



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

Rapid Assessment of Contextual Needs to Target Social and Behavior Change Approaches

USAID Advancing Nutrition India's human-centered design approach to understanding community perceptions on the importance of producing and consuming diverse, nutritious foods



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About USAID Advancing Nutrition

USAID Advancing Nutrition is the Agency's flagship multi-sectoral nutrition project, led by JSI Research & Training Institute, Inc. (JSI), and a diverse group of experienced partners. Launched in September 2018, USAID Advancing Nutrition implements nutrition interventions across sectors and disciplines for USAID and its partners. The project's multi-sectoral approach draws together global nutrition experience to design, implement, and evaluate programs that address the root causes of malnutrition. Committed to using a systems approach, USAID Advancing Nutrition strives to sustain positive outcomes by building local capacity, supporting behavior change, and strengthening the enabling environment to save lives, improve health, build resilience, increase economic productivity, and advance development. This project contributes to the goals of the U.S. Government's Feed the Future initiative by striving to sustainably reduce hunger and improve nutrition and resilience.

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Executive Summary

Study Objective

USAID Advancing Nutrition conducted social and behavior change (SBC) formative research in the three intervention districts of Tinsukia, Goalpara, and Barpeta in Assam to inform the project's SBC activities. The objective of the study was to understand the factors affecting the target population, including women and adolescent girls, from adopting key nutrition-sensitive agriculture (NSA) and diet-related behaviors, as well as to receive input on preferred activities for addressing the identified factors. The research encouraged participants to reflect on historically successful methods for inspiring nutrition-related behavior change. Additionally, the research was intended to result in the prioritized behaviors for USAID Advancing Nutrition.

Key Research Questions

1. What are the community perceptions on producing and consuming diverse, nutritious foods?
2. What are the preferred, trusted, or recommended methods for inspiring nutrition-related behavior change?

Methodology

Study design

USAID Advancing Nutrition used a qualitative, cross-sectional research design. Specifically, we used focus group discussions (FGDs), employing methods from human-centered design (HCD) research to understand the current status of NSA behaviors among women in the community, as well as other diet-related behaviors; understand the factors contributing to behavior change; prioritize behaviors; and identify potential solutions to address the barriers and opportunities.

Sampling and data collection

USAID Advancing Nutrition conducted FGDs in the three districts of implementation. We sampled from two blocks within each district and randomly selected the villages for the FGDs, keeping in mind the fact that the diverse communities are to be covered through the process.¹ For the FGD participants, we sampled from the women self-help groups (WSHGs) and Voluntary Organizations (VOs), which are the primary target groups for the USAID Advancing Nutrition project. Furthermore, we aimed to build a representative sample of the target project participants and, therefore, sampled women of reproductive age, as well as those from various living standards (average, poor, and very poor). To understand male perspectives, we sampled men who have family members who are WSHG members. A total of 22 FGDs were conducted in July–August 2022, including 6 in Barpeta, 8 in Goalpara, and 8 in Tinsukia. USAID Advancing Nutrition's local implementing partner, SeSTA, completed the data collection. The research team was trained on the FGD questionnaire ahead of data collection.

Findings

¹ Diverse community: tribal, tea garden and non-tea garden community, minority population

Prioritized Behaviors

Following HCD best practices, USAID Advancing Nutrition aimed to identify behaviors that the project participants feel are most important to improve their agricultural production and incomes for improved household nutrition. Using a group voting exercise, the FGD participants selected the following two behaviors. Therefore, USAID Advancing Nutrition will prioritize SBC activities that aim to address these behaviors. We will also integrate findings related to other important behaviors, such as improved intrahousehold allocation of food, into our other NSA and SBC program activities.

- Men and women (or households) make joint decisions about household assets.
- Women grow nutrient-dense vegetables, fruits, or fish for household consumption and sales, employing improved practices.

Research Question 1

The formative research illuminated several patterns regarding community perceptions on the production and consumption of diverse, nutritious foods. First, numerous perceived barriers are impacting women's productivity and income in the horticulture and aquaculture sectors. Significant gender dynamics and social norms, such as perceptions about women's role in agriculture, women's ability to make decisions related to production and marketing, and women's time burdens, affect their meaningful participation. Other barriers to increased productivity and profits go beyond gender dynamics, including perceived low levels of knowledge and self-efficacy for implementing good agricultural practices, little access to information, low access to quality inputs, limited availability of land, and financial constraints. For the consumption of diverse, nutritious foods, findings highlight that households prefer to consume foods that are locally available, specifically from their own production; are affordable, and provide the required energy and nutrients. For example, rice and roti (flatbread) are commonly consumed because FGD respondents perceive them as important energy-providing foods for daily activities. A lot of locally produced nutrient-rich foods are perceived as healthy and desirable, such as fish and dark green leafy vegetables. There are perceptions that women and adolescent girls require less food than men and boys, both in terms of quantity and quality. Men and other influential people, like mothers-in-law, hold these social norms.

Research Question 2

Our research aimed to unearth the preferred, trusted, and recommended methods for inspiring nutrition-related behavior change to better design our NSA and SBC activities. For NSA-related behaviors, FGD respondents highlighted four main solutions to increase their productivity and incomes for improved nutrition: training on horticulture and aquaculture to address perceived low levels of knowledge; increasing access to productive resources, such as financial services and mechanization services; increasing access to end markets by facilitating connections with buyers and promoting producer groups; and increasing women's meaningful participation in agricultural activities by addressing gender and social norms with SBC activities. For consumption related behaviors, including increasing consumption of nutritious foods from own production, FGD respondents recommended integrating nutrition messages in NSA trainings and to conduct community awareness and media-based activities, such as cooking demonstrations, informational videos, and wall murals that demonstrate target

behaviors. Additionally, for improving joint decision making among spouses, FGD respondents suggested the following approaches: community sensitization activities on the importance of the behavior, modeling and sensitization by important community leaders, like trusted religious leaders, and activities to increase women's empowerment and incomes, such as agricultural production activities.

Next Steps

The formative research unearthed valuable findings that the USAID Advancing Nutrition India project needs to consider for its NSA and SBC activities. In early 2023, the project will complete the two following strategies, which will further articulate the final strategies and activities: USAID Advancing Nutrition India SBC Strategy and Gender in Nutrition-Sensitive Agriculture and Dietary Diversity programming in Assam—a Strategy.

Study Overview

Background and Country Context

USAID Advancing Nutrition in India

USAID Advancing Nutrition in India provides technical assistance to government and public sector partners in Assam to demonstrate the potential for community-led NSA to achieve our goal of improving diets while engaging with potential private sector partners to identify pathways for sustainable, scalable actions. We implement activities under three specific objectives:

- Strengthen women-led NSA practices and business opportunities.
- Strengthen partnerships among multi-sectoral and multi-interest nutrition stakeholders to implement NSA activities.
- Document lessons learned and best practices and disseminate through a learning platform.

Nutrition Situation in India

Despite considerable economic progress in recent decades, 189.2 million people in India are undernourished (FAO 2020). The Global Hunger Index 2021 ranks the country as 101 among 116 countries, placing it at the level of “serious’ hunger” (von Grebmer et al. 2021). In 2020, findings from the fifth National Family Health Survey showed an increase in stunting among children under 5 years old in 13 of 22 states and union territories reported through December, as well as an increase in wasting in 12 of 22 states and union territories (Chatterjee 2021). The Indian Women and Child Development Ministry estimated 927,606 children from 6 months to 6 years were “severely acute malnourished” across the country, up to November 2020 (NDTV 2021). Plausible reasons for the declines in progress include worsening economic and socioeconomic conditions, which likely impact livelihoods (Chatterjee 2021). The COVID-19 pandemic is expected to worsen food security and nutrition globally, even in countries such as India that have made considerable economic progress.

Nutrition-Sensitive Agriculture for Improving Diets, Nutrition, and Economic Opportunities

Early evidence suggests that the COVID-19 pandemic has exacerbated malnutrition and worsened socioeconomic conditions, particularly among women. Some reports suggest declining food diversity, decreased food intake, and periodic episodes of missed meals. According to a recently published report, 90 percent of households surveyed reported reduced food intake during the national lockdown last year, and even six months later, about 20 percent still reported a similar trend (Azim Premji University 2021). Data also suggests that COVID-19 is having a prolonged impact on rural communities through lost livelihoods and economic opportunities. A sharp increase in unemployment in rural areas through May 2021 is thought to signal a further loss of employment (Vyas 2021).

NSA offers dual pathways to improve diets and nutrition through activities that increase diverse, nutritious foods for consumption and economic opportunities that increase income for purchasing diverse, nutritious foods. Evidence suggests that NSA, particularly in the Indian context, can provide a

pathway to improve diets and nutrition through a convergence of activities to strengthen production approaches and behaviors that guide intrahousehold distribution and consumption of foods, especially among women and children (Pingali and Abraham 2019). The utilization of SBC within NSA diet promotion activities can help improve the relevance of the activities by understanding the key factors that support or deter target behaviors and considering these factors when designing the activities. Therefore, USAID Advancing Nutrition conducted the SBC formative research.

Study Objectives

The objective of this study was to understand community perceptions of the importance of consuming diverse, nutritious foods, as well as other nutrition-sensitive behaviors, and the preferred and historically successful methods for inspiring nutrition-related behavior change to design SBC approaches to increase the adoption of priority behaviors. We aimed to identify the factors that prevent and support behaviors, as well as the actors who can help address these factors, in order to inform the SBC approaches. Additionally, the research intended to prioritize the behaviors that USAID Advancing Nutrition should emphasize in its SBC activities, using a HCD approach and relying on program participants to select the behaviors most important to them.

The findings will aid in the design of the NSA trainings and the project's SBC activities aimed at increasing the adoption of the target nutrition-sensitive behaviors. Further, given the use of HCD methodologies in the research, the project was able to identify activities and approaches that already have buy-in by the target project participants.

Key Research Questions

1. What are the community perceptions on producing and consuming diverse, nutritious foods?
2. What are the preferred, trusted, or recommended methods for inspiring nutrition-related behavior change?

Methodology

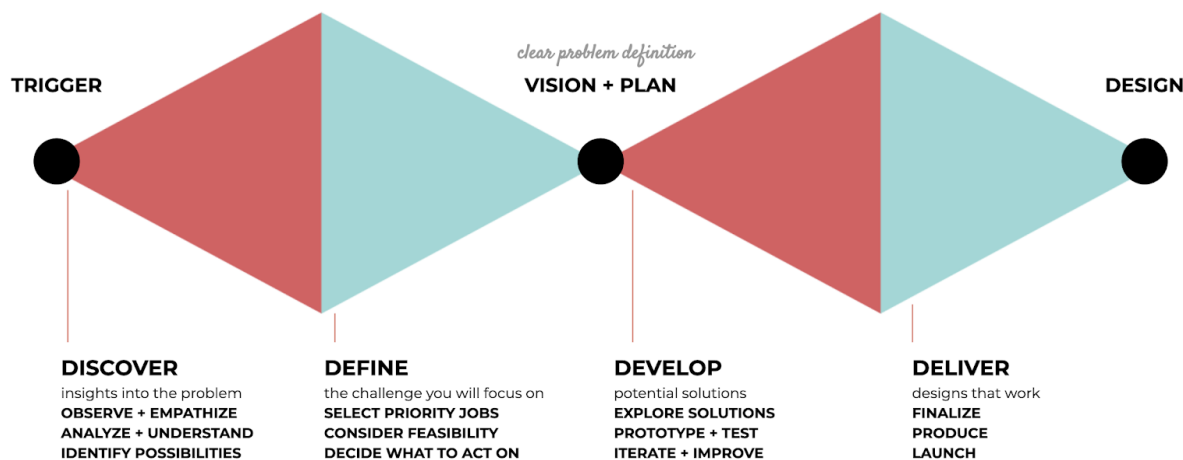
Study Design

The formative research was qualitative and used a cross-sectional design to achieve the study objectives described earlier. FGDs were used as the data collection method, and the study consisted of a series of modules that went through the four phases of HCD. As this was a rapid assessment, the discover, define, develop, and deliver phases of HCD were combined and implemented in the initial series of FGDs.

Human-Centered Design

HCD “is a set of evolving processes and tools—a structure that helps people think differently about problems and collaboratively generate solutions.” HCD is used to design a “new or better process, system, program, intervention, service, or product through a series of choreographed experiences—individual and shared conversations, observations, and workshops—as part of analytic and change efforts.” (Prefontaine 2019). As seen in Figure 1, HCD has four phases:

Figure 1: HCD Process



Data Collection Tools and Methods

As previously mentioned, we used FGDs as the data collection method. The FGDs were conducted by our local implementing partner, SeSTA, who were previously trained on the study design and methodology. The FGDs consisted of seven sections, which were aimed at understanding the current status of the behaviors, including NSA and diet-related behaviors, prioritizing behaviors that were most important to the FGD participants, understanding the factors of behavior change, and designing solutions to address the identified factors:

- Section A: A Typical Day: Roles and Responsibilities of Women and Men (HCD: Discover and Define)
- Section B: Food Consumed and Agriculture Activities (HCD: Discover and Define)
- Section C: Prioritizing Behaviors (HCD: Define)
- Section D: Factors (HCD: Discover and Define)
- Section E: Supporting Actors and Actions (HCD: Define)
- Section F: Potential Solutions and Activities (HCD: Define)
- Section G: Wrap-Up

Sampling

Sampling of villages and participants

USAID Advancing Nutrition sampled from the three target districts of the project in Assam: Barpeta, Goalpara, and Tinsukia. We selected the blocks within the districts based on where USAID Advancing Nutrition is implementing and depending on differences in ethnic groups, ensuring we were able to

capture different voices from within the implementation area. The research was conducted in two interventions blocks within each district, depending on these ethnic differences. Within the blocks, the villages for the FGDs were selected randomly from the districts. For sampling of the FGD participants, we primarily selected women from the WSHGs and VOs, who are the primary target groups for the USAID Advancing Nutrition project. We aimed to build a representative sample of the target project participants; therefore, we sampled WSHG and VO members who were above 18 years of age from various living standards (average, poor, and very poor). Given the importance of understanding male perceptions, we also conducted FGDs with men who have family members who are WSHG members. Below is the final breakdown of FGDs conducted across the three districts.

- **Total:** A total of 22 FGDs were conducted, including 6 in Barpeta, 8 in Goalpara, and 8 in Tinsukia (14 with women and 8 with men).
- **Barpeta:** A total of three FGDs per block were conducted: two with women and one with men. There are two project intervention blocks, resulting in a total of six FGDs conducted: four with women and two with men.
- **Goalpara:** Considering the presence of diverse ethnic groups in the community, which includes tribal and marginalized populations, four FGDs per block were conducted: three with women and one with men. The three FGDs with women were conducted with Muslim, Bodo, and Garo community members; the one FGD with men included representatives from all the ethnic groups. There are two project intervention blocks, resulting in a total of eight FGDs conducted: six with women and two with men.
- **Tinsukia:** USAID Advancing Nutrition has target populations that belong to tea garden estates, as well as those working outside of the tea gardens. Considering the differences between these groups, FGDs were conducted covering both community types. Thus, in a block, there were four FGDs (two with non-tea garden and two with tea garden communities, covering women and men separately). There are two project intervention blocks, resulting in a total of eight FGDs: four with women and four with men.

Findings

The following sections articulate the findings from the SBC formative research. We present three sections: food habits, agriculture and horticulture practices, and prioritized behaviors, factors, and supporting actors. Throughout the presentation of the findings, we present potential recommendations for the SBC and NSA activities. However, further articulation and elaboration of the activities will be presented in the forthcoming USAID Advancing Nutrition India SBC Strategy.

Food Habits

Through the study, an attempt was made to understand the food habits, especially for women, adolescents, and children. In the FGDs, we introduced picture cards of food items to be prioritized by the respondents in an order that depicted their consumption preference. The picture cards consisted of staple food items, such as roti and rice, locally produced fruits and vegetables, and purchased foods,

including packaged foods, dairy products, oils, and legumes. The following findings provide insights into what people frequently consume and why, as well as how those food habits change across demographics within the household.

Overall findings from all three districts

Highly preferred foods across the districts, per the FGDs, include rice, locally available vegetables and fruits, legumes, packaged foods, and some animal-source foods. Overall, rice is the most widely consumed food in the community. FGD respondents noted a wide range of fruits and vegetables as preferred foods. These fruits and vegetables were primarily produced locally, including brinjal (dark green leafy vegetable), radish, cucumber, pumpkin, gourds, banana flower and its stem, okra, papaya, jackfruit, Indian gooseberry, star fruit, guava, banana, and lemon. Interestingly, children are often served fruits purchased from the market, not locally produced fruits, as fruits from the market are often perceived to be higher quality. Though desired, legumes are not regularly consumed, as the prices are too high for community members. For animal-source foods, FGD respondents noted consuming fish almost daily in the form of the dried fish, pickled fish, or fish paste that is used to season foods. Fish in larger quantities is consumed regularly by households that partake in aquaculture activities. In some communities, fish and dried fish are not given to adolescent girls and children, as people believe that it may be bad for their livers or gallbladders or that the children may accidentally consume bones. Given the high prices and households' low purchasing power, prawns are rarely consumed. Chicken and pork are the preferred meat options, though these primarily consumed within tribal communities. Across the FGDs, respondents shared that children and adolescents prefer packaged food items because they are tasty and easily accessible. Most women and adolescents don't consume dairy items, such as milk, and prefer to give them to children. Tea and puffed rice are highly preferred snacks in the communities.

Food habits from Barpeta district

Women frequently consume the following foods, in order of most to least frequent: rice/roti, vegetables, green leafy vegetables, oils and fats, cereals, pulses (dal), fish and potatoes, meat, milk and eggs, dry fish, local fruits, prawns, and packaged foods and fruits. For breakfast and lunch, they eat rice with vegetables and dal. The reason given for eating these foods frequently is that rice and vegetables provide energy to work for the whole day and other nutritious food items cannot be consumed due to high cost. The main sources of animal-source protein are fish and meat. Fish is consumed two to three times a week. FGD respondents noted the desire to increase their fish consumption but cited availability and price issues, which they thought could be alleviated by local aquaculture production. Some FGD respondents noted their household consumes meat twice a month, while others noted they consume meat twice a week. The main barrier to consuming meat more frequently is the high price. To manage household expenditure, costly food from markets is provided to children, and the homestead garden is the main source of fruits and vegetables, especially for women. Women like to eat green leafy vegetables when they are available in the homestead garden and believe that green leafy vegetables provide vitamins. Women do not consume fruits purchased from markets because they are not affordable, but will give these fruits to their children.

These consumption patterns differ slightly for adolescent girls and children 6–23 months. During the FGDs, women shared that adolescent girls consume the following foods, in order of most to least

frequent: rice, ultra-processed packaged foods, local fruits, potatoes, cereals and pulses, meat, oils and fats, vegetables, green leafy vegetables, fruits, milk and eggs, prawns, fish, and dry fish. FGD respondents noted that adolescent girls find packaged foods tastier and prefer them over food prepared at home. In one of the blocks, women responded that adolescent girls do not consume dry fish and fish because they can cause liver issues.

According to the FGDs, children are given the following foods, in order of most to least frequent: milk and eggs, other fruits, cereals and pulses, green leafy vegetables, rice/roti, potatoes, processed food, other vegetables, locally available fruits, meat, oils and fats, fish, prawns, and dry fish. Respondents shared that right after children are given solid foods, they want packaged foods. Women believe that cereals, vegetables, and local fruits provide energy to children, while eggs and milk provide vitamins. Some women shared that children like packaged foods and they often give these to children, as packaged foods less. A few FGD respondents noted that roti, fish, prawns, dry fish, oils and fats, meat, packaged food, and some local fruits are not given to the children because of perceptions that they are not healthy or that children are not able to properly digest them. Overall, FGD respondents noted that, due to low food purchasing power, they do not feel like they are able to provide a sufficient quantity of nutritious foods to their children.

Food habits from Goalpara district

Women frequently consume the following foods, in order of most to least frequent: rice, milk and eggs, other vegetables, green leafy vegetables, locally available fruits and meat, pulses and cereals, oils and fats, fish, potatoes, other fruits, dry fish, prawns, and packaged food. Similar to Barpeta district, rice is the most preferred food. Women from the Boro community shared that they start the day consuming rice with sidol fish paste (a kind of dried fish). They typically consume fish and meat around once per week. Apart from the fish paste, households typically do not consume fish. The FGD respondents noted that they would consume fish more frequently if they partook in aquaculture. Women commonly consume vegetables because they are more readily available from home production. Some local food traditions related to consumption of local fruits exist, such as eating jackfruit leads to gastritis, so women do not consume jackfruit.

These consumption patterns differ slightly for adolescent girls and children 6–23 months. During the FGDs, women shared that adolescent girls consume the following foods, in order of most to least frequent: rice/roti, milk and eggs, pulses and cereals, other vegetables, other fruits, oils and fats, locally available fruits, green leafy vegetables, meat, potato, fish, dry fish, and processed food. In the Boro community, women shared that girls in their villages take primarily consume rice and roti at home, and do not like to consume fruit, fish, or meat. FGD respondents also noted that girls prefer to eat packaged foods, which they find to be tasty and consequently eat more frequently. These patterns change slight in minority communities, where girls consume more vegetables/green leafy vegetables. Women from the Rabha community shared that vitamins and proteins are vital during the menstrual cycle; hence, vegetables/green leafy vegetables are important for adolescent girls. There is a perception that fruits that are available in the market are chemically ripened, so these are not given to girls. There is also a perception that potatoes, fats, and oils should not be given to adolescent girls because it might increase their weight.

Children 6–23 months are frequently given the following foods, in order of most to least frequent: milk and eggs, staple food, other fruits, pulses and legumes, other vegetables, green leafy vegetables, meat, locally available fruits, potatoes, oils and fats, fish, prawns, dry fish, and processed food. In the Boro community, women shared that children eat locally produced fruits, but continuous intake does not occur due to seasonality. Children under two consume less fish because of fish bones and a fear that they can't digest the fish properly. Additionally, children are restricted from having meat and fish more than once a week due to affordability issues and beliefs that they may get worm infestations if they eat fish and meat more often. FGD respondents from the Garo community noted that eggs should not be given frequently to children because eggs are bad for their livers.

Food habits from Tinsukia district

Rice is the most commonly eaten food in both tea garden and non-tea garden communities. Vegetables are given less to the children. Potato consumption is less preferred in the community. Consumption of locally available fruits is less common among children and adolescents, compared to that of fruits available at markets. Consumption of fish is less. Prawns and fish are not given to girls and children, due to beliefs about liver issues and inability to adequately digest these foods. Consumption of leafy vegetables among women and adolescent girls in the tea garden community is less than in the non-tea garden communities.

Identified barriers and approaches for increasing consumption of preferred foods

In line with HCD approaches, the research team asked the FGD respondents what could be done to increase their consumption of the preferred foods. The following table presents the ideas raised by the FGD participants. Please see the following two sections, including Agriculture and Horticulture Practices and Prioritized Behaviors, Factors, Supporting Actors, for more specific solutions to production and consumption-related behaviors.

Table 1: FGD Identified Solutions to Increase Consumption of Preferred Foods

Identified Barriers	FGD Identified Solutions to Address Barriers
Local agricultural productivity for preferred foods is not sufficient	Overwhelmingly, respondents noted a need to increase their own productivity in order to be able to consume preferred foods more frequently. Specifically, they noted that they could increase agricultural productivity by increasing knowledge of good agricultural practices, increase access to inputs and productive resources, and increase access to land. Agricultural productivity is further covered in the next section.
Households have low food purchasing power	Respondents noted that they need to increase their incomes in order to be able to afford preferred foods. Ideas for increasing incomes were increasing agricultural productivity by addressing the aforementioned barriers and by diversifying agricultural activities to include livestock and cash crops, like nuts and seeds.

Agriculture and Horticulture Practices

Given the focus of the project, we investigated the current practices in horticulture and aquaculture production and marketing, as well as the barriers and opportunities to increase productivity and incomes. During the FGDs, it was evident that prevalent household gender dynamics and social norms affect women's meaningful participation in livelihood development activities. These patterns are presented throughout this section, but particularly in the male perspective on gender roles in agricultural activities subsection.

Barriers to increased productivity and incomes from agriculture

Overall, women face significant barriers across the districts to meaningfully participate in agricultural activities and increase their productivity and incomes. First and foremost, gender norms within the districts often limit women's participation in income-generating activities, as men and other important influencers believe women are responsible for household chores, unable to perform all of the necessary agricultural practices, and are often unable to access and/or decide how/when to invest in their agricultural activities. Specifically, the female FGD respondents noted that they do not have time to engage in agricultural activities, as they spend a significant amount of their day completing household chores. Furthermore, women often aren't involved in marketing, as that is seen as a man's role. Only a few women FGD respondents noted they are involved in marketing activities. Specifically, in some tribal and tea garden communities, women do go to the market to sell produce, but they are typically accompanied by men. Nonetheless, the distance to the market as well as the time of day for marketing (typically evening) are barriers to marketing.

Other barriers to increased productivity and profits that go beyond gender dynamics include low levels of knowledge and self-efficacy for implementing good agricultural practices, little access to information, low access to quality inputs, limited availability of land, and financial constraints. Female FGD respondents noted they do not feel they have the necessary knowledge on good agricultural practices and that they haven't been the recipients of agriculture-related trainings, which men have. They noted they do not use organic fertilizer and other inputs, due to lack of knowledge and proper training, and that they don't have access to other necessary services and inputs, such as irrigation. They also perceive that locally available seeds supplied from the government and by local farmers do not bear fruit and/or are prone to getting damaged at a very early stage. FGD respondents also noted issues regarding soil fertility, which affects the productivity of fruits and vegetables. Limited access to the amount of land needed for horticulture and aquaculture was noted across the three districts. For example, FGD respondents in the tribal and tea garden areas have land spacing issues that prevent productive aquaculture activities, as most households do not have space to dig a pond, resulting in less pond aquaculture. FGD respondents highlighted that households lack productive resources needed to invest in their agricultural activities, such as purchasing fertilizer and other inputs, as well as labor required to dig ponds for aquaculture. A few FGDs noted that the cost of inputs has increased since the start of the COVID-19 pandemic.

Male perspective on gender roles in agricultural activities

The male FGDs illuminated a lot of the same patterns unearthed in the female FGDs related to gender dynamics and social norms. Across communities, the perception is that agricultural activities, including the production and sale of commodities, should be done by men. Men perceive that women don't have the time and necessary skills to produce enough to bring a profit to the family that is worth her time away from household chores. A prevalent perception among the male members of the community is that women have less knowledge about production and marketing activities. For example, for aquaculture men believe that women cannot prepare the pond for production of fish, properly feed the fish, or manage the pond, as women are engaged in household chores and lack the necessary knowledge. Findings from the male FGDs highlight that men often think that WSHGs are nonproductive and do not provide a true benefit to their household. Additionally, the male respondents note that women are considered to be physically weak compared to men and, therefore, have difficulty completing some of the agricultural activities, such as operating fertilizer machinery.

Identified approaches for improving aquaculture and horticulture production and marketing

During the FGDs, our research team aimed to understand how the USAID Advancing Nutrition project can support the target populations in overcoming the identified barriers to increased productivity and marketing. The following table presents the ideas raised by the FGD participants to address the identified barriers. Please note, some of approaches are within the scope of USAID Advancing Nutrition, while others are not. For example, training related to improved production for horticulture and aquaculture are within the scope of the project; however, activities related to financial resources are not. The selected SBC strategies will be presented in the USAID Advancing Nutrition India SBC Strategy. Additionally, considering the extensive influence of gender dynamics and social norms that need to be considered in programming, USAID Advancing Nutrition will develop a Gender in Nutrition-Sensitive Agriculture and Dietary Diversity programming in Assam—a Strategy in FY23.

Table 2: FGD Identified Solutions to Improved Productivity and Incomes

Identified Barriers	FGD Identified Solutions to Address Barriers
Necessary knowledge and skills related to aquaculture and horticulture	FGD respondents heavily emphasized the importance of training on horticulture and aquaculture. Additionally, they stressed the importance that training modules are adapted to fit their context and noted that most trainings target commercial producers who have greater land ownership. Identified subcomponents of training for aquaculture include pond preparation (selecting the right fish varieties, cleaning, liming and correcting water pH level) and feed and disease management. For horticulture, FGD respondents noted needing training on the use of improved seeds (seed selection, seed sorting, and treatment), planting/soil preparation (nursery bed preparation, sapling and soil treatment), layout design, irrigation, plant health (including integrated pest and disease management), use of pesticides, preparation of organic pesticides, and use of fertilizers.

<p>Access to productive resources</p>	<p>FGD respondents in all communities noted that the lack of and/or access to productive resources hinders their productivity. Specifically, access to financial resources, like credit and loans, is required for households to invest in livelihood activities, such as establishing ponds. Additionally, respondents noted issues with accessibility or availability of these inputs are barriers to production. Solutions to address these barriers identified in the FGDs include increasing linkages between financial service providers, WSHGs, community members, mechanization service providers, and female producers to increase access to mechanization services.</p>
<p>Access to markets</p>	<p>FGD respondents noted they don't have access to markets to sell their goods. Respondents noted they need increased access to markets, either by developing linkages with buyers in the village and producers at one community entry point, via established WSHGs, or by establishing producer groups.</p>
<p>Social norms and household gender dynamics</p>	<p>Social norms and household gender dynamics negatively affect women's meaningful participation in agriculture and livelihood development activities. Potential opportunities highlighted by FGD respondents included changing the gender perceptions and norms around women's involvement in agriculture through sensitization of Panchayati Raj Institution members to create an enabling environment for recognizing women's involvement in household agricultural practices and generating awareness in the community on equal engagement of men and women in agriculture practices and making joint decisions on agriculture assets.</p>

Prioritized Behaviors, Factors, Supporting Actors

Behavior Prioritization

One of the study's research questions sought to identify the preferred, trusted, or recommended methods for inspiring nutrition-related behavior change. The foundation of behavior change programming is the behavior that needs to be changed and the actor/person (or group of actors/people) who need to adopt that behavior. There are countless behaviors and a variety of actors that can play a role in improving nutrition. Often programmers assume that focusing on more behaviors will increase chances of improving nutrition. In reality, this approach depletes resources, sacrifices quality, overwhelms actors and is less likely to lead to sustainable change (Packard 2018). Therefore, prioritizing behaviors and methods for inspiring behavior change is critical. Considering this, the USAID Advancing Nutrition team compiled an initial list of 17 globally recognized and evidence-based behaviors that align with the goals of the USAID Advancing Nutrition India scope of work (see Annex 1) (USAID Advancing Nutrition

2020, 2022). However, remaining cognizant of the duration and scope of the USAID Advancing Nutrition project and the resources required to design and implement interventions, the team used local partners to further narrow this list to include five behaviors: 1) men and women (or households) make decisions about household assets jointly; 2) households equitably distribute food to women/girls; 3) pregnant women eat sufficient quantities of food at appropriate frequencies; 4) women grow nutrient - dense vegetables or fruits or fish for household consumption and sales, employing improved practices; 5) women earn agriculture income to improve diets and nutrition outcomes for mothers and children.

FGD Respondents' Prioritized Behaviors

During the FGDs, the research team facilitated the prioritization of two behaviors. Each of the 22 FGD groups voted on their top two priority behaviors that they thought would have the greatest contribution to improving diets and nutrition in their community. Following the tallying across the 22 FGDs (shown in Table 3) our research team identified the top two prioritized behaviors from across the FGDs:

- Men and women (or households) make joint decisions about household assets.
- Women grow nutrient-dense vegetables, fruits, or fish for household consumption and sales, employing improved practices.

Table 3: Tally of Behavior Prioritization by FGD Respondents²

District	Households equitably distribute food to women/girls.	Men and women (or households) make joint decisions about household assets.	Pregnant women eat sufficient quantities of food at appropriate frequencies.	Women earn agriculture income to improve diets and nutrition outcomes for mothers and children.	Women grow nutrient dense vegetables, fruits, or fish for household consumption and sales, employing improved practices.
Barpeta	1	2	3	3	3
Goalpara	6	8	1	0	1
Tinsukia	1	6	4	0	5
Total	8	16	8	3	9

Behavior Profiles: Factors, Supporting Actors, and Possible SBC Approaches

In addition to identifying behaviors, the respondents identified the factors or elements within or beyond their immediate sphere of control or influence that affect their ability to perform the two behaviors effectively. They also identified the supporting actors who can support or guide the action of others to

² Each FGD voted for their two preferred behaviors for prioritization. Each vote provides one count in the tallying in the table. For example, for the behavior “men and women (or households) make joint decisions about household assets” there were 16 FGDs that selected the behavior as one of their two, preferred behaviors.

make a considerable impact, as well as possible SBC approaches. Presented below in the tables are the factors, supporting actors, and possible SBC approaches, as identified by the FGD respondents, for the two prioritized behaviors.

Behavior Profile #1: Men and women make joint decisions about household assets

Table 4: Behavior Profile #1 - Men and women make joint decisions about household assets³ – a behavioral analysis

Factors <i>(that make it easier or more difficult for men and women to make joint decisions about household assets)</i>
<p><u>Social and Gender Factors</u></p> <ul style="list-style-type: none">• Most women have mobility restrictions (e.g., going to the market) and do not have freedom to invest time/resources in income-generating activities.• Women feel that the men in the community are dominant and are not ready to listen to their views.• Traditionally, women are responsible for household work and men are responsible for decisions such as earning and spending assets.• If women participate in decision-making and the decision is later found to be unfit, they are reprimanded in front of the whole family, even community.• Men frequently overindulge in alcohol, so women are apprehensive about discussing important matters, as it can lead to conflict.• Only in elderly families do both men and women make joint decisions.
<p><u>Attitudes, Beliefs, and Knowledge</u></p> <ul style="list-style-type: none">• The perception of men and women is that women have less knowledge, confidence, and skills pertaining to economic opportunities (e.g., price of input, business set up, investing and machinery), so women are not consulted for decisions on importance matters.• Women feel that men's decisions about spending money or managing/using assets related to agriculture and aquaculture are most valued because men are permitted to move outside the household more frequently than women.• Belief that promoting joint decision-making within the household will increase the income and savings of the household, however, may also lead to increased conflict and quarrel within the family and the community.
Supporting Actors <i>(who can help reduce the factors that make it difficult to practice the behavior and who can be used to leverage factors that enable behavior adoption)</i>
<ul style="list-style-type: none">• Husbands are valued by the women, as they too feel that men know better because they are involved more in the business.• Male peers and elderly community members with business experience are trusted by other men.• Village headmen can play a pivotal role, as village people listen to them.

³ Asset: Land, agricultural products, housing, businesses, livestock, or financial assets, such as savings, credit, wage or self-employment, and income

- **Frontline workers**, such as Accredited Social Health Activist (ASHA) and Anganwadi Worker (AWW), also play an important role in motivating the community and promoting behavior change, as they have done traditionally for issues pertaining to Integrated Child Development Services and health.

Possible SBC Approaches *(from the perspective of the respondent that may should be implemented to address the factors and partner with supporting actors to encourage sustained behavior change)*

- Develop programs **involving both men and women** that focus on explaining the importance of involving women in asset creation and decision-making.
- Prepare materials like posters and banners so that the **community/family members encourage involvement and creation of more economic opportunities for women** and appreciate equal opportunities for both genders.
- **Demonstrate joint decision-making** through video and photo documentation.
- Campaign to highlight that **women’s contribution to decisions are more valuable than their mistakes.**
- **Train women** to improve their knowledge on agriculture-based activities, asset creation, and management.

Behavior Profile #2: Women grow nutrient-dense vegetables, fruits, or fish for household consumption and sales, employing improved practices

Table 5: Behavior Profile #2 - Women grow nutrient-dense vegetables, fruits, or fish for household consumption and sales, employing improved practices – a behavioral analysis

Factors *(that make it easier or more difficult for women to grow nutrient dense vegetable, fruits, or fish for household consumption and sales, employing improved practices)*

Access

- Many families have little land, making it difficult to yield enough produce to be consumed by the entire family *and* have enough production for sales.
- Women are mostly not aware of how to obtain inputs, the cost of inputs, or loans for inputs.
- Most women have mobility restrictions (e.g., going to the market) and do not have freedom to invest time/resources in income-generating activities.
- Markets are far from home, and transportation is scarce and expensive (because of COVID-19 and flooding), making mobility a challenge.
- There are fewer opportunities market their production near their home.
- Because traditionally women are responsible for household chores and men control resources, men hesitate to trust women with businesses.

Affordability

- Women cannot afford the cost of high quality inputs

Gender and Social Norms

- If a household has male members, the preference is that women do not engage in marketing activities, and doing so is considered a shameful. Elders in the family also have strong objections, and neighbors may speak badly.
- The community believes women are not healthy enough (e.g., too weak) to practice this behavior.
- The community perception is that men have better skills pertaining to negotiating and establishing prices.

Family, Community, and Peer Support

- Traditionally, as heads of the family, men make all the decisions and are supported by the community.

Self-Efficacy/Skills

- Women (as well the community) feel that women don't have technical skills; knowledge about market prices, inputs, and rates; or bargaining capacity.
- Women are not confident in their ability to produce on a larger scale for sales, only small quantities that are sufficient for household consumption.

Perceived Consequences or Personalized Benefits

- Women feel that if they sit in the market for sales, they will incur losses due to lack of technical skills.
- Respondents believe that if both men and women get involved in production and sales, the savings will increase and benefit the family as a whole.
- If the women learn the skills for farming, they can also help others to improve the quality and quantity of the output

Supporting Actors *(who can help reduce the factors that make it difficult to practice the behavior and who can be used to leverage factors that enable behavior adoption)*

- **The line departments**, such as the Assam State Rural Livelihoods Mission, can influence the adoption of target NSA behaviors through regular trainings.
- **Village headmen** can play a pivotal role, as village people listen to them.
- **Self-help groups** can help because women are generally involved in these in their village.
- **Family members** can open the window for more opportunities for women.

Possible SBC Approaches *(from the perspective of the respondent that may should be implemented to address the factors and partner with supporting actors to encourage sustained behavior change)*

- Motivate the community to **generate and demonstrate ideas in the community for business creation** through appropriate channels, such as WSHGs, so that women get to sell their products in the community.
- Encourage **video documentation of best practices** and wall paintings
- **Integrate SBC approaches in training modules.** "This is a necessity".
- Generate **support from the community for women** so that they get to participate in technical training on agricultural practices and establishing business opportunities.

- **Offer activities like cooking demonstrations to encourage the concepts of NSA** and kitchen gardens to highlight that women are integral to these endeavors.
- **Sensitize important community players**, such as ASHAs and AWWs, to reinforce behavior change in the society.

Conclusion and Next Steps

Conclusion

This formative research enabled USAID Advancing Nutrition India to understand key NSA and consumption behaviors, identify the factors affecting behavior change, prioritize behaviors, and preliminarily design activities to address the identified factors. Below we present the conclusions from the SBC formative research, organized around our two research questions.

What are the community perceptions on producing and consuming diverse, nutritious foods? Starting with consumption, the formative research found that preferred foods within the sample communities include nutritious foods, including lentils, local fruits and vegetables (including dark green leafy vegetables), and fish. Nonetheless, respondents noted that diets are largely comprised of rice and roti, given that these foods are more affordable and are perceived to be energy-giving. Local food traditions within the sampled communities exist that affect consumption of some nutritious foods are present, such as the belief that fish should not be consumed by children and adolescent girls because fish can cause liver problems. Interestingly, the solutions FGD respondents identified for increasing their consumption of preferred foods, and other nutritious foods such as animal-source foods, largely centered on increasing one's own agricultural productivity. It was evident that the sampled communities prefer to supply the majority of their diets from foods that they can produce themselves. The desire for consumption from own production favors the use of NSA approaches within the sampled communities to promote the consumption of target nutritious foods. The research highlighted multiple barriers impacting agricultural productivity and income generation within the horticulture and aquaculture sectors in Assam. The FGD respondents noted issues related to knowledge on good agricultural practices, access to productive resources, including inputs and loans, access to markets to sell their production, and gender dynamics that impact their meaningful participation. Overwhelmingly, female FGD respondents noted the need for training on horticulture and aquaculture and don't feel they have the necessary knowledge or skills. USAID Advancing Nutrition, through the Government of Assam and our local implementing partner, is planning NSA trainings for FY23. We will incorporate feedback from the FGD respondents on specific technical areas they feel they need to be trained on, such as proper pond preparation and fish feeding. Another pattern that came out strongly in the FGDs was that gender dynamics and norms affect women's meaningful participation in NSA activities and ability to reap the benefits. Specifically, norms around women's time use outside of household chores and caretaking duties, women's ability to make decisions about use of household assets for agriculture and nutrition, as well as women's time burdens affect are barriers to target NSA and nutrition behaviors. USAID Advancing Nutrition will implement gender mainstreaming and gender transformative activities in FY23 that aim to

address these gender dynamics and social norms. These activities will be further articulated in the FY23 SBC strategy and FY23 Gender in Nutrition-Sensitive Agriculture and Dietary Diversity programming in Assam Strategy.

What are the preferred, trusted, or recommended methods for inspiring nutrition-related behavior change? Our research aimed to unearth the preferred, trusted, and recommended methods for inspiring nutrition-related behavior change. For the first prioritized behavior, men and women make joint decisions about household assets, the FGD respondents identified several solutions. These included: implementing trainings with spouses on joint decision-making; awareness building campaigns on joint decision-making; activities that can increase women's empowerment, such as NSA trainings on agricultural production; as well as through activities that model joint decision-making. The FGD respondents also identified that men, local leaders, and trusted officials, like extension agents, are important influencers for behavior change. For our second behavior, women grow nutrient-dense vegetables, fruits, or fish for household consumption and sales, employing improved practices, FGD respondents highlighted solutions that address production-focused barriers identified in the previous research question. Additionally, the FGD respondents suggested several SBC approaches to increase the consumption of nutritious foods, such as cooking demonstrations, the implementation of community videos, community wall murals, as well as the integration of nutrition messages into NSA trainings.

Next Steps

The findings from this research will inform the project's NSA and SBC activities, as well as serve as a resource for other stakeholders working in NSA and SBC in Assam. In FY23, USAID Advancing Nutrition India will develop an SBC Strategy, which will articulate the finalized SBC activities and the messages for promotion. The SBC Strategy will further prioritize the factors that most critical to address. It will also build upon the activities suggested by the FGD respondent but use evidence from peer reviewed literature and previous projects that offer the highest probability for impact.

Additionally, the SBC formative research further unearthed gender and social inclusion factors that are likely to affect women's meaningful participation in the project, as well as their ability to reap the benefits of NSA and other income-generating activities for improved nutrition. Therefore, USAID Advancing Nutrition will develop an FY23 Gender in Nutrition-Sensitive Agriculture and Dietary Diversity Strategy to inform programming in Assam.

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Annex I: Initial Behaviors Considered for Prioritization

- Men and women (or households) make decisions about household assets jointly.
- Households equitably distribute food to women/girls.
- Pregnant women eat a variety of safe, diverse, nutrient-rich foods for meals and snacks daily.
- Pregnant women eat sufficient quantities of food at appropriate frequencies.
- Caregivers feed children 6-23 months with age-appropriate frequency, amount, and consistency.
- Caregivers feed children 6–23 months old a variety of age appropriate, safe, diverse nutrient-rich foods.
- Caregivers prepare and feed food for children 6-23 months hygienically.
- Women raise livestock, poultry, or fish to increase mothers' and children's access to animal source foods, employing improved animal-human separation techniques and other sanitation and hygiene practices.
- Women raise more fish and vegetables for home consumption and sales.
- Women who raise fish use improved inputs including fish feed
- Women who raise fish sell collectively for a higher price
- Women who raise fish preserve and sell
- Women who raise fish feed the production to their children
- Women grow nutrient-dense vegetables or fruits for household consumption, employing improved safety management and hygiene practices (aflatoxin, pesticides, fertilizers).
- Women preserve and store foods to reduce waste or spoilage and to assure their availability over longer periods for home consumption.
- Women earn agriculture income to improve diets and nutrition outcomes for mothers and children.
- Adolescent girls eat a diverse diet.



USAID ADVANCING NUTRITION

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