the ability of mothers to identify cheaper, affordable fish species with less bones, that are available in the market and in their local area • Increase the skill of mothers to prepare and cook fish by a variety of methods that is safer for the child • Increase the ability of mothers to identify fish species that have fewer bones, as well as their ability to use different techniques to remove fish bones • Increase the ability of mothers to access fish from different sources (e.g. fish farmers, project demonstration farmers and fishers) that are more affordable in their area	• Conduct market awareness sessions that highlight fish species with fewer bones that are affordable and can be sourced locally through SSA farmers • Conduct participatory cooking sessions with mothers and grandmothers; include competitions with small prizes for mothers and/or grandmothers to see which meals the children prefer • Conduct specific sessions/activities around selecting types of fish based on bone and food preparation and cooking for safe feeding • Link mothers/ caregivers to fish farmers, demonstration farmers, and fishers (wild caught fish) • Provide training on small-scale aquaculture activities • Conduct nutrition education and awareness raising activities emphasis on young child feeding and the importance of consuming fish

Determinant	Significant Response	Doers vs. Non-Doers	Bridges to Activities	Activities
				• Incorporate games and competitions (with prizes) on buying fish with fewer bones and removing bones during nutrition education activities • Develop IEC materials (pamphlets, posters, recipe books, etc.) highlighting different fish species available at the market with fewer bones • Form Mothers' support groups that discuss the benefits of eating fish, as well as sharing information on young child feeding practices and child rearing. When necessary, peer-to-peer counselling together with mothers (and grandmothers) who are practicing the behavior
Positive consequence	• Fish increases the child's appetite; can eat more rice (motivator) • Fish makes the child more active (motivator)	• Doers were 3.3 times more likely to give this response than Non-Doers • Doers were 11.4 times more likely to state this response than Non-Doers	• Increase the perception that fish increases child's appetite	• Develop IEC materials (pamphlets, posters, recipe books, etc.) highlighting different fish species available in the market with fewer bones, different methods of preparing and cooking fish, and that fish increases child's appetite

Determinant	Significant Response	Doers vs. Non-Doers	Bridges to Activities	Activities
Negative consequence	• Choking caused by bones (barrier)	• Non-Doers were 2.5 times more likely to give this response than Doers	• Increase the perception that there are methods of cooking fish that can soften the bones	• Distribution of posters, pamphlets, and brochures in communities e.g. public area, libraries, market, rural health clinics
Social norms	• Grandmother of child (motivator)		• Increase the perception that grandmothers of the child approve of feeding fish at least three days a week	• Inclusion of grandmothers in mothers' support group to talk about the benefits of eating fish
Access	• Somewhat difficult (barrier) • Not difficult (motivator)	• Non-Doers were 4.2 times more likely to give this response than Doers • Doers were 3.3 times more likely to state this response than Non-Doers	• Increase the ability of mothers to access fish	• Create a network that links mothers (households) to fish producers in the area; this may provide access to more affordable fish than at the market • Introduce and encourage fish farming/ culture to the communities (when there is available space/area and appropriate conditions for culture) • Re-introduce catching fish or fishing in areas where there are open water bodies (irrigation channels, rice fields) to provide cheap a nutritious fish supply in the home
Cues for Action/ Reminders	• Somewhat difficult	• Non-Doers were 6.8 times more likely to say give	• Increase the ability of mothers to remember to feed/ give fish to their child	• Provide a calendar showing days of a week that mothers/caregivers can tick

Determinant	Significant Response	Doers vs. Non-Doers	Bridges to Activities	Activities
	• Not difficult	this response than Doers • Doers were four times more likely to state this response than Non-Doers		every time they feed their young child fish • Conduct nutrition education and awareness raising activities (same as above), coupled with distribution of IEC materials to targeted households • Form mothers' support group that discuss benefits of eating fish, also helps in reminding non practicing mothers to feed/give fish to their child at least three days a week
Susceptibility	• Not likely at all	• Doers were 3.8 times more likely to state this response than Non-Doers	• Increase the perception that children under 5 -years old that regularly each animal protein like fish, have a reduced likelihood of getting sick	• If culturally appropriate, CFs or mothers' support group members can keep track of young children who eat fish and frequency of sickness for comparison with other children. Subsequently, CFs can use record book that can be updated monthly • Enhance and reinforce Doer behaviors (Positive Deviance) during education sessions, meetings, etc. • Conduct nutrition education and awareness raising activities; emphasis on the positive benefits of eating fish regularly (improved health and reduced likelihood of becoming
Severity	• Somewhat serious • Not serious at all	• Doers were 2.5 times more likely to state this response than Non-Doers		

Determinant	Significant Response	Doers vs. Non-Doers	Bridges to Activities	Activities
				sick) and negative consequences of sickness or/ and malnutrition to young children including financial burden to the household • Encourage mothers to visit health clinics for weighing of children, as well as learning about proper child feeding practices
Universal Motivator	• To become rich	• Non-Doers were three times more likely to say give this response than Doers	• Non Actionable	

Recommended main activities

Considering MYSAP's timeline, **based on feasibility**, the project should consider including the recommended activities below in its current work plan. Note that multiple determinants may be being addressed by one or two main activities; and time and budget constraints may mean that bridge to activities and activities may not be fully aligned with the above table.

1) **Conduct nutrition education and awareness-raising activities** among the priority group as well as influencers or motivators such as grandmothers in the project villages and direct beneficiary households on the nutritional benefits of feeding fish to young children. Practical demonstration activities will support mothers to use alternative fish preparation and cooking methods and to apply home based fish processing methods, like home-made fish powder, that is particularly beneficial for young children (06-23 months) as a complementary food. Additionally, provide market awareness sessions on affordable fish species that have fewer bones available in the local market, and in their local village through local SSA farmers.

   For future intervention. CFs will encourage mothers to visit health clinics to learn more about and to confirm the health and nutritional status of the child. This will highlight the consequences of malnutrition and sickness for young children and the benefits of young children and lactating mothers regularly eating animal protein like fish. To complement nutrition education sessions, CFs can facilitate games, competitions, dramas and role-play that focus on the benefits of consuming fish to provoke the interest of the priority group.

2) **Develop information, education and communication (IEC) materials** such as posters and pamphlets that increase the perception that a) fish is good for young children (*it increases appetite*), b) there are fish species with less bones and there are various methods of both preparing and cooking fish, and c) eating fish has multiple nutritional benefits. Also, MYSAP project team needs to consider both the level of literacy and the need for local language materials (Shan and Chin languages) among its target communities and the conditions in the field (wet, dusty, etc.) when creating the said materials. Moreover, these materials should also be distributed in public areas where people routinely gather e.g. libraries, health clinics, community centres and local markets to ensure a wider reach.

   For future intervention. Explore development of IEC materials such as recipe books featuring various local fish dishes that are suitable for young children, tracking calendars that can be used by the priority group to remind them to cook/ prepare fish for their young child(ren).

3) **Forge stronger linkages** between different actors (e.g. DoF staff, fish producers, fishers, fish vendors, health NGO workers, schools, etc.) and structures (e.g. health clinics, Village Development Committees, local radio stations, etc.) that can increase awareness on the importance of eating fish for improving nutrition and especially of young children. Also, establishing a network to link mothers with fish producers, fishers and local fish market sellers, will increase their ability to access fish at a more affordable price in their area. Moreover, to overcome the access barrier, when applicable, encourage mothers (and families) to produce or farm fish by linking up with CFs and the DoF in their area.

4) **Testing of locally made fish drier** in selected project areas to prolong fish shelf-life, to improve food safety and ensuring accessibility of fish even during the dry season for the whole family and especially for young children. The collapsible and portable drier will be made of local materials and has been designed to protect the product from vermin, flies and other insects; making it more safe for human consumption. Moreover, the dried fish produced could be further processed into fish powder suitable as a complementary food for infants (6 months onwards).

5) **For future intervention. Formation of mothers' groups** with inclusion of grandmothers as key influencers to supports women (and families) with young children in order to increase the perception on the importance of fish for achieving good nutrition. A structured group meeting that shares information on young child feeding practices, child rearing experiences (challenges and overcoming barriers), as well as peer-to-peer counselling can help increase the likelihood of behavior change among the priority group.

References

Belton, B., A. Hein, K. Htoo, L. Seng Kham, U. Nischan, T. Reardon, & D. Boughton, (2015) *Aquaculture in Transition: Value chain transformation, fish and food security in Myanmar*, International Development Working Paper 139 Yangon: USAID/Burma and the Livelihoods and Food Security Trust Fund by Michigan State University (MSU),Myanmar Development Resource Institute - Center for Economic and Social Development (MDRI-CESD), and the International Food Policy Research Institute (IFPRI), <http://www.fsg.afre.msu.edu/fsp/burma/Myanmar_Aquaculture_Value_Chain_Study_Report_FINAL.pdf>

Bogard, J., A. Hother, M. Saha, S. Bose, H. Kabir, G. Marks, & S. Thilsted, (2015) "Inclusion of Small Indigenous Fish Improves Nutritional Quality During the First 1000 Days", *Food and Nutrition Bulletin* 36 (3) pp. 276-289 <http://pubs.iclarm.net/resource_centre/WF-3882.pdf>

CARE, (2013) "Formative Research: A guide to support the collection and analysis of qualitative data for integrated maternal and child nutrition program planning; Cooperative for Assistance and Relief Everywhere, Inc."

Food and Agriculture Organization & FHI 360, (2016) "Minimum Dietary Diversity for Women (MDD-W): A guide to measurement", *FANTA III,* <https://www.fantaproject.org/monitoring-and-evaluation/minimum-dietary-diversity-women-indicator-mddw>

Kittle, Bonnie, (2017) *A Practical Guide to Conducting a Barrier Analysis (2nd ed)*. New York: Helen Keller International

Livelihoods and Food Security Trust Fund, (2016)"Undernutrition in Myanmar", Critical Review, <http://www.lift-fund.org/sites/liftfund.org/files/uploads/LEARN%20Report%20Part%201.compressed.pdf>

Mekong Economics, (2018) *INLAND MYSAP Baseline Report (Improving the production, nutrition, and market values of small-scale aquaculture in Myanmar's Shan State, Mandalay Region, and Sagaing Region)*, Yangon, Myanmar: WorldFish

Ministry of Public Health and Sports, (2017) *Myanmar Demographic and Health Survey 2015-2016*, Nay Pyi Taw, Myanmar

Roos, N., Md. A. Wahab, M. Ali, R. Hossain & S. Thilsted, (2007) "Linking human nutrition and fisheries: Incorporating micronutrient-dense, small indigenous fish species in carp polyculture production in Bangladesh." *Food and Nutrition Bulletin* 28 (2) S280- S293 <https://www.ncbi.nlm.nih.gov/pubmed/17658074>

Thilsted, S., (2012) "The potential of nutrient-rich small fish species in aquaculture to improve human nutrition and health", *Global Conference on Aquaculture*. Ed. R., J. Arthur, D. Bartley, S. De Silva, M. Halwart, N. Hishamunda, C. Mohan, & C. Sorgeloos Subasinghe. Phuket, Thailand: FAO, Rome and NACA, Bangkok, 2012, pp. 57-73, <https://www.worldfishcenter.org/content/potential-nutrient-rich-small-fish-species-aquaculture-improve-human-nutrition-and-health-0>.

Vilain, C.,E. Baran, G.a Gallego, & S. Samadee, (2016) "Fish and the Nutrition of Rural Cambodians", *Asian Journal of Agriculture and Food Sciences,* 4 (1) <https://www.worldfishcenter.org/content/fish-and-nutrition-rural-cambodians>

World Health Organization, (2013) "Essential Nutrition Actions: Improving Maternal, Newborn, infant and young child health and nutrition", *World Health Organization,* <https://www.who.int/nutrition/publications/infantfeeding/essential_nutrition_actions/en/>

WorldFish, (2018) *Improving the Production, Nutrition and Market Values of Small-Scale Aquaculture in Myanmar's Shan State and Sagaing Region (INLAND MYSAP)*, Penang, Malaysia, 2018-13, Factsheet

Annexes

Annex 01. Description for DBC framework and barrier analysis study[2]

Definitions of Designing for Behavior Change Framework Terms

Behavior

Action, observable, specific (time, place, quantity, duration, frequency), measurable, feasible, directly contributes to solving the problem (malnutrition, high morbidity, poor harvest).

Defined in positive terms, rather than asking that a group refrain from doing something.

Is done by the Priority Group.

Behavior Statement Formulation

The Priority Group + action verb in present tense + the specifics (time, place, frequency etc.).

Example: Mothers of infants under 6 months old breastfeed them on-demand throughout the day and night, emptying each breast each time.

Priority Group

The group of people who will perform the positive Behavior, or who ensure that the Behavior is practiced by a minor (such as a child). The Priority Group is defined very specifically. For example: farmers whose land is slopped, mothers of infants 0–6 months old.

Influencing Group

The people who influence the Priority Group regarding the Behavior, who can either support or prevent the Priority Group from adopting the positive Behavior

Always identified by the Priority Group through formative research

Note: Influencing group are the people the project decides to work with to promote a Behavior who are not identified by the Priority Group are referred to as 'resource' people.

Determinant of Behavior Change

A category of factors shown to motivate or impede the adoption of a Behavior for a given group of people. There are 12 Determinants of behavior change. Self-efficacy, positive consequences, negative consequences, social norms, access, cue for action, susceptibility, severity, action efficacy, Divine will, policy and culture.

[2] From the manual developed by Kittle, Bonnie, (2017) *A Practical Guide to Conducting a Barrier Analysis (2nd ed)*. New York: Helen Keller International

Bridges to Activities

Based on the responses given by the Priority Group during formative research

Always about the Priority Group

More-specific descriptions of a change one should make to address the issue revealed by formative research

Usually begins with a directional verb (e.g., increase, decrease, improve, reinforce)

Often proposes to change the perception of the Priority Group

Not expressed in percentages

Bridge to Activities Formulation

Directional verb + the perception that… or the ability to… or the availability of…

Example: Increase the perception that sleeping under an insecticide-treated bed net (ITN) is a good way to avoid getting malaria (action efficacy)

Example: Increase the perception that mother's in law approve of only giving infants breastmilk (Social Norms)

Activity

A set of tasks that, when implemented together, will address the Bridges to Activities

Typically start with an action verb

Ideally address more than one Bridge to Activity

Learning About Doer/Non-Doer Studies and Barrier Analysis Surveys

1. **How many determinants are explored in Barrier Analysis?**

   Barrier Analysis asks questions about 5 to 12 behavioral determinants: the four most powerful plus a number of the remaining eight determinants. Some researchers feel it is best to inquire about all of the determinants as possible so as not to miss important factors that may be hampering uptake of the Behavior. It is difficult to know ahead of time which determinants will reveal the most important barriers.

2. **Which interview technique is recommended?**

   Individual interviews with Priority Group members is the recommended interview technique. Previously, focus group discussions were considered an acceptable option, but experience has shown that the results with individual interviews are more reliable.

3. **Who is interviewed?**

   In the Barrier Analysis, the questions are usually asked of individuals from the Priority Group. Their responses are compared based on whether they are Doers or Non-Doers. A person who used to belong to the Priority Group, someone who practiced the Behavior in the past, should be interviewed when the Behavior is time-bound (should be practiced within a specific time period). For example, the respondent for exclusive breastfeeding (breastfeeding during the first 6 months of life) is a mother whose child is 7 months or older).

4. **Who interviews Doers and Non-Doers?**

   Usually project staff members are trained to conduct the interviews, though outside interviewers can also be engaged to implement the survey. All interviewers should be trained in the Doer/Non-Doer interview methodology as the technique is a bit different from other types of surveys. It is best to have all interviewers interview some Doers and some Non-Doers, rather than having a given interviewer interview only Doers or Non-Doers. This helps to avoid finding trends that are purely a result of how a particular interviewer asked the question or recorded the responses. If you have one person interviewing and one person recording the responses, be sure to have the two swap roles during the survey.

5. **Can the same person be interviewed about more than one Behavior during one interview?**

   If you are conducting more than one Barrier Analysis at the same time, it is best to avoid asking the same person about multiple Behaviors during the same interview. Doing so can lead to over-taxing the respondent and lead to their providing incomplete or not well-thought-out responses as they grow weary of being interviewed.

6. **What sample size should be used?**

A sample size of 45 individual Doers and 45 individual Non-Doers is recommended, as this usually gives the most actionable results in Barrier Analysis. Keep in mind that because this is qualitative research there is some flexibility with the sample and it's acceptable to interview a few more or less than 45 of each type of respondent (42 Doers 47 Non-Doer, for example). Increasing the sample size over 45 Doers and 45 Non-Doers identifies very small differences between the two groups, which should probably be ignored given their limited correlation with the Behavior.

If you interview less than 45 Doers and 45 Non-Doers, you run the risk of not finding enough important differences between Doers and Non-Doers on which to base your choice of behavior change activities.

If it is impossible to find 45 Doers and 45 Non-Doers, you may still find some significant results. If you cannot find 45 of one group (e.g., Doers), it may be helpful to do twice as many interviews of the other group (e.g., Non-Doers) to find statistically significant differences between the two groups (e.g., interviewing 30 Doers and 60 Non-Doers). When using this approach, the Barrier Analysis Tabulation Sheet (mentioned in question 12) should be used (and not the manual analysis method) to analyze the results.

When introducing a Behavior that is new to an area (e.g., solar water disinfection, use of Zinc), you may not find any Doers at the beginning of the project activities. In this case, the Barrier Analysis Study is not your best choice and you should consider other formative research approaches such as Trials of Improved Practices (TIPS).

7. **What type of sampling should be used?**

The Barrier Analysis is a qualitative method that uses purposive or convenience sampling. When choosing your sample, it is important to consider key differences between groups, and ensure that those differences are represented. In order for your results to reflect those key differences in the population, it is good to draw your respondents from different communities. This is particularly true if your community is not very homogenous. For example, if there are different religious or ethnic groups or if there are other issues *that may impact the practice of the Behavior* (e.g., geography in the case of care seeking), these also should be taken into consideration. For example, in order to interview 45 Doers and 45 Non-Doers, you might consider interviewing five Doers and five Non-Doers from each of nine different communities, rather than selecting them all from the same community. (If you are concerned that there may be major differences between certain groups, such as men and women, consider conducting completely separate BA surveys among those groups. *You should only do this, however, if you are able to create different activities for each group based on your results. Similarly, only conduct separate full BA studies in different geographical areas if the project has the resources to develop different behavior change strategies in each separate area.*

8. **How long does a typical Barrier Analysis take?**

With a team of 15–20 interviewers and supervisors a Barrier Analysis study (all 7 steps) on one Behavior can usually be completed in two weeks. This includes writing and pre-testing the questionnaire, translating the questionnaire (the most time-consuming task), training your interviewers and supervisors (one day), organizing the field work, conducting the 90 interviews (½

day), coding, tabulating and analyzing the data (½ day). This assumes that the communities to be visited are reasonably accessible (1-2 hour's drive) and that the respondents can be easily found.

9. **When in the project life cycle should Barrier Analysis be used?**

   Barrier Analysis can be used at project start-up (e.g., prior to detailed implementation planning), which is the ideal time to plan a behavior change strategy, or at midterm or final evaluation for a project that will have a follow-on, if a behavior change strategy is needed or needs adjustment at that time. In addition, some organizations conduct a Barrier Analysis studies periodically to research several Behaviors over the course of a project (e.g. Food for the Hungry sometimes conducts a Barrier Analysis on key Behaviors they intend to promote through Care Groups before each Behavior promotion module is finalized).

10. **How reliable are the findings?**

    The responses found to be significant on a Barrier Analysis study have less than a 5 percent probability of being due to chance (hence there is a 95% validity rate). Because the Barrier Analysis identifies important differences between Doers and Non-Doers, it is very probable that the responses with a 15-percentage point gap or more are *true* differences; not just due to chance.

11. **How are results *analyzed*?**

    A questionnaire is developed and administered to Doers and Non-Doers, usually members of the Priority Group. The results are coded and tabulated manually on flip charts, and the percentage is calculated using a simple calculator. Those responses with a 15-point difference or higher indicate the most significant responses. It is important to note that the percentages of Doers or Non-Doers giving a particular response alone (or even the total combined) are not meaningful; it's the difference between the two groups that matters. Also, sometimes a minority of Doers and Non-Doers will give a particular response, but the difference between them is large enough to indicate an important determinant.

    The results also can be entered into a MS Excel table specially created for finding differences between Doers and Non-Doers. The MS Excel spreadsheet calculates the percentages of Doers and Non-Doers who gave each response and identifies important differences. Because the spreadsheet is more sensitive sometimes the number of significant differences may be different from the manual method. The spreadsheet also shows the magnitude of the difference of each response (e.g., Doers were 7 times more likely to say that their husbands approved of the Behavior than Non-Doers). The MS Excel spreadsheet can be downloaded (as of March 2016) from: http://caregroups.info/wp-content/uploads/2015/08/1Final-Computerized-Tabulation-Sheets-June-2016.xlsx

    A document explaining how to use the Barrier Analysis Tabulation Sheet can be found at: http://caregroups.info/wp-content/uploads/2016/06/Final-Computerized-Tabulation-Instructions-June-2016.docx

13. **Are other qualitative methods sometimes used after a Barrier Analysis?**

    Occasionally other qualitative methods are used to follow-up after a Barrier Analysis. For example, if we learn from a question about social norms that mothers feel that their husbands don't approve of something, it's important to verify if that perception is correct. In that case a few group interviews with a sample of those husbands should be conducted to see how they actually feel about the desired Behavior and if they approve of their wife adopting it. Similarly, if respondents say there is a policy or a cultural taboo that makes it hard to practice the Behavior, you might have to investigate what that policy or cultural taboo is.

    When a Barrier Analysis is not possible due to a lack of Doers, using Trials of Improved Practices (TIPS), focus group discussions, Participatory Learning and Action (PLA), and other qualitative methods can be used to identify enablers and barriers. Follow this link to find a document that describes many different kinds of formative research techniques. http://www.fsnnetwork.org/formative-research-guide-support-collection-and-analysis-qualitative-data-integrated-maternal-and

14. **Is Barrier Analysis a quantitative method or qualitative method?**

    Barrier Analysis is a qualitative type of research but uses a quantitative approach to analyze the data. The questionnaire has open-ended questions that help explore and describe how the two groups think (which makes them qualitative in nature), but it uses quantitative elements (e.g. the comparison of Doers and Non-Doers) that allow us to express the results in quantitative fashion. It's important to remember, however, that because of the type of sampling used, Barrier Analysis cannot measure the *prevalence* of a particular belief.

Annex 02. Important determinants that influence behavior[3,4,5]

The first four determinants always should be explored when conducting formative research (e.g., Barrier Analysis or Doer/Non-Doer Studies). These four are more commonly found to be the most important for health/nutrition Behaviors….

1. **Perceived self-efficacy/skills**
   - The Priority Group member's belief that s/he can do the Behavior given his/her current knowledge, skills and resources

2. **Perceived social norms**
   - The perception that people important to the Priority Group think that s/he should do the Behavior or should not do the Behavior
   - Social Norms has two parts: 1) who matters most to the Priority Group member regarding a particular Behavior and 2) what the Priority Group member perceives those people think s/he should do
   - Response to the questions on Social Norms reveals the Influencing Group. There is usually only 1 (sometimes 2) influencing group and it is usually someone close to the Priority Group, like a family member

3. **Perceived positive consequences**
   - What positive things the Priority Group member thinks will happen as a result of practicing a Behavior
   - There is an overlap between Positive Consequences and Action Efficacy when the Priority Group cites as an advantage of doing the Behavior that it will prevent the problem (e.g. a benefit of handwashing with soap at the critical times is that I won't get diarrhea)
   - Not all positive consequences relate to preventing the problem, however. (e.g. If I sleep under a mosquito net I won't be bothered by mosquitos humming in my ears all night.)

4. **Perceived negative consequences**
   - The negative things the Priority Groups thinks will happen as a result of performing a Behavior
   - Responses to questions related to negative consequences reveal disadvantages of the Behavior, attitudes about the Behavior, and perceived negative attributes of the Behavior

[3] From the manual developed by Kittle, Bonnie, (2017) *A Practical Guide to Conducting a Barrier Analysis (2nd ed)*. New York: Helen Keller International

[4] This list of determinants has been reworked since the Designing for Behavior Change training curriculum was first published in 2008 to better fit agriculture and natural resource management (NRM) Behaviors and is somewhat different from the list of determinants used in the 2008 health and nutrition-focused Barrier Analysis manual.
[5] This handout is adapted from materials originally developed by AED and from the Food for the Hungry Barrier Analysis manual.

Other Key Determinants

5. **Access**

   - Includes the degree of availability (to a particular Priority Group) of the needed products (e.g., fertilizer, soap, condoms) or services (e.g., veterinary services, immunizations) required to adopt a given Behavior
   - Includes barriers related to cost, geography, distance, language, cultural issues, and gender
   - Access issues can also be revealed by responses given to the Self-Efficacy question – What makes it difficult? Not having improved seeds or the health centre is too far away.

6. **Cues for action**

   - The perception of the Priority Group that they can remember to do a particular Behavior
   - The perception of the Priority Group that they can remember **how** (the steps required) to do a particular Behavior
   - Key powerful events that triggered a behavior change in a person (e.g., there was a fatal road accident here, so I remember that I should slow down when I get to this part of the road)

7. **Perceived susceptibility/risk**

   - The Priority Group member's perception of how vulnerable or at-risk s/he feels to the problem (e.g., how likely is it that my crop will get cassava wilt? How likely is it that my child will become malnourished?)

8. **Perceived severity**

   - The Priority Group member's belief that the problem (which the Behavior can prevent) is serious (e.g., Is soil erosion a serious problem for me? How serious is diarrhea?)

9. **Perceived action efficacy**

   - The belief that by practicing the Behavior one will avoid the problem; that the Behavior is effective in avoiding the problem (e.g., if I sleep under a mosquito net, I won't get malaria)
   - There is an overlap between Action Efficacy and Positive Consequences when the Priority Group cites as an advantage that doing the Behavior will prevent the problem.

Note: Perceived susceptibility/risk and perceived severity relate to the problem. Perceived action efficacy links the problem to the Behavior. In order to study issues around susceptibility, severity, and action efficacy, you must know what the problems are that the Behavior addresses. Divine will can sometime also be about the problem, depending on how you phrase the question (e.g., Does God cause children to become malnourished?).

10. **Perceived Divine will**[6]

- The Priority Group's perception that their religion or God approves of the Behavior
- The Priority Group member's belief that it is God's will for him/her to have the problem and/or to overcome it
- Divine will can also refer to the Priority Group member's perception about the spirit world or magic (e.g., whether or not the problem was caused by an evil spell or curse)

11. **Policy**

- The existence of laws and regulations (local, regional, or national) that hinder or facilitate the adoption of the Behavior (e.g., the presence of good land title laws may make it more likely that a person take steps to improve their farm land, the Baby-Friendly Hospital policy that forbids the distribution of formula (even if it's free) in order to promote breastfeeding]

12. **Culture**

- The perception of the Priority Group member that the group to which they belong is allowed or not permitted by the society to practice the Behavior.
- The belief that certain Behaviors are not acceptable for certain people (e.g., boys do not collect and carry water – only girls/women do that job, mothers of newborns cannot leave the house for 40 days after the birth).
- May be associated with ethnicity or lifestyle, such as homosexual/gay or youth culture

Universal Motivators

- Factors that have been found to motivate most people, irrespective of other variables
- Usually used in mass media activities (e.g., billboards, posters, public service announcements)

Include love, security, comfort, recognition, success, freedom, positive self- image, social acceptance, peace of mind, s

[6] Numerous unpublished Barrier Analysis studies have found this determinant to be important for many Behaviors (particularly for health and nutrition Behaviors)

Annex 03. Training schedule

Time	Topics	Duration
Day One		
08:00-09:15	Introductions, Agenda, and Norms	1 hour
09:15-10:00	INLAND MYSAP Overview	1 hour
10:15-12:00	Overview of the Designing for Behavior Change Framework	1.5 hour
15:00- 15:00	Identifying Determinants that Influence Behavior	2 hours
15:15- 16:45	Barrier Analysis and Doer/Non-Doer Surveys	1.5 hours
Day Two		
08:00-08:30	Day 1 Recap	
08:30-10:00	Introduction to the Questionnaire	1.5 hours
10:15-12:00	Learning to Interview the Doer/Non-Doer Way	1.5 hours
13:00-15:00	Conducting the Survey	2 hours
15:15-17:00	Debrief Practice Interview and Organize Field Work	2 hours

Annex 04. Data collection team and schedule

Cluster 1

Schedule	Village	Name	Position	Organization
28th Nov. 2018	Min Kaung	Saw Eden	Team Leader	Save the Children
		Khin Moe Oo	Enumerator	BRAC
		Sai Noot	Enumerator	INLAND MYSAP WorldFish
29th Nov. 2918	Ta Ga Naan 10 Ward Oo Yin Taw	Chan Myae Aung	Enumerator	BRAC
		Hnin Hnin Khaing	Enumerator	Malteser International

Cluster 2

Schedule	Village	Name	Position	Organization
28th Nov. 2018	Ta Kan Thar	Myat Ko Ko Aye	Team Leader	Save the Children
		Kyaw Zin	Enumerator	BRAC
		Arr Khun	Enumerator	Malteser International
29th Nov. 2018	Nyaung Kan Kyaung Man Kan	Ei Ei Phyo	Enumerator	INLAND MYSAP WorldFish
		Myo Myint Win	Enumerator	BRAC
		Chaw Su (*only on 29th Nov.)*	Enumerator	BRAC

Cluster 3

Schedule	Village	Name	Position	Organization
28th Nov. 2018	Ta Kan Thar	Moe Thida Oo	Team Leader	INLAND MYSAP WorldFish
		Htet Wai Lin	Enumerator	BRAC
		Khin Nyien Chan	Enumerator	BRAC (Yangon)
29th Nov. 2018	Nyaung Kan Kyaung Man Kan	Bu Zar	Enumerator	Malteser International
		Yu Maung	Enumerator	BRAC

Supervisors:

1. Julia Weatherson- Save the Children
2. Quennie Rizaldo- WorldFish Myanmar

Annex 05. Questionnaire used for the BA study

Group: ❑ Doer ❑ Non-Doer

Barrier Analysis Questionnaire:

Fish consumption among children under 5-year-old

Behaviour Statement

Mothers of children under 5 years old feed/give their child fish at least 3 days each week.

Demographic Data

Interviewer's Name: _____Questionnaire No.: _____ Date____/___/____

Community: _____ Start Time: _____ End Time: _____

Scripted Introduction:

မဂၤလာပါ။ ကၽြန္ေတာ္/မ နာမည္ကေတာ့ ကမၻာ့ငါးအဖြဲ႔ရဲ႔ မိတ္ဖက္ ဘရက္ျမန္မာအဖြဲ႔က----
----------ျဖစ္ပါတယ္။

ငါးစားသံုးမႈ အေလ့အက်င့္ေႏွာင့္ေပ့ပတ္သက္ၿပီး ေလ့လာေနတဲ့ အဖြဲ႕ဝင္ တစ္ေယာက္ ျဖစ္ပါတယ္။

ဒီေလ့လာမႈမွာေတာ့ ေဆြးေႏြးမႈ တစ္ခုျပဳလုပ္မွာျဖစ္ၿပီး မိနစ္ (၂၀) ေလာက္ ၾကာမွာ ျဖစ္ပါတယ္။

၅ ႏွစ္ေအာက္ ကေလးငယ္ေတြ ငါးစားသံုးမႈ အေလ့အက်င့္ေႏွာင့္ေပ့ပတ္သက္ၿပီး အမရဲ႕ အျမင္ေလးကို ၾကားလိုပါတယ္။

ေမးခြန္းေတြကို မျဖစ္မေန ေျဖၾကားေပးရမယ္လို႕ မဆိုလိုပါဘူး။

အခ်ိန္ မေပးႏိုင္လို႕ မေျဖခ်င္ရင္လဲ ရပါတယ္ခင္ဗ်ာ/ရွင့္ အခုေဆြးေႏြးတဲ့ အခ်က္အလက္ေတြကိုလွ်ိဳ့ဝွက္ထားမွာ ျဖစ္ၿပီး အျခား ဘယ္သူ႕ကိုမွ ေျပာျပမွာ မဟုတ္ပါဘူး။

အမ အေနနဲ႕ ေမးခြန္းေလးေတြ ေျဖၾကားေပးဖို႔ မိနစ္ (၂၀) ေလာက္အခ်ိန္ ေပးႏိုင္မလား (မေပးနိုင္ပါက အခ်ိန္ေပးတဲ့အတြက္ ေက်းဇူးတင္ေၾကာင္းေျပာျပပါ။)

Hi, my name is_____from BRAC Myanmar working together with WorldFish; and I am part of a consultation team looking into fish consumption practice. The study includes a discussion of this issue and will take about 20 minutes. I would like to hear your views on this topic. You are not obliged to participate in the study and no services will be withheld if you decide not to. If you decide to talk with

me you will not be remunerated or receive any gifts or services. Everything we discuss will be held in strict confidence and will not be shared with anyone else.

Would you like to participate in the study? [If not, thank them for their time.]

☐ YES ☐ NO ➔ end interview and look for another respondent

Section A. Behavior Screening Questions

1. **အမရဲ့ အငယ်ဆုံးကေလးက အသက် ဘယ်လောက် ရှိၿပီလဲ။ (လ ျဖင့်ြတြကွါ)**

   ☐ a. ၆-၅၉ လ

   ☐ b. ၆၀ လအထက် ➔ ေမးခြန်းေမးတာကိုရပ်ျပီး ေနာက်တစ်ေယာက်ကျွာပါ။

   ☐ c. မသိဘူး ➔ ေမးခြန်းေမးတာကိုရပ်ျပီး ေနာက်တစ်ေယာက်ကျွာပါ။

   _____ months ← write the age in months

How old is your youngest child?

- a. 6 months to 59 months
- b. >60 months → End interview and look for another respondent
- c. Don't know→ End interview and look for another respondent

2. **အဲဒီ့ ကေလးက ငါးစားေလ့ရှိလား အဲဒီ့ ကေလးကို ငါးေကြးေလ့ရှိလား။**

   ☐ a. ေကြးတယ်

   ☐ b. မေကြးဘူး ➔ ေမးခြန်းေမးတာကိုရပ်ျပီး ေနာက်ေယာက်ကျွာပါ။

   ☐ c. မသိဘူး ➔ ေမးခြန်းေမးတာကိုရပ်ျပီး ေနာက်ေယာက်ကျွာပါ။

Does your child eat fish?

- a. Yes
- b. No → Mark as Non-Doer and continue to Section B
- c. Don't know→ End interview and look for another respondent

3. **ဒီတစ်ပတ် (ၿပီးခဲ့တဲ့အပတ် .... ေန့ကစၿပီး ဒီေန့အထိ) (တနဂေနြ၊ တနလာ၊ အဂါေန့...မွာ) အဲဒီ့ ကေလး (နာမည်) ငါးစားခဲ့လား။**

   ☐ a. စားခဲ့တယ်

   ☐ b. မစားခဲ့ဘူး ➔ ေမးခြန်းေမးတာကိုရပ်ျပီး ေနာက်ေယာက်ကျွာပါ။

   ☐ c. မသိဘူး ➔ ေမးခြန်းေမးတာကိုရပ်ျပီး ေနာက်ေယာက်ကျွာပါ။

Did your child(name) eat fish this week? (*insert same day last week to today*) and tell me how many days did your child eat fish.

(Probe: What did you feed on Sun, Mon, Tues…)

- a. Yes
- b. No → Mark as Non-doer and continue to Section B

□ c. Don't remember → End interview and look for another respondent

4. **ၿပီးခဲ့တဲ့ ၇ ရက္အတြင္း (ၿပီးခဲ့တဲ့အပတ္ .... ေန႔ကစၿပီး ဒီေန႔အထိ) အဲဒီ့ ကေလးက ဘယ္ႏွစ္ရက္ ငါးစားခဲ့လဲ (ကေလးကို တနဂၤေႏြ၊ တနလၤာ၊ အဂၤါေန႔...မွာ ဘာေကၽြးခဲ့သလဲဟု အေျဖရေအာင္ ေမးပါ။)**

☐ a. ၃ ရက္ သို႔မဟုတ္ အထက္

☐ b. ၂ ရက္ေအာက္ ➔ Non-doer လို႔မွတ္သားၿပီး Section B သို႔ဆက္သြားပါ။

☐ c. မမွတ္မိဘူး ➔ ေမးခြန္းေမးတာကိုရပ္ျပီး ေနာက္တေယာက္ကိုပါ။

This is just to help with memory, I would like you to think about the past 7 days (*insert same day last week to today*) and tell me how many days did your child eat fish. *(Probe: What did you feed on Sun, Mon, Tues…)*

This week (*insert same day last week to today*), how many days did your child eat fish?

- a. 3 days or more
- b. Less than 2 days → Mark as Non-doer and continue to Section B
- c. Don't remember → End interview and look for another respondent

5. **တစ္ပါေကၽြးရင္ ကေလး ငါးဘယ္ေလာက္စားလဲ။**

☐ a. ၁ က်ပ္သား သို႔မဟုတ္ အထက္

☐ b. ၁ က်ပ္သားေအာက္ ➔ Non-doer လို႔မွတ္သားၿပီး Section B သို႔ဆက္သြားပါ။

☐ c. မမွတ္မိဘူး ➔ ေမးခြန္းေမးတာကိုရပ္ျပီး ေနာက္တေယာက္ကိုပါ။

What is the amount of fish your child eats in one day?

- a. 1 tical or more
- b. Less than 1 tical → Mark as Non-doer and continue to Section B
- c. Don't remember → End interview and look for another respondent

DOER /NON-DOER CLASSIFICATION TABLE

Doer (All of the following)	**Non-Doer** (Any one of the following)	**Do not Interview** (any one of the following)
Question 1= A		Question 1= B C
Question 2= A	Question 2= B	Question 2= B C
Question 3= A	Question 3= B	Question 3 = C
Question 4= A	Question 4= B	Question 4 = C
Question 5= A	Question 5= B	Question 5 = C

GROUP: □ DOER □ NON-DOER

Behavior Explanation:
ၿပီးခဲ့တဲ့ ၇ ရက္အတြင္း ဒါမွမဟုတ္ ဒီတစ္ပတ္ အတြင္း (ၿပီးခဲ့တဲ့အပတ္...ေန႔ကေန ဒီေန႔အထိ) ကေလးကို ငါးေကၽြးတာနဲ့ ပတ္သက္ၿပီး ေဆြးေႏြးၾကရေအာင္။

In the following questions I am going to be talking about you feeding/ giving fish to your child for the past 7 days (*insert same day last week to today).*

Section B – Research Questions

(Perceived Self-efficacy)

1. အမမွာရွိတဲ့ ဗဟုသုတ၊ စြမ္းရည္၊ အရင္းအျမစ္ေတြအရ အမရဲ့ကေလးကို အနည္းဆံုး တစ္ပတ္ကို ၃ ရက္ေလာက္ ငါး ေကၽြးဖို့ အမအေနနဲ့ ထင္ပါသလား။

- ❑ a. **ထင္တယ္**
- ❑ b. **မထင္ဘူး**
- ❑ c. **ျဖစ္ႏိုင္တယ္**

With your current knowledge, skills and resources do you think you can feed/give your child fish for at least 3 days per week?

- ❑ a. Yes
- ❑ b. No
- ❑ c. Maybe

2a. Doers: **အမရဲ့ ကေလးကို အနဲဆံုး တပတ္ကို ၃ ရက္ေလာက္ ငါး ေကၽြးဖို့ ဘာေတြက လြယ္ကူေစသလဲ။**

What makes it **easier** for you to feed/give your child fish at least 3 days per week?

2b. Non-doers: အမရဲ့ကေလးကို အနည္းဆံုး တပတ္ကို ၃ ရက္ေလာက္ ငါး ေကၽြးမယ္ဆိုရင္ ဘာေတြက လြယ္ကူေစမလဲ။ (အေျဖအားလံုးကိုေရးပါ။ ေနာက္ဘာရွိေသးလဲလို႔ အေျဖရေအာင္ေမးပါ။)

What would make it **easier** for you to feed/give your child fish for at least 3 days per week? (Write all responses below. Probe with "What else?")

(Perceived Self-efficacy)

3a. Doers: အမရဲ့ကေလးကို အနဲည္းဆံုး တစ္ပတ္ကို ၃ ရက္ေလာက္ ငါး ေကၽြးဖို႔ ဘာေတြက ခက္ခဲေစသလဲ။

What makes it **difficult** for you to feed/give your child fish for at least 3 days per week?

3b. Non-doers: အမရဲ့ကေလးကို အနဲဆံုး တစ္ပတ္ကို ၃ ရက္ေလာက္ ငါး ေကၽြးမယ္ဆိုရင္ ဘာေတြက ခက္ခဲေစမလဲ။ (အေျဖအားလံုးကိုေရးပါ။ ေနာက္ဘာရွိေသးလဲလို႔ အေျဖ ရေအာင္ေမးပါ။)

What would make it **difficult** for you to feed your child fish at least 3 days per week? (Write all responses below. Probe with "What else?")

(Perceived Positive Consequences)

4a. Doers: အမရဲ့ကေလးကို အနဲဆံုး တပတ္ကို ၃ ရက္ေလာက္ ငါး ေကၽြးတဲ့အတြက္ ဘယ္လို ေကာင္းက်ိဳးေတြရသလဲ။

What are the **advantages** of feeding fish to your child at least 3 days per week?

4b. Non-doers: **အမရဲ့ကေလးကို အနဲဆံုး တပတ္ကို ၃ ရက္ေလာက္ ငါး ေကြးမယ္ဆိုရင္ ဘယ္လို ေကာင္းက်ိဳးေတြ ရနိုင္မလဲ။ (အေျဖအားလံုးကိုေရးပါ။ ေနာက္ဆာရွိေသးလဲလို့ အေျဖရေအာင္ေမးပါ။)**

What would be the **advantages** of feeding fish to your child for at least 3 days per week? (Write all responses below. Probe with "What else?")

(Perceived Negative Consequences)

5a. Doers: **အမရဲ့ကေလးကို အနဲဆံုး တပတ္ကို ၃ ရက္ေလာက္ ငါး ေကၽြးတဲ့အတြက္ဘယ္လို ဆိုးက်ိဳးေတြ ရသလဲ။**

What are the **disadvantages** of feeding fish to your child at least 3 days per week?

5b. Non-doers: **အမရဲ့ ၅ ႏွစ္ေအာက္ သားသမီးေတြကို အနဲဆံုး တပတ္ကို ၃ ရက္ေလာက္ ငါး ေကၽြးမယ္ဆိုရင္ ဘယ္လို ဆိုးက်ိဳးေတြ ရနိုင္မလဲ။/ (အေျဖအားလံုးကိုေရးပါ။ ေနာက္ဆာရွိေသးလဲလို႔ အေျဖရေအာင္ေမးပါ။)**

What would be the **disadvantages** of feeding your child fish at least 3 days per week? (Write all responses below. Probe with "What else?")

(Perceived Social Norms)

6a. Doers: **သင့္ကေလးကို အနဲဆံုး တပတ္ကို ၃ ရက္ေလာက္ ငါး ေကၽြးတာကို ဘယ္သူေတြက သင့္ကို ခြင့္ျပဳသလဲ။**

Who are the people that **approve** of you feeding/giving fish to your child for at least 3 days per week?

6b. Non-doers: **သင့္ကေလးကို အနဲဆံုး တပတ္ကို ၃ ရက္ေလာက္ ငါး ေကၽြးမယ္ဆိုရင္ ဘယ္သူေတြက သင့္ကို ခြင့္ျပဳမလဲ။ (အေျဖအားလံုးခ်ေရးပါ။ ဘယ္သူရွိေသးလဲဟု ဆက္ေမးပါ။)**

Who are the people that **would approve** of you feeding/giving fish for at least 3 days per week? (Write all responses below. Probe with "Who else?")

(Perceived Social Norms)

7a. Doers: အမရဲ့ ကေလးကို တပတ္ကို အနဲဆံုး ၃ ရက္ေလာက္ ငါးေကြးတာကို ဘယ္သူေတြက ခြင့္ျပဳဘူးလဲ။

Who are the people that **disapprove** of you feeding/giving your child fish at least 3 days per week?

7b. Non-doers: အမရဲ့ ကေလးကို တပတ္ကို အနဲဆံုး ၃ ရက္ေလာက္ ငါးေကြးမယ္ဆိုရင္ အဲဒီလိုေကြးဖို့ ဘယ္သူေတြက ခြင့္ျပဳဘူးလဲ။ (အေျဖအားလံုးခ်ေရးပါ။ ဘယ္သူရွိေသးလဲဟု ဆက္ေမးပါ။)

Who are the people that **would disapprove** of you feeding/giving your child fish for at least 3 days per week? (Write all responses below. Probe with "Who else?")

(Perceived Access)

8a. Doers: အမရဲ့ ကေလးကို တပတ္ကို အနဲဆံုး ၃ ရက္ေလာက္ ငါး ေကြးမယ္ဆိုရင္ ငါးရဖို့ ဘယ္ေလာက္အခက္အခဲရွိလဲ။ အရမ္းခက္ခဲသလား။ နည္းနည္းခက္ခဲသလား။ လံုးဝမခက္ခဲဘူးလား။

How difficult is it to get the fish for you to feed/give to your child for at least 3 days per week? Would you say it is very difficult, somewhat difficult or not difficult at all?

8b. Non-doers: အမရဲ့ ကေလးကို တပတ္ကို အနဲဆံုး ၃ ရက္ေလာက္ ငါး ေကြးမယ္ဆိုရင္ ငါးရဖို့ ဘယ္ေလာက္အခက္အခဲရွိမလဲ။ အရမ္းခက္ခဲမလား။ နည္းနည္းခက္ခဲမလား။ လံုးဝမခက္ခဲဘူးလား။

- ❑ a. **အရမ္းခက္ခဲတယ္**
- ❑ b. **နည္းနည္းခက္ခဲတယ္**

❑ c. **လံုးဝမခက်ခဲဘူး**

How difficult would it be to get fish for you to feed/give to your child at least 3 days per week? Would you say it is: Very difficult, somewhat difficult, not difficult at all?

- ❑ a. Very difficult
- ❑ b. Somewhat difficult
- ❑ c. Not difficult at all.

(Perceived Cues for Action / Reminders)

9a. Doers: အမရဲ့ကလေးကို တပတ်ကို အနဲဆံုး ၃ ရက်ေလာက် ငါး ေကြးရမယ်ဆိုတာ မွတ်မိဖို့ ဘယ်ေလာက်ထိခက်ခဲသလဲ။ အရမ်းခက်ခဲသလား။ နည်းနည်းခက်ခဲသလား။ လံုးဝမခက်ခဲဘူးလား။

How difficult is it to remember to feed/give fish to your child at least 3 days per week? Very difficult, somewhat difficult, or not difficult at all?

9b. Non-doers: အမရဲ့ကလေးကို တပတ်ကို အနဲဆံုး ၃ ရက်ေလာက် ငါး ေကြးရမယ်ဆိုရင် အဲဒီလိုလုပ်ဖို့ မွတ်မိဖို့ ဘယ်ေလာက်ထိခက်ခဲမလဲ။ အရမ်းခက်ခဲမလား။ နည်းနည်းခက်ခဲမလား။ လံုးဝမခက်ခဲဘူးလား။

- ❑ a. **အရမ်းခက်ခဲတယ်**
- ❑ b. **နည်းနည်းခက်ခဲတယ်**
- ❑ c. **လံုးဝမခက်ခဲဘူး**

How difficult do you think it would be to remember to feed/give fish to your child at least 3 days per week? Very difficult, somewhat difficult, or not difficult at all?

- ❑ a. Very difficult
- ❑ b. Somewhat difficult
- ❑ c. Not difficult at all.

(Perceived Susceptibility / Perceived Risk)

10. Doers and Non-doers: ေနာက် ၃ လအတြင်း အမရဲ့ကလေး မေျပာေကာင်းေျပာေကာင်း ေနမေကာင်းျဖစ်ႏိုင်ေျခ ရွိမယ်ထင်လား။ ျဖစ်ႏိုင်ေျခမ်ားသလား။ ျဖစ်ႏိုင်ေျခနည်းသလား။ ျဖစ်ႏိုင်ေျခမရွိဘူးလား။

❑ a. **ျဖစ်ႏိုင်ေျခမ်ား**

❑ b. ျဖစ္ႏိုင္ေျခနည္း

❑ c. ျဖစ္ႏိုင္ေျခမရွိ

How likely is it that your child get sick in the coming 3 months? Very likely, somewhat likely, or not likely at all?

❑ a. Very likely
❑ b. Somewhat likely
❑ c. Not likely at all

(Perceived Severity)

11. Doers and Non-doers: မေျပာေကာင္း ေျပာေကာင္း တကယ္လို႕ အမရဲ႕ ကေလး ေနမေကာင္းျဖစ္ယုံဆိုရင္ ဘယ္ေလာက္အထိ ျပင္းထန္ႏိုင္မလဲ။ အရမ္းျပင္းထန္မလား။ နည္းနည္းျပင္းထန္မလား။ လံုးဝမျပင္းထန္ဘူးလား။

❑ a. အရမ္းျပင္းထန္မယ္

❑ b. နည္းနည္းျပင္းထန္မယ္

❑ c. လံုးဝမျပင္းထန္ဘူး

How serious would it be if your child get sick? A very serious problem, somewhat serious problem, or not serious at all?

❑ a. Very serious problem
❑ b. Somewhat serious problem
❑ c. Not serious at all

(Action Efficacy)

12. Doers and Non-doers: အမရဲ႕ ကေလးကို အနဲဆံုး တပတ္ကို ၃ ရက္ေလာက္ ငါးေကၽြးရင္ ေနမေကာင္းျဖစ္ႏိုင္ေျခဘယ္ေလာက္ထိ ရွိမလဲ။ ျဖစ္ႏိုင္ေျခမ်ားသလား။ နည္းသလား။ လံုးဝမျဖစ္ႏိုင္ဘူးလား။

❑ a. ျဖစ္ႏိုင္ေျခမ်ား

❑ b. ျဖစ္ႏိုင္ေျခနည္း

❑ c. ျဖစ္ႏိုင္ေျခမရွိ

How likely is it that your child will get sick if you feed/give fish at least 3 days per week? Very likely, somewhat likely, not very likely?

- ❑ a. Very likely
- ❑ b. Somewhat likely
- ❑ c. Not likely at all

(Perception of Divine Will)

13. Doers and Non-doers: အမရဲ့ ကေလး ေနမေကာင္းျဖစ္တာ ဘုရားအလိုေတာ္ ဒါမွမဟုတ္ နတ္ဆိုး ဒါမွမဟုတ္ ကံတရားေၾကာင့္လို့ ထင္လား။

- ❑ a. **ထင္တယ္**
- ❑ b. **မထင္ဘူး**
- ❑ c. **ျဖစ္ႏိုင္တယ္**

Do you think that **God or Evil Spirit or Karma** cause your child to get sick?

- ❑ a. Yes
- ❑ b. No
- ❑ c. May be

(Culture)

14. Doers and Non-doers: အမရဲ့ ကေလးကို အနဲဆံုး တပတ္ကို ၃ ရက္ေလာက္ ငါး ေကၽြးတာကို တားျမစ္ထားတဲ့ ဓေလ့ထံုးစံေတြ (ဒါမွမဟုတ္) ယံုၾကည္မွဳေတြ ရွိလား

- ❑ a. **ရွိတယ္**
- ❑ b. **မရွိဘူး**
- ❑ c. **ရွိႏိုင္တယ္**

Are there any cultural rules or taboos against feeding/giving fish to your child at least 3 days per week?

- ❑ a. Yes
- ❑ b. No
- ❑ c. May be

အခု ငါးစားတာနဲ့ မဆိုင္တဲ့ေမးခြန္းတစ္ခုကို ေမးမယ္ေနာ္။

[Now I am going to ask you a question unrelated to fish consumption.]
(Universal Motivators)

15. Doers and Non-doers: သင့္ဘဝတြင္ အၿဖစ္ခ်င္ဆံုး ဆံုးၿဂတစ္ခုကဘာလဲ။
What is the <u>one</u> thing that you desire most in life?

THANK THE RESPONDENT FOR HER TIME!