PHOTO CREDIT: VASHKOR BAISHNOB. NOBO JATRA PARTICIPANT INVOLVED IN BEADWORK AS PART OF AN INCOME-GENERATING ACTIVITY.

Nobo Jatra Project

PERFORMANCE AND IMPACT EVALUATION

Endline Evaluation of Bureau for Humanitarian Assistance Resilience Food Security Activity in Bangladesh

Volume I - Report

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PHOTO CREDIT: VASHKOR BAISHNOB. NOBO JATRA PARTICIPANT INVOLVED IN BEADWORK AS PART OF AN INCOME-GENERATING ACTIVITY.

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ABSTRACT

This report shares findings from the analysis of qualitative and quantitative endline data focused on the *Nobo Jatra* project in Bangladesh. The *Nobo Jatra* project was implemented by World Vision and local partners in the southwestern coastal areas of Bangladesh in the Khulna and Satkhira districts and aimed to address the underlying causes of chronic food insecurity by improving knowledge, capacity, links to food production and income generation and facilitating improvements in household assets and savings. A quantitative survey was conducted in 108 representative villages in southwest Bangladesh and captured information on farming, health, nutrition, resilience, and consumption. Half of these villages were treatment villages and half were comparison villages. In-depth qualitative data was collected from four treatment villages where the project was well implemented and the community engaged. The quantitative data analysis allows us to look at indicators in treatment villages before and after the project was implemented, as well as compare the experiences of treatment and comparison villages. The qualitative data allows us to understand the potential of the interventions when well-implemented, as well as how and why they worked or did not work as intended.

The pre-post evaluation shows improvement across a large number of indicators between baseline and endline in treated villages, although it suggests that more help is needed for increasing nearby access to water, helping women earn more cash, supporting female farmers, and supporting households with adult-only women. The qualitative study provides insights into the mechanisms that led to these improvements, and key challenges for indicators showing limited results.

The analysis of the treatment and comparison villages suggests little difference between treatment and comparison villages in child stunting and underweight status, and higher child diarrhea rates in treatment villages. However the analysis also shows more children receiving a minimally acceptable diet in project areas, greater women's autonomy and empowerment, and households in treatment villages better able to maintain their food consumption in the face of shocks. Qualitative analysis in villages with the most comprehensive programming highlights achievements across nutrition, food security, income, and disaster preparedness outcomes, as well as the pathways by which these outcomes occurred. This included unexpected insights into the ways interventions affected income and the effects of increased income. Furthermore, the project strengthened local input and service provisioning systems in best-case scenario villages, but future sustainability of these systems varies by sector. The qualitative study also found that *Nobo Jatra*'s interventions strengthened household resiliencies and food security, helping households during recent natural disasters and the COVID-19 pandemic.

TABLE OF CONTENTS

LIST OF APPENDICES

List of Tables

List of Figures

Acronyms

ANC – Antenatal care

BHA – Bureau for Humanitarian Assistance

BMI – Body mass index

BMRC – Bangladesh Medical Research Council

CARE – Cooperative for Assistance and Relief Everywhere

CHN – Child health and nutrition

CPR – Contraceptive prevalence rate

DHS – Demographic Health Survey

DMA – Data Management Aid

EA – Enumeration area

EBK – Empirical Bayesian Kriging

ERIE – Expanding the Reach of Impact Evaluations

FAO – Food and Agriculture Organization of the United Nations

FCS – Food consumption score

FFP – Food for Peace

GoB – Government of Bangladesh

GPS – Global Positioning System

HDDS – Household dietary diversity score

HHS – Household hunger scale

ICF – Inner City Fund

IFPRI – International Food Policy Research Institute

IRB – Internal Review Board

IYCF – Infant and young child feeding

MAD – Minimum acceptable diet

MCHN – Maternal and child health and nutrition

MDD – Minimum dietary diversity

MFI – Microfinance institution

NGO – Nongovernmental organization

NRM – Natural resource management

ORT – Oral rehydration therapy

PHC – Primary health care

PPP – Purchasing power parity

SHOUHARDO III – Strengthening Household Ability to Respond to Development Opportunities 3

TNRVCC – Targeted nutrient-rich value chain commodities

U5 – Under-five

USAID – United States Agency for International Development

USD – United States dollar

WASH – Water, sanitation, and hygiene

WHO – World Health Organization

Executive Summary

This report focuses on the performance and impact evaluation of the ***Nobo Jatra*** project, which targeted households in the southwestern coastal areas of Bangladesh in the Khulna and Satkhira districts. World Vision – with support from World Food Program, Winrock International, and local NGOs Shushilan, Nabolok and CODEC; and in partnership with the Government of Bangladesh through the Ministry of Disaster Management and Relief – implemented Nobo Jatra from October 2015 to December 2022. The project aimed to address the underlying causes of chronic food insecurity by improving knowledge, capacity, and links to food production and income generation, as well as by facilitating improvements in household assets and savings.

The University of Notre Dame's Pulte Institute for Global Development, Aiddata, and Mathematica – alongside data collection assistance by Data Management Aid and several independent consultants – prepared this report as part of the Extending the Reach of Impact Evaluations (ERIE) project under contract AID-OAA-A-16-00025. ERIE is a cooperative agreement lasting from May 2016 until September 2025. This evaluation began in October 2019 and ended July 2023.[1] The research team primarily intends for this report to inform USAID's approach to fund similar programs in the future, though the findings also would ideally influence the program design and implementation of the evaluated implementing partners and other organizations conducting similar work.

Evaluation Design and Research Questions

This report uses quantitative and qualitative data to measure the extent to which this strategy was effective. The data collection for the endline evaluation of this project began December 2021 and ended February 2022. Unfortunately, this was not done during the same timeframe as the baseline study was collected due to unavoidable delays. This fact impacted the comparability of pre-post data, as discussed in the Limitations Section. The data collection included household and child surveys in a randomly selected group of baseline treatment villages, as well as surveys in a newly selected group of comparison villages. A data collection team interviewed a randomly selected set of households from each village using a household and child survey. These surveys measured several different outcomes, including child nutrition, child stunting and underweight rates, household resiliency, and household food security. The analysis followed the methods outlined in the Data Treatment and Analysis Plan (Annex D) for the endline indicator calculations. .

Pre-Post Analysis

The report compares the status of several key variables such as women's health and nutrition before and after the intervention. The quantitative data is used to calculate and compare a number of Bureau for Humanitarian Assistance (BHA) project-specific indicators, along with a set of resilience indexes and consumption measures from treatment villages before and after the project.

[1] Note that the evaluation faced significant delays due to closures and extensions related to the global COVID-19 pandemic. This report also experienced delays during the review process due to the presentation of the analysis. Thus, the research team finalized the report in 2023, approximately 1.5 years after data collection.

Impact Evaluation

The report also uses quantitative data from villages who participated in the Nobo Jatra project and villages that are similar to treated villages but did not receive programming to measure the extent to which this strategy was effective. The evaluation utilized several different data sources to re-create baseline conditions to find non-treated (comparison) villages that match treatment villages on several different indicators. The main indicator that was used to match treated and non-treated villages was child stunting rates calculated using the 2014 DHS data and a set of geospatial data sources. Balance tests and analytical adjustments are described in more detail in the methods section of this report. Data was then collected in both the treatment and the matched set of comparison villages. The household and child surveys measured a number of different outcomes, including child nutritional outcomes, child stunting and underweight rates, household resiliency, and household food security.

Qualitative Data

Finally, the report uses data from qualitative interviews in four treatment villages where *Nobo Jatra* activities were implemented in the most comprehensive manner, and where the community was engaged in the project.[2] These data include information on whether interventions worked as planned and whether, how and why outcomes resulted. All analysis followed the methods outlined in the Data Treatment and Analysis Plan (Annex D).

The data collection for the endline evaluation of this project was conducted from December 2021 to February 2022 and included household and child surveys in a randomly selected group of baseline treatment villages, as well as surveys in a newly selected group of comparison villages. A randomly selected set of households from each village was interviewed using a household and child survey. The data collection also included in-depth interviews, focus group discussions and observations in four treatment villages with comprehensive programming.

Put together, the findings from the three data types are used to respond to the following research questions:[3]

- **Question 1:** To what extent has *Nobo Jatra* met its defined goal, purposes and outcomes?
- **Question 2:** To what extent has *Nobo Jatra* developed resilience capacities and whether these capacities contributed or will likely contribute to sustain the food and nutrition security outcomes in the face of shocks?
- **Question 3**: In each technical sector, what are the strengths of and challenges to the efficiency and effectiveness of the interventions' implementation and their acceptance to the target communities?

[2] The qualitative evaluation team drew its sample from a list of villages where implementers of Nobo Jatra considered implementation to have been the strongest and most complete, and where the communities were most engaged.

[3] Not all methods were used for each research question. The methods used for each research question are outlined in the findings sections below.

- **Question 4**: To what extent has *Nobo Jatra* strengthened local level systems and capacities of service and input providers to support the market-based input and service provisioning to prepare for the extension phase, and beyond the life of the project?

- **Question 5**: Have there been unintended consequences (either positive or negative) from the programming?

FINDINGS

Findings below are organized by research question.

QUESTION 1: TO WHAT EXTENT HAS *NOBO JATRA* MET ITS DEFINED GOAL, PURPOSES AND OUTCOMES?

The goal of the *Nobo Jatra* project was to improve gender-equitable food security, nutrition, and resilience among vulnerable people in the Khulna and Satkhira districts of Bangladesh. *Nobo Jatra* designed their project around four purposes, which they hypothesized would lead to the achievement of the overall goal. The key findings are listed below, organized by the activity's four purposes:

1. Improve maternal and child nutrition by reducing nutrition-related diseases, decreasing adolescent pregnancy, increasing uptake of maternal and child health practices, and increasing the practice of gender-equitable norms.

    a. The **pre-post analysis** indicated that women's nutritional status improved after the program.

    b. Although the **pre-post analysis** showed that children's nutritional status improved after the program, the **impact analysis** indicated that we cannot confidently attribute this improvement to the program.

    c. The **pre-post** and **impact analysis** suggest that the program did have some effect on the sub-purposes (or intermediary outcomes) to achieving improved nutritional status among women and children. The qualitative analysis elucidated how these sub-purposes were achieved. Perhaps the program's biggest impacts were on women's autonomy; however these improvements in women's autonomy did not contribute to the observed improved nutritional status as hypothesized.

2. Increase equitable household income by diversifying livelihoods, increasing access to markets, and improving production of nutritious foods.

    a. According to the **pre-post analysis**, there were modest improvements in poverty (as a proxy for income[4]) at the end of the program.

[4] As defined in the 2015 FFP Indicators Handbook (https://www.fantaproject.org/sites/default/files/resources/FFP-Indicators-HB-I-Baseline-Final-Evaluation-Apr2015.pdf)

b. According to the **qualitative analysis**, the program was able to contribute to increased incomes through increased diversification of livelihoods, which was facilitated by increased access to savings and financial services.

c. The **qualitative findings** suggest that increased agricultural production led primarily to improved food and nutrition security rather than increased incomes as hypothesized.

d. According to **qualitative findings**, *Nobo Jatra* did not appear to increase participant access to markets.

e. Both **qualitative** and **pre-post data** indicated an increase in access to savings and financial services. Participants in best-case scenario villages cited that this improvement was mostly for women, who reported participating in VSLAs more than men and could therefore access these services. Qualitative participants also reported that this facilitated their income-generating and agriculture activities.

f. The **qualitative findings** suggest that diversification of livelihoods and increased income for women unexpectedly led to increased gender equitable norms.

3. Strengthen the ability of households and communities to mitigate, adapt to, and recover from natural shocks and stresses by improving community and government disaster preparedness and response.

    a. According to the **pre-post evaluation**, households in *Nobo Jatra* villages perceived reduced exposure to shocks and reduced impact from shocks at endline than at baseline. However, households also perceive reduced ability to recover from past and future shocks than at baseline.

    b. According to **qualitative analysis**, from baseline to endline, *Nobo Jatra* supported increased disaster preparedness and response among households and communities through disaster management committees and social behavior change communication.

    c. According to the **impact evaluation**, households in *Nobo Jatra* villages that experienced major shocks were better able to mitigate the effects of the shocks—maintaining their food consumption—than households in comparison villages that also experienced major shocks. Households in Nobo Jatra villages were also better able to recover from shocks than households in comparison villages through access to agricultural extension services and adoption of sustainable agricultural and storage practices.

    d. There was limited evidence of any strengthening of disaster preparedness and response of government institutions and private organizations.

4. Improve social accountability and national policy engagement of service provision for vulnerable men and women by increasing the responsiveness of private and public service providers while building the capacity of communities to raise demand on services.

a. According to **qualitative analysis** in villages where programming was comprehensive, market-based local services providers appeared to be responsive to community needs, providing inputs and technical information. Government responsiveness to community needs was mixed and varied across unions, and village development committees were central in advocating for community needs with local governments.

QUESTION 2: TO WHAT EXTENT HAS *NOBO JATRA* DEVELOPED RESILIENCE CAPACITIES AND WHETHER THESE CAPACITIES CONTRIBUTED OR WILL LIKELY CONTRIBUTE TO SUSTAIN THE FOOD AND NUTRITION SECURITY OUTCOMES IN THE FACE OF SHOCKS?

One of the goals of *Nobo Jatra* was to develop the resilience of both households and communities in program areas by providing knowledge, skills, and technologies to improve their abilities to absorb shocks and stresses, adapt to them, and transform to reduce the impact of shocks. This section describes the main shocks and stresses that households in *Nobo Jatra* villages experienced over the past several years; the extent to which participants perceive that the project helped households, communities and local systems to cope with and recover from these shocks; and finally, how *Nobo Jatra* may have laid a foundation for greater resilience to future shocks and stresses. Findings from the pre-post quantitative evaluation provide evidence of how resilience capacities have changed in *Nobo Jatra* communities since project activities began. Evidence from the qualitative evaluation in villages where project implementation was robust help to identify the program pathways that might have played the strongest roles in improving the resilience capacities of *Nobo Jatra* communities, and systems. Finally, the quantitative impact evaluation sheds light on how the resilience capacities of these communities compare to those of other, similar communities and helps to differentiate the effects of *Nobo Jatra* from broader differences

- The **pre-post quantitative evaluation** shows that, following *Nobo Jatra* implementation, households perceived reduced exposure to shocks and reduced impact from shocks. However, at endline households also perceive less ability to recover from past and future shocks.

- **Qualitative evidence** from *Nobo Jatra* communities contextualizes these findings. While households report using a variety of mitigation approaches to reduce the harmful effects of recent shocks and attribute these practices to *Nobo Jatra*, the COVID-19 pandemic was such an extreme and unprecedented shock that households still reported using negative coping strategies and experiencing food insecurity.

- The **pre-post quantitative analysis** suggests that households in *Nobo Jatra* villages experienced improvements across all three resilience indices over time.

- The **impact evaluation** comparing *Nobo Jatra* communities to other, similar communities finds a statistically significant negative difference between *Nobo Jatra* villages and comparison villages on the composite resilience index at endline. That is, the improvements seen in the pre-post and qualitative analyses did not reach the level of the composite resilience index of the comparison villages.

- The **impact evaluation** also suggests that households in *Nobo Jatra* villages that experienced major shocks were better able to maintain their food consumption than households in comparison villages that also experienced major shocks. However,

these protective benefits do not appear to have carried over to child stunting outcomes.

QUESTION 3: IN EACH TECHNICAL SECTOR, WHAT ARE THE STRENGTHS OF AND CHALLENGES TO THE EFFICIENCY AND EFFECTIVENESS OF THE INTERVENTIONS' IMPLEMENTATION AND THEIR ACCEPTANCE TO THE TARGET COMMUNITIES?

Nobo Jatra aimed to promote equitable food and nutrition security through a deeply multisectoral approach that explicitly targeted the poorest and most vulnerable households in the Khulna and Satkhira districts. This section integrates qualitative data and survey data to assess the extent to which this approach was implemented as planned. The survey measured program participation in various sectors, including programming that may have been provided by World Vision and its partners or by other unrelated organizations working in the same areas. Although the pre-post analysis did not generate estimates of program participation at baseline that could be compared to present-day activities, the impact evaluation provides important evidence on the breadth of participation in various types of programming compared to other, similar communities. Additional analysis by different subgroups assesses the extent to which the program reached the most vulnerable community households. Evidence from the qualitative evaluation in best case scenario villages where program implementation was especially strong provide complementary evidence of the strength and inclusiveness of implementation, and indicate *how* these results may have been achieved. Key findings are:

- 43 percent of surveyed households[5] reported participating in *Nobo Jatra* activities, and the program significantly affected participation in programming across a wide number of sectors.

- *Nobo Jatra's* collaboration, coordination and integration of activities with local government; coordination with other implementers; and community ownership facilitated effective intervention implementation and acceptance in target communities.

- Implementation weaknesses included perceived inequitable distribution of cash and inputs as well as lack of implementation monitoring.

QUESTION 4: TO WHAT EXTENT HAS *NOBO JATRA* STRENGTHENED LOCAL LEVEL SYSTEMS AND CAPACITIES OF SERVICE AND INPUT PROVIDERS TO SUPPORT THE MARKET-BASED INPUT AND SERVICE PROVISIONING TO PREPARE FOR THE EXTENSION PHASE, AND BEYOND THE LIFE OF THE PROJECT?

Nobo Jatra worked to strengthen local provisioning systems and provided various types of support to input and service providers in the WASH, agriculture, and health/nutrition sectors with the hopes that each type of provider would be prepared to support the market-based system after the project ends. In order for these systems to have long-term effects, they must be sustainable and adaptable to changing circumstances. Because of the difficulty in capturing the nuances of a complex market system within a household survey, this section relies on in-depth qualitative data from communities where implementation was especially strong, and integrates the perspectives of both community members and service providers to *Nobo Jatra* communities to describe and assess various dimensions of the local provisioning system, including households' willingness and ability to pay for services and

[5] Sampling was population-based, meaning that the sample in both treatment and comparison villages should be considered representative of the entire village.

inputs, and the providers' motivation, resources, capacities, and linkages. Key findings related to this question are

- Households were willing to pay for many types of services and inputs provided by the market-based input and service provisioning system. However, they sometimes struggle to afford the inputs and services.

- LSPs reported strong motivation to continue their work and demonstrated strong capacity to provide information and training to their customers. The information they provide supports continued and increased demand for their products and services.

- LSPs described financial capital and transportation as the main challenges limiting their capacity to provide market-based input and service provisioning long term.

QUESTION 5: HAVE THERE BEEN UNINTENDED CONSEQUENCES (EITHER POSITIVE OR NEGATIVE) FROM THE PROGRAMMING?

Development activities sometimes have unintended consequences. Since these outcomes are, by definition, unanticipated, this section relies primarily on qualitative evidence collected in communities where implementation was especially concentrated and thus, where unintended consequences may have been more likely and more strongly linked to the intervention. Key findings related to this section are:

- Because of the multi-sectoral nature of *Nobo Jatra's* interventions, there were very few positive or negative consequences of *Nobo Jatra's* activities not already anticipated by the theory of change. However, several hypothesized links in the theory of change did not prove to be pathways from one outcome to the next, and some new pathways emerged, especially regarding income and gender norms.

- Despite the *Nobo Jatra* program's investments in the WASH sector, child diarrhea rates are higher for children in *Nobo Jatra* communities than those in comparison communities.

RECOMMENDATIONS

The *Nobo Jatra* program led to commendable improvements and has had a beneficial impact on people in the treatment areas. Despite these gains, there are a few areas that could show greater improvement. The research team recommends the following for practitioners, implementation researchers, and policymakers working in food security, nutrition, and resilience.

- **A continued focus on childhood malnutrition is essential.** More research is needed to understand why children under five years of age in treatment villages are more likely to have diarrhea despite being more likely to have an improved diet and whether this is the only barrier to further increases in child stunting and underweight status in these areas. Building on the increased exclusive breastfeeding of children under 6 months of age seen over time in the treatment villages, especially among girl children, is an area that could have immediate implications on wasting and stunting, long-term effects on cognition and immune responses, and long-term effects on gender equity.

- The research team measured slightly higher stunting rates in treatment areas for children with mothers who have more than 6 years of school, for children in households above the poverty line, and for children from households with more than 5 members, compared to comparison villages. Future programs might **consider increased targeting** of or tailored messaging to these households (e.g., higher education, higher income, and larger household sizes). Other sub-groups might have experienced lowered stunting rates offset by increases in these subgroups.
- **Success in the transformation of gender norms should be built upon.** Several unexpected pathways appear to have supported increasing gender equitable norms, such as increased income among women and increased diversification of livelihoods. While links between these norm shifts and improved nutritional status were not observed, these shifts are important in their own right. Future programs should build and expand upon the successes of these women's empowerment interventions, by conducting additional formative research to understand how these interventions can be improved to affect nutrition outcomes in addition to gender norms
- More **support** is needed for **households** if they are to remain resilient in the face of future shocks. While households in treatment communities were better able to handle large shocks, they perceived a reduced ability to recover from shocks over time. Increased access to savings, loans and livelihood diversification was perceived to have positive benefits for vulnerable households during recent shocks in best case scenario villages. These are interventions that could be further studied and expanded. Although cash transfers from the program also supported households' ability to recover from shocks, further programming to strengthen local government responses to disasters and disbursement of social protection programs may be a more sustainable pathway to household resiliency.
- While women report having better access to medical care, their diet has not been reported to be much improved and a similar percent of women remain underweight. Future projects should **increase or modify women's dietary interventions** to result in greater improvements across women's health indicators.
- **More support** is needed **for vulnerable groups including female farmers and households with only an adult woman.** These are two groups within the treatment areas that showed less improvement across several pre-post indicators than their male counterparts or households with both an adult man and an adult woman.
- **Additional research and support** is needed on interventions to improve availability and access to clean water, particularly to address accessibility, affordability and seasonal and climate-related issues in the Southwest region of Bangladesh. Although the program sought to address these issues, program participants reported that these issues persisted after the program. Future programming efforts can consider rapid experimentation or randomization to more deeply examine what aspects of the programming could be improved for success in the long-term, and what other context-specific interventions can have an impact.
- Some input and service providers may require **sector-specific support** to address technical, financial, and market-based constraints to their long-term sustainability. For example, agriculture-specific financial products could support local agricultural input service providers, as access to credit and finance was reported as a major barrier. Expanding successful solutions and identifying others could be the elements that allow the LSP system to become sustainable.

- **A focus on increasing income should continue.** Increasing household income and cash earnings for women proved difficult. However, other improvements in income had positive, even if unexpected results. In villages where *Nobo Jatra* implementation was strongest, women reported positive impacts on autonomy when their income streams were diversified. Expanded production of vegetables improved food and nutrition security, if not income. Women's increased access to savings and financial services, often through VSLAs, provided needed resources and perhaps flexibility in dealing with constraints even if not increasing their income.
- Limited improvements in natural resource management were seen following the project, despite this being a widespread issue in Southwest Bangladesh. Future implementers should therefore focus on **strengthening the management of natural resources**, potentially through village development committees, which have proven successful in organizing communities towards collective development goals during the *Nobo Jatra* project.
- Future programming should consider **nutrition and WASH social behavior change communication interventions that concurrently address household financial and resource constraints**, such as through linkages with public and private local service providers, villages savings and loans groups, or financial institutions. This dual approach appeared to contribute to nutrition and WASH practice changes among project participants in best-case scenario villages, while less success was observed in the impact evaluation when only information and programming was provided.
- *Nobo Jatra* had strong implementation that led to healthy engagement in the program. One area of improvement for future programs would be **increasing transparency and communication** about decisions around cash transfers and input provision to different households. Some program participants reported that they felt it was unfair that some participants received cash transfers while others only received inputs, with no explanation as to why implementation occurred this way.
- This study utilized three evaluation strategies (pre/post, impact evaluation and qualitative methods) to provide a rich depiction of the effect of the *Nobo Jatra* program on the communities where it was implemented. In particular, the research team used **innovative data sources and methods** to construct a counterfactual, when one was not identified at the start of the activity. Such a retrospective impact evaluation does not allow for typical balance tests on a large set of baseline variables, which can demonstrate if the treatment and comparison groups are statistically comparable.[6] Future studies of similar food security interventions could build on our evaluation strategy by **planning for an impact evaluation from the start.** Implementers can work with evaluators to identify a comparison group at the start of an activity, through random assignment or quasi-experimental methods. We encourage implementing partners to take this step when designing future programming.

[6] Future studies could also explore more robust balance tests, using the full secondary dataset. For example, this study tested for balance using the main matching variable which was available in the 2014 DHS dataset (stunting), but future studies can conduct balance tests using additional DHS variables, such as income or consumption. This was beyond the scope of this evaluation but could be useful in the future when an impact evaluation cannot be planned from the start.

1. BACKGROUND

Bangladesh has made progress addressing some of the key challenges facing its population including health access, job availability, and poverty. The number of people living below the poverty line decreased from 31.5% in 2010 to 20.5% in 2019, and progress continues to be made. There remains a heavy focus on factors such as increasing the number of available jobs and empowering minority populations to enter the workforce. Expanding healthcare access and services has led to great strides in battling many prevalent diseases as well. In 2019, cases of malaria dropped to 1.6 per 1,000 compared to 4.3 in 2015, and tuberculosis and HIV levels continue to decline. The social standards of living have also increased in areas such as education, with the rate of adult literacy increasing by 20% between 2005 and 2018 (General Economics Division, 2020).

While significant progress has been made toward achieving many of Bangladesh's development goals, many areas still require a greater focus to meet global standards. Specifically, access to food and subsequent nutritional wellbeing remains at the forefront of the country's challenges. Nearly 15% of the population in Bangladesh was malnourished in 2017, only a minor decrease from 16.4% in 2016. In 2019, 28% of children under the age of 5 qualified as stunted and almost 10% as wasted (General Economics Division, 2020). Because these numbers remain high, the government continues to adopt policies to target this health challenge. Efforts particularly focus on ensuring that growing threats of climate change and population growth do not hinder food access (General Economics Division, 2020). Additionally, local and international projects aim to help through supporting school food programs, instituting nutrition education programs, and supplying investment grants in order to promote financial security (WFP, 2022).

Addressing problems regarding poverty and food security is an increasingly difficult task in Bangladesh due to difficult environmental conditions. The country faces an unprecedented number of natural disasters such as cyclones, tidal storms, tornados, and hailstorms. In these conditions, consistent production in agriculture is difficult to achieve, threatening both food resources and household income. Additionally, seasonal changes bring about periods of drought and floods, making it difficult to adapt to ever-changing conditions (Food and Agriculture Organization of the UN, 2022). As these climate factors are predicted to only intensify, building resilience in the population is key to creating sustainable growth in food security (USAID, February 2015).

1.1 CURRENT FOOD SECURITY SITUATION IN KHULNA AND SATKHIRA (*NOBO JATRA* PROJECT AREAS)

Rural communities in the Khulna and Satkhira districts—the *Nobo Jatra* project areas—rely heavily on agricultural production for food supply and economic stability. However, increasing salinity levels in the Ganges river delta are threatening to render land infertile (Lam, 2022). In addition, these areas commonly experience an influx of rainfall during periods of the year, causing flooding and waterlogging. These floods can damage houses, farms, roads, and community infrastructure (Local Consultative Groups in Bangladesh, 2011). **While the highest child stunting rates are seen in Northern Bangladesh, due to these harsh conditions, the majority of these coastal regions also struggle with malnutrition and increased food insecurity (IPC, 2022).**

1.2 Food Availability and Food Access

Among countries across the globe, Bangladesh is predicted to experience the 6th largest impact from continuing climate change (USAID, 2016). As climate change worsens, already devastating weather conditions will intensify, the incidence of pests will rise, and fish stocks will continue to diminish. In addition to these factors, Bangladesh is losing approximately 0.5 percent of agricultural land due to encroachments from urban areas and road projects as well as increased soil erosion and loss of fertility. Inadequate production has led to shortages in fertilizers, seeds, pesticides, and irrigation products. This combination of factors requires urgent attention in order to prevent detrimental effects on food availability and access. Already, access to food sources is widely varied among geographic regions and social statuses. Due to less access to employment opportunities and education, women are disproportionately affected by malnutrition, leading to similar trends in the children that they raise (General Economics Division, 2020).

1.3 Government Programs

The government of Bangladesh continues to institute policies with the hopes of improving food security and lowering rates of malnutrition. Specifically, the government has taken action in a number of areas to combat these negative trends:

- Climate change (Climate Change Strategy and Action Plan 2009, National Plan for Disaster Management)
- Agriculture production (Country Investment Plan, National Agricultural Policy)
- Nutrition (Country Investment Plan, National Food Policy)
- Food security (Country Investment Plan, National Food Policy)
- Healthcare (Health, Population and Nutrition Strategic Development Plan)
- Resilience to environmental conditions (National Plan for Disaster Management)
- Social and financial safety nets (National Social Protection Strategy)

In addition to local government interventions, the United States has attempted to institute multiple supportive programs. For example, USAID has led a variety of programs including the PROSHAR, SHIKHA, and SHOUHARDO I-III projects. The PROSHAR program aims to target food insecurity in rural populations whose food supply and incomes are particularly vulnerable to environmental shocks. The SHIKHA project is dedicated to improving maternal diet in order to lower the malnutrition of infants and children. Similarly, SHOUHARDO III targets child nutrition through programs to empower women and increase their opportunities for employment. Additionally, programs (such as Adaptation to Climate Change and Rehabilitation of Livelihoods in Selected Districts of South Bangladesh) exist in order to restore areas affected by specific natural disasters, aiming to implement infrastructure and procedures that will be resilient in the face of future climate challenges (USAID, February 2015).

1.4 OVERVIEW OF NOBO JATRA ACTIVITIES

USAID's Bureau for Humanitarian Assistance (BHA) resilient food security activities (RFSA) in Bangladesh aim to reduce chronic and acute malnutrition and food insecurity and improve resilience to disasters among vulnerable populations. In pursuit of this goal, BHA awarded funding to the following three organizations to implement multi-year development food assistance projects in various districts in Bangladesh:

1. The Strengthening Household Ability to Respond to Development Opportunities 3 (SHOUHARDO III) project, implemented by CARE and several partners[7] in 8 districts in the Char and Haor regions[8] (October 2015 - December 2023);

2. The Nobo Jatra Project, implemented by World Vision, Inc. and several partners (see below) in Khulna and Satkhira districts (October 2015 - December 2022); and

3. The Sustainable Agriculture and Production Linked to Improved Nutrition Status, Resilience, and Gender Equity (SAPLING) Project, implemented by Helen Keller International (HKI) and several partners[9] (October 2015 - December 2021).

This report will focus on the Nobo Jatra project (AID-FFP-A-15-00012), a 7-year award with a total budget of $86,627,359 targeted to directly reach 859,704 participants from Poor and Extremely Poor (PEP) households in the southwestern coastal areas of Bangladesh in the Khulna and Satkhira districts. World Vision implemented the project with support from World Food Program, Winrock International, and local NGOs Shushilan, Nabolok and CODEC and worked closely with the Government of Bangladesh through the Ministry of Disaster Management and Relief. The Nobo Jatra performance period lasted from October 2015 to December 2022, with active implementation beginning in October 2016. The project spent 2020 to 2022 preparing and handing interventions over to local service providers. The project aims to address the underlying causes of chronic food insecurity by improving knowledge, capacity, and links to food production and income generation and facilitate improvements in household assets and savings.[10] The project covers both the Khulna and Satkhira districts in their entirety, except for villages in the Dacope municipality and the Khulna Range union in the Khulna district. The project area includes four upazilas (similar to counties), 40 unions, 699 villages, and 216,075 households

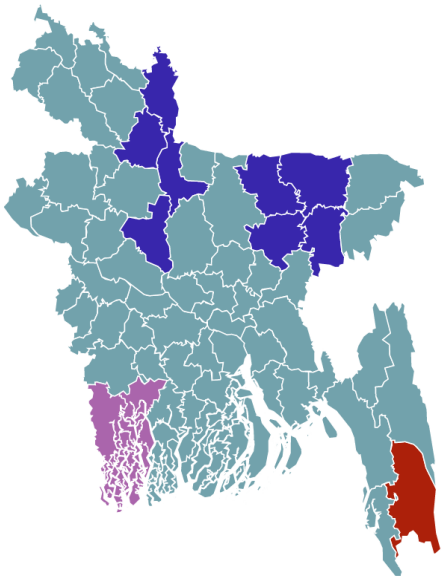
[7] The SHOUHARDO project included six other partners: the Eco-Social Development Organization (ESDO), the National Development Programme (NDP), POPI, the Dhaka Ahsania Mission (DAM), the Samaj Kallyan Sangstha (SKS) Foundation, and Mahideb Jubo Somaj Kallayan Somity (MJSKS). The Regional Integrated Multi-Hazard Early Warning System (RIMES) and the International Development Enterprises (iDE) provided technical support.

[8] These districts include Kurigram, Gaibandha, Jamalpur, Sirajganj, Netrakona, Sunamganj, Kishoreganj, and Habiganj

[9] SAPLING partners include Catholic Relief Services (CRS), Caritas Bangladesh, iDE, and three local non-governmental organizations: GRAUS, Tahzingdong and Toymu

[10] In addition to this evaluation, the Nobo Jatra Project ran their own annual participants based survey (PaBS) from June to September 2022. The results are pending public release at the time of this report. (Grameen Bikash Foundation, 2023)

Figure 1.1: Locations of Nobo Jatra, SHOUHARDO, and SAPLING USAID Projects (blue represents SHOUHARDO districts, red represents SAPLING districts, and purple represents Nobo Jatra districts)



THEORY OF CHANGE OF *NOBO JATRA*

The *Nobo Jatra* project sought to improve the gender-equitable nutrition, food security, and resilience of vulnerable populations in the Khulna and Satkhira districts in Bangladesh. The project aimed to do this through four strategies:

1. Improve maternal and child nutrition by reducing nutrition-related diseases, decreasing adolescent pregnancy, increasing uptake of maternal and child health practices, and increasing the practice of gender-equitable norms.

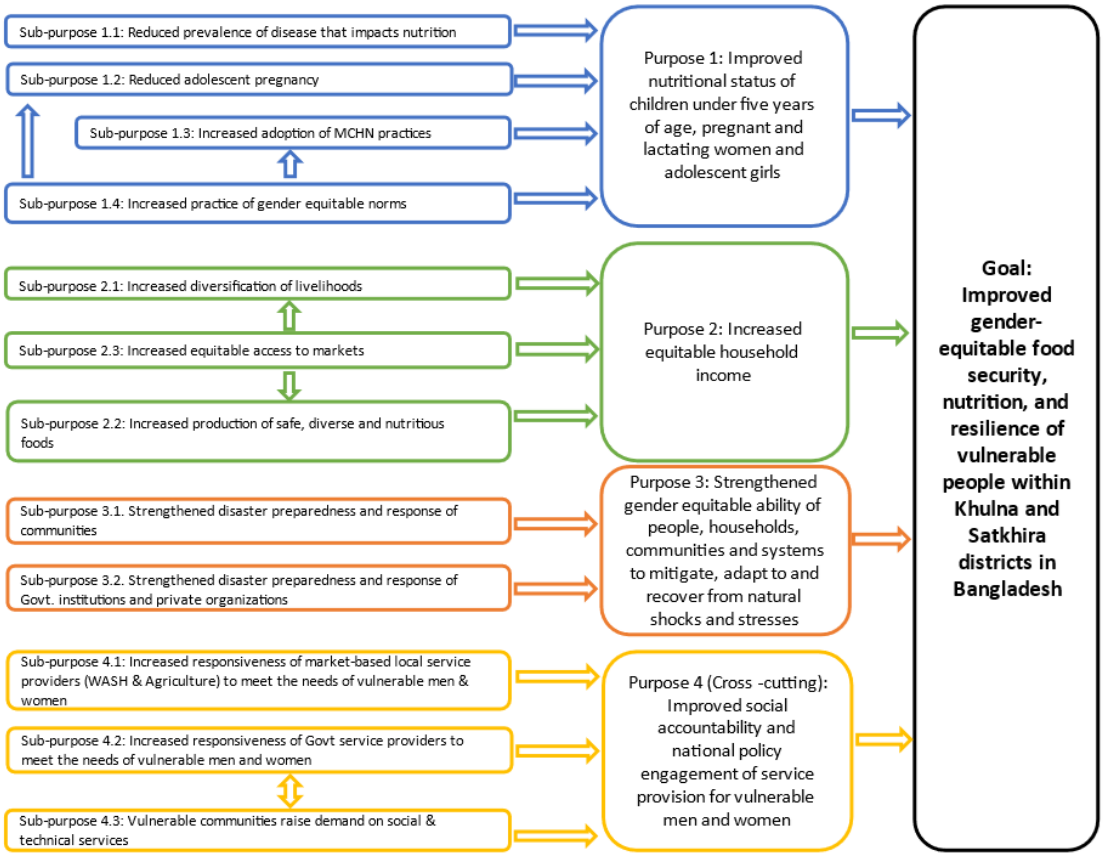
2. Increase equitable household income by diversifying livelihoods, increasing access to markets, and improving production of nutritious foods.

3. Strengthen the ability of households and communities to mitigate, adapt to, and recover from natural shocks and stresses by improving community and government disaster preparedness and response.

4. Improve social accountability and national policy engagement of service provision for vulnerable men and women by increasing the responsiveness of private and public service providers while building the capacity of communities to raise demand on services.

In Figure 1.2 below, we provide a top-level version of *Nobo Jatra's* Theory of Change, reflecting the goal, the purposes (or four strategies), and the sub-purposes designed to meet the goal. In Annex A, we provide *Nobo Jatra's* original theory of change, which provides detailed activities and outcomes as well as the sub-purposes for each of the four strategies.

Figure 1.2: Sub-Purposes and Purposes Designed to Meet Nobo Jatra's Goal[11]



Depiction of linkages between 12 sub purposes, 4 purposes, and overarching goal for improved nutrition, food security and resilience in Nobo Jatra. For more information on the theory of change, navigate to Annex A.

Evaluation Objectives and Overview of the Research Questions

The goal of the *Nobo Jatra* performance evaluation was to provide funders, implementers, and other interested parties with findings on how effective the *Nobo Jatra* program is at strengthening food security in program areas. This information can help inform decisions about future food security programs to ensure the most effective programs for these populations. The evaluation team evaluated the contribution of *Nobo Jatra* to USAID's efforts to *reduce food insecurity among chronically food insecure households* utilizing both qualitative and quantitative data. The first part of this report discusses project performance on indicators against targets set by the partners for the key BHA indicators of Depth of Poverty, Stunting, and Undernutrition. Then, the analysis will dive further into project outcomes as discussed in the research questions below.

[11] Adapted from the revised December 2019 *Nobo Jatra* Theory of Change

Table 1.1: Evaluation method and data sources used for each Nobo Jatra research question

Research question	Evaluation method	Specific aims
Research Question 1: To what extent have the projects met their defined goals, purposes and outcomes?		Using empirical evidence, the evaluation describes the progress or non-progress along the hypothesized pathways of change. The evaluation team reviewed: (1) the key assumptions and adaptations to accommodate contextual changes over the past five years; (2) factors that promoted or inhibited the achievement of the project objectives; (3) plausibility of pathways and the determinants of achieving the key outcomes; (4) targeting strategies and their contributions to achieving project goals (especially with regard to gender and reaching the most vulnerable); and (5) the practices that have been adopted as a result of the Nobo Jatra programming.
Purpose 1: Improve maternal and child nutrition by reducing nutrition-related diseases, decreasing adolescent pregnancy, increasing uptake of maternal and child health practices, and increasing the practice of gender-equitable norms.	1. Pre-post 2. Qualitative 3. Impact evaluation	
Purpose 2: Increase equitable household income by diversifying livelihoods, increasing access to markets, and improving production of nutritious foods.	1. Pre-post 2. Qualitative	
Purpose 3: Strengthen the ability of households and communities to mitigate, adapt to, and recover from natural shocks and stresses by improving community and government disaster preparedness and response.	1. Qualitative	
Purpose 4: Improve social accountability and national policy engagement of service provision for vulnerable men and women by increasing the responsiveness of private and public service providers while building the capacity of communities to raise demand on services.	1. Qualitative	

Research question (cont.)	Evaluation method	Specific aims
Research Question 2: To what extent have the projects developed resilience capacities; and have these capacities contributed or will likely contribute to sustain the food and nutrition security outcomes in the face of shocks?	1. Pre-post 2. Qualitative 3. Impact evaluation	Using qualitative and quantitative methods, the team evaluated the role of institutions and systems established or strengthened by *Nobo Jatra* independently or in collaboration with the private sector, Government of Bangladesh, community organizations, NGOs, and research organizations to improve and maintain resilience capacities. The analysis investigated changes in household resilience capacities and the role of these capacities to absorb covariate and idiosyncratic shocks, and determined the likelihood of these capacities to sustain and further improve food and nutrition security outcomes in the face of future shocks. Using quantitative and qualitative empirical evidence, the evaluation also describes how the capacities contributed or will likely contribute to the household resilience in the face of shocks.
Research Question 3: In each technical sector, what are the strengths of and challenges to the efficiency and effectiveness of the interventions' implementation and their acceptance to the target communities?	1. Qualitative	The team evaluated the effectiveness and relevance of the technical interventions to achieve project outcomes. This report discusses those findings in relation to *Nobo Jatra's* theories of change. The research uses both quantitative and qualitative methods where possible when discussing the following: (1) factors in the implementation and context associated with greater or lesser efficiency and effectiveness in producing outputs of higher or lower quality; (2) the interventions and implementation processes deemed more/less acceptable to members of the target communities.
Research Question 4: To what extent has *Nobo Jatra* strengthened local level systems and capacities of service and input providers to support the market-based input and service provisioning to prepare for the extension phase, and beyond the life of the projects?	1. Qualitative	The evaluation team assessed the progress towards sustaining the outcomes and critical services necessary to continue sustainable service provisioning using private and public sector input and service providers. Using primarily qualitative methods, the evaluation team also assessed (1) the capacity of local level service providers to support each key outcome; (2) the motivation of the service providers to continue service provisioning, the motivation of the communities to seek services, and communities' willingness to pay; and (3) what has been done to facilitate linkages to resources that the service providers would need to continue service provisioning after the project ends.
Research Question 5: Have there been unintended consequences (either positive or negative) from the programming?	1. Qualitative	The evaluation team also addressed the following questions: What unexpected changes have occurred as a consequence of *Nobo Jatra* programming? What are the effects of these changes to improve or sustain household food and nutrition security? What unexpected changes have occurred in villages with Nobo Jatra programming that have not occurred in comparison villages for the Nobo Jatra project?

ROADMAP OF REPORT

This report begins by providing an overview of the evaluation approach, discussing the data collection methodology, and addressing any evaluation limitations. After these sections, it explores the answers to the report's research questions using quantitative and qualitative data, before ending with a set of conclusions and recommendations for future projects.

2. Evaluation Methods and Limitations

Summary of Evaluation Approach

The *Nobo Jatra* evaluation enhanced the originally planned endline evaluation of the *Nobo Jatra* project, which would have relied on a pre-post evaluation design alone. Instead, the evaluation also includes a rigorous impact evaluation using a matched comparison group design and a qualitative performance evaluation of project implementation, performance, and sustainability. The added impact evaluation used a treatment and a comparison group, whose selection is described below, to answer a subset of the research questions. The qualitative evaluation focused on areas where program implementation was most comprehensive to add insights into the dynamics of how and why outcomes were or were not achieved and to answer, at least in part, all research questions.

Data Management Aid and a team of local consultants collect qualitative data from October to November 2021. Data Management Aid collected quantitative data for both the impact evaluation and pre-post evaluation from December 2021 to February 2022.

Overview of the Three Evaluation Methods Used

For the *Nobo Jatra* evaluation, the research team conducted three types of evaluations: an impact evaluation, pre-post evaluation, and qualitative performance evaluation. Each of these evaluations offer different strengths based on how they are designed, allowing researchers to measure intervention outcomes in different ways. These three evaluations are explained in the sections below, including what they can and cannot tell researchers about intervention outcomes, and how the findings from these different evaluations were used together in the *Nobo Jatra* evaluation. Table 2.1 summarizes what these three evaluation methods measure, their strengths, and what findings they provide for the *Nobo Jatra* evaluation.

Table 2.1: Methods used in the Nobo Jatra evaluation, what they measure, and their strengths

	Impact evaluation	Pre-post evaluation	Qualitative performance evaluation
What does this method measure?	• Measures differences in • outcomes with, versus without, an intervention to answer cause-and-effect questions about intervention effects	• Measures changes in outcomes for a population who received an intervention(s) before and after the intervention • Does not measure what caused the changes in outcomes	• Examines how and why an intervention achieved or did not achieve outcomes of interest • Examines perceived strengths and weaknesses of an intervention

	Impact evaluation	Pre-post evaluation	Qualitative performance evaluation
How does this method achieve this measurement?	• Compares outcomes of interest for groups that received the intervention ("treatment groups") and for comparison groups that did not receive the intervention but who share the same observable characteristics as the treatment group	• Compares outcomes of interest before and after the intervention for a single group that received the intervention • Does not compare outcomes of interest to a comparison group	• Examines and locates trends in perceptions of how and why an intervention achieved outcomes of interest from different stakeholders implementing or participating in the intervention
What are the strengths and limitations of this method?	• Can attribute differences in outcomes of interest to the intervention (i.e., can establish causality) • Cannot establish the facilitators or barriers to an intervention success	• Can provide information about the direction and magnitude of change over time • Cannot establish causality of an intervention and outcomes	• Can uncover pathways of change and facilitators or barriers of intervention success • Can capture factors that are difficult to quantify, such as perceptions of inclusivity or opinions about the value of outcomes • Cannot establish causality of an intervention or outcomes
What can this method tell us for the *Nobo Jatra* evaluation?	• Whether there are differences in agriculture, nutrition, health, and resilience outcomes caused by the *Nobo Jatra* intervention	• Whether there were changes in agriculture, nutrition, health, and resilience outcomes among people in the *Nobo Jatra* intervention communities over time	• How aspects of the *Nobo Jatra* intervention contributed to or impeded changes in agricultural, nutrition, health, and resilience outcomes

Impact evaluations measure quantitative differences in outcomes of interest among groups with and without an intervention. They are used in order to demonstrate that an intervention, rather than other potential factors, caused differences in outcomes. Impact evaluations are able to attribute effects to an intervention by comparing a situation where the intervention occurred to a situation where the intervention did not occur, or counterfactual (USAID 2021). Researchers construct this counterfactual by choosing a group that is as similar as possible to the group that received the intervention in characteristics that could affect the outcomes.

The ideal method of constructing a counterfactual is the randomized controlled trial (RCT), which is when the researcher assigns individuals or communities to treatment or control status randomly, prior to program implementation. However, randomization is often not feasible for reasons both ethical and practical. In such cases, researchers turn to "quasi-experimental methods," which seek to mimic this experimental method.

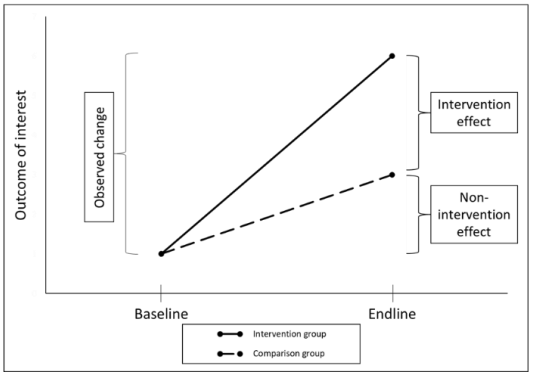
There are many quasi-experimental methods, one of which is matching. A current growing area of impact evaluations is matching methods that use geospatial or geo-coded data.[12] To

[12] For an example of the use of such methods in an evaluation of a USAID activity, see here: BenYishay, A., Velyvis, K., Nolan, K., Khatiwada, L. K., Dolan, C., Guzman, D. B., & Purekal, T. (2019). *Long-term Impact Evaluation*

understand if an evaluation method "worked" in creating two comparable groups, researchers can conduct balance tests. Researchers can compare the means or distributions between intervention and comparison groups, either at the start of the intervention or on characteristics that are considered "time invariant", or unlikely to change dramatically over time (such as household size, income level, religion, ethnicity, or gender of household head) to ensure that they are similar (and that any differences are merely due to chance). If the balance tests show that the two groups are well matched, the primary difference between the intervention and comparison groups at the endline is the intervention, which means that any differences in outcomes between the groups are likely because of the intervention. If outcomes between the group that received the intervention and the group that did not receive the intervention are similar, this means that any differences in the outcomes are likely not due to the intervention because these differences also occurred in the group without the intervention. If differences in outcomes between the intervention group and comparison group are observed at the endline, then these differences are likely due to the intervention because the intervention is the main difference between the groups when it comes to factors likely to affect the outcomes. By measuring the difference in outcomes between groups with and without the intervention, researchers are able to determine the amount of change that is due to the intervention and the amount of change due to other factors, as shown in Figure 2.1.

Pre-post evaluations measure quantitative changes in outcomes for a target population before and after an intervention. Pre-post evaluations can uncover whether positive, negative, or no change occurred after an intervention, but cannot determine what caused these changes (see Figure 2.2). Unlike impact evaluations, pre-post evaluations do not use a comparison group. Without a comparison group, researchers are unable to determine whether observed outcome changes are due to the intervention or if these changes would have happened even without the intervention because of other factors.

Figure 2.1: Sample Impact evaluation Findings

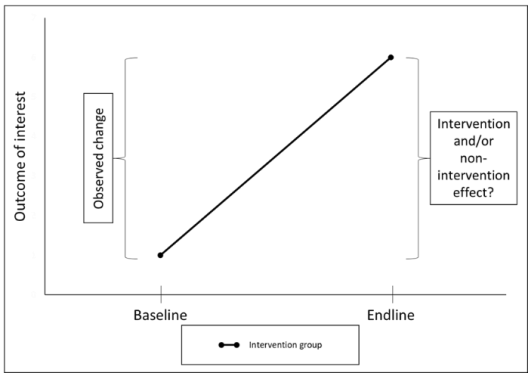


Note: Figures adapted from USAID Technical Note on Impact Evaluations, February 2021. Available at: https://usaidlearninglab.org/resources/technical-note-impact-evaluations

of the Malawi Wellness and Agriculture for Life Advancement Program [Evaluation]. USAID. https://pdf.usaid.gov/pdf_docs/PA00W4GV.pdf

To learn more about geo-spatial impact evaluation, see this website for video explanations, and examples of the use of the method to evaluate a variety of programs: https://www.aiddata.org/gie

Figure 2.2: Sample Pre-post Evaluation Findings



Note: Figures adapted from USAID Technical Note on Impact Evaluations, February 2021. Available at: https://usaidlearninglab.org/resources/technical-note-impact-evaluations

While impact and pre-post evaluations measure whether outcome differences occurred or not, qualitative performance evaluations focus on how and why any changes occurred during an intervention. Qualitative evaluations are used to understand the process by which changes occurred, what contributed to changes, and what prevented changes from occurring. Qualitative research is also useful in understanding the implementation process of an intervention, any challenges to or successes in implementation, and what worked well and what could be improved in future interventions. By collecting data through interviews, focus groups, observations, and other techniques, qualitative evaluations allow researchers to have a more in-depth understanding of an intervention and its effects from the perspective of intervention participants, implementers, and any others involved in the intervention.

For the *Nobo Jatra* evaluation, the research team used these three evaluation methods to understand the intervention outcomes in different ways. For example, to evaluate early marriage and pregnancy outcomes, the team used a pre-post evaluation to assess whether any changes in the age of marriage and first pregnancy for women occurred by comparing these outcomes before and after *Nobo Jatra* was implemented; an impact evaluation to evaluate whether differences observed at endline were due to *Nobo Jatra*; and a qualitative evaluation to understand which aspects of *Nobo Jatra* might have contributed most to these changes.

- **Pre-post evaluation.** To assess changes in early marriage and pregnancy before and after the *Nobo Jatra* program, the research team conducted a pre-post evaluation. The research team found that the age of marriage and first pregnancy increased from before to after the *Nobo Jatra* program. However, with the pre-post evaluation findings alone, the team was unable to determine if this was due to the intervention or other factors. Examples of other factors could include widespread government awareness campaigns, impacts from COVID,[13] stricter enforcement of child marriage laws in villages, national improvements in poverty levels—factors that also affect child marriage that were not measured.

[13] For more information on COVID's impacts on households in the treatment and comparison villages, see Annex K.

- **Impact evaluation.** To determine whether child marriage and early pregnancy improvements were caused by the *Nobo Jatra* intervention, researchers conducted an impact evaluation. The research team constructed a comparison group with characteristics similar to the intervention group in terms of factors that affect child marriage. The research team found that the average age of marriage and early pregnancy in the intervention group was higher than that in the comparison group. Therefore, the research team was able to attribute the difference between the intervention and comparison groups to the intervention.

- **Qualitative performance evaluation.** To understand how and why the *Nobo Jatra* intervention contributed to improved child marriage and early pregnancy outcomes, the research team conducted a qualitative evaluation. By analyzing in-depth perspectives on the intervention, the team was able to uncover that certain activities of the intervention, including trainings that increased awareness around the dangers of marrying at a young age and strengthened child protection mechanisms, were reported to facilitate delayed marriage and pregnancy. These contributors are discussed in detail in the findings section below.

In the following sections, the authors describe the sampling strategy used for each methodology. Annex B provides detailed information on the impact evaluation comparison group selection approach, COVID-19 sampling strategy, data sources, quantitative topics covered, and the data analysis plan. Annex B also provides detail on the qualitative topics discussed, the data collection strategy, and the qualitative analytical approach. Annex C provides all endline indicator tables for the pre-post analysis.

The research team from the USAID-funded mechanism called ERIE conducted this evaluation. ERIE stands for Expanding the Reach of Impact Evaluation. This mechanism aims to conduct retrospective long-term impact evaluations on USAID-funded activities, across a variety of sectors. The mechanism typically completes evaluations where a counterfactual can be identified ex-post, using existing datasets such as satellite imagery, nighttime lights, mobile or administrative data. This is an innovative approach to impact evaluation which particularly focuses on long-term impact and sustainability.[14] It is being piloted in the USAID community.

[14]For more information on the ERIE mechanism, see here: https://www.usaid.gov/PPL/MERLIN/ERIE

SAMPLE SELECTION FOR EACH EVALUATION METHOD

IMPACT EVALUATION SAMPLE SELECTION

To implement the impact evaluation, the ERIE research team identified a comparison group that matched with the intervention group at baseline - before the interventions began. The research team used stunting rates from the 2014 Bangladesh Demographic and Health Survey (DHS) to identify a matched comparison group for the *Nobo Jatra* intervention group. The comparison group, which did not receive the *Nobo Jatra* intervention, was matched to the *Nobo Jatra* group based on the similarity of their baseline child stunting rates. Matching methods are a common quasi-experimental method when random assignment is not possible; this method has been used in many fields of study for causal inference.[15] The evaluation team matched villages on child stunting rates due to the importance of this measure for understanding welfare and living conditions.[16] Since the evaluation team only used the stunting rate for matching, and did not have any other baseline data on comparison villages, no additional analysis was conducted to control for baseline differences between treatment and comparison villages.

The research team used a multi-stage sampling process to construct the treatment and comparison groups. In the first stage of sampling, 60 villages were randomly selected from the *Nobo Jatra* villages surveyed by ICF at baseline in 2016. The research team estimated the stunting rates for these 60 villages at baseline using the 2014 DHS data and a variety of geospatial variables to obtain village level child stunting estimates (this is discussed in detail in Annex B). The team then estimated child stunting rates across all of Bangladesh using the 2014 DHS data and other geospatial indicators such as travel times, temperature, nighttime lights, elevation, and a vegetation index (for the full list, see Annex I). Utilizing the 2014 DHS data for both treatment and comparison selection allowed comparability across both groups of villages. Using a list of villages provided by the Bangladesh Bureau of Statistics, the research team selected a pool of non-*Nobo Jatra* villages in unions close to the unions with treatment villages. From this pool of non-*Nobo Jatra* villages, the team selected 60 comparison villages that had similar stunting rates to those estimated for the 60 treatment villages.

To account for any COVID-19-related impacts on sampled villages and households, the research team conducted a survey with each village head to understand how COVID-19 affected their village. Using this survey, researchers utilized the number of COVID-19 cases and deaths, access to health services, the level of NGO involvement in the village on COVID-19 issues, impacts of COVID-19 on social relations in the village, overall opinions about the current health of the village, and COVID-19 impacts on households. Based on this survey, 12 villages (six matched pairs) were dropped from the sample because they had extremely high impacts or extremely low impacts from COVID-19. This prevented the analysis from comparing villages that had large COVID-19 impacts to villages that were either not impacted or had few COVID-19 impacts. This process left 108 total villages, 54 treatment and 54 comparison villages. More information about the matching process can be

[15] Stuart EA. Matching methods for causal inference: A review and a look forward. Stat Sci. 2010 Feb 1;25(1):1-21. doi: 10.1214/09-STS313. PMID: 20871802; PMCID: PMC2943670.

[16] USAID Advancing Nutrition. 2021. Beyond Stunting: Complementary Indicators for Monitoring and Evaluating USAID Nutrition Activities. Arlington, VA: USAID Advancing Nutrition.

found in the COVID-19 Sampling section of Annex B. Additional information in COVID-19 on villages can be found in Annex K.

Prior to the second stage of sampling, the research team conducted a household listing to create a complete and updated list of households in all selected treatment and comparison villages, so that the sampled households would represent the total population. During the household listing, the team collected basic descriptive information, including the number of household members and number of children under five for each household.

In the second stage of sampling, the research team used this household list to randomly select households from the 54 treatment and 54 comparison villages to include in the final sample. In each selected village in the treatment and comparison groups, twenty households were selected from households with children under five years of age. Another 11 households were randomly selected from all listed households without children under five years of age. The final treatment and comparison samples consisted of 1,674 households each (1,674 in *Nobo Jatra* villages and 1,674 in comparison villages). Because the responding households were randomly selected from a list of all households in a community, this should be considered a representative sample of all households in the sampled communities.

To assess the similarity of key characteristics between the comparison and treatment sample, the research team conducted balance tests shown in Table 2.2. For comparison on baseline characteristics, only child stunting rates were compared between the treatment and comparison samples. The remaining measures compare endline characteristics between the treatment and comparison samples using data from the household survey.

Table 2.2: Balance Table for Treatment and Comparison Groups

Variable	Treatment Group Mean [SE]	Comparison Group Mean [SE]	Difference Between Groups and Significance
Children Stunted at Baseline[17] N = 4,919	0.25	0.252	0.002
	[0.006]	[0.005]	
HH Head is Female N = 4,752	0.061	0.07	0.009
	[0.008]	[0.009]	
HH Head is Muslim N = 4,752	0.777	0.738	-0.039
	[0.047]	[0.050]	
HH Head Level of Education N = 4,752	2.223	2.306	0.084
	[0.041]	[0.036]	
HH Size N = 4,752	4.133	4.094	-0.039
	[0.046]	[0.048]	
Years of Education Among Women N = 4,752	8.3	8.815	0.515**
	[0.144]	[0.149]	

[17] This stunting rate is the predicted stunting rates in the treatment and comparison villages from the 2014 DHS data.

Variable	Treatment Group Mean [SE]	Comparison Group Mean [SE]	Difference Between Groups and Significance
Total per capita per day consumption (2021 BD Taka) at Endline (N = 4,752)	130.217	144.104	13.886***
	[3.237]	[4.092]	
Daily housing per capita consumption (2021 BD Taka) at Endline (N = 4,752)	14.609	19.177	4.568***
	[1.004]	[1.254]	
Daily per capita non-food consumption (2021 BD Taka) at Endline (N = 4,752)	35.54	34.038	1.502
	[0.776]	[0.976]	
Daily per capita food consumption (2021 BD Taka) at Endline N = 4,752	55.61	57.161	1.550*
	[0.620]	[0.673]	
HH living below US$ 1.90/day poverty line at Endline N = 4,752[18]	0.218	0.157	-0.062**
	[0.018]	[0.017]	
Depth of poverty (per capita cost of increasing a household's daily per capita consumption to the USD $1.90/day poverty line, reported in percent) : N = 4,752	2.689	2.189	-0.499
	[0.294]	[0.297]	

*Note: ***, **, and * indicate significance at the 1, 5, and 10 percent critical level. Standard errors clustered by village for all individual- and household-level data.*

Depth of poverty can be looked at as the per capita cost of increasing a household's daily per capita consumption to the USD $1.90/day poverty line.

The matching method used in this study constructs a comparison group that is likely more comparable to the treatment group than if the research team randomly selected comparison villages; nonetheless, treatment and comparison groups might still exhibit differences along important baseline conditions. Findings from the balance tests (above) show that the constructed treatment group and matched comparison group led to subsamples that exhibited very similar baseline child stunting rates (as estimated via the matching method). In addition to similar child stunting rates, the balance tests show that there are no meaningful differences between the treatment and comparison villages in terms of household demographics at endline (note that these characteristics are unlikely to have changed due to the program). The majority of household heads in both treatment and comparison areas identified as Muslim, Bengali, and male. Household sizes were also similar between the two groups with around 2 adult women and 2 adult men in each household.

[18] It is possible that these were impacted by the treatment, but these indicators tend to be broader and slower-moving impacts that results from intermediate impacts on other dimensions. We don't see many of those intermediate impacts that are large enough and in thematic areas that liely led to improvements in poverty.

Dealing with Lack of Balance on Some Indicators

Balance tests on household consumption and poverty show lower consumption and education levels, as well as higher poverty rates in the *Nobo Jatra* treatment areas than in the comparison areas. Because these measures were only collected at endline, it is impossible to tell whether these reflect differences in baseline conditions or are themselves program impacts. Therefore, in the analysis of the Research Questions below, the research team uses multiple approaches to account for these potential differences between the treatment and comparison groups. These approaches include re-matching treatment and comparison pairs on the basis of the survey data, as well as controlling for household consumption and poverty directly in the analysis. Irrespective of which approach the team utilized, the main results remained consistent.

Pre-post Evaluation Sample Selection Overview

Two separate research teams collected data for the pre-post evaluation: The ICF research team collected the baseline data in 2016 while the ERIE research team collected the endline data in 2021. Because identifiable data was not available for households surveyed at baseline, the ERIE research team selected new households for the endline survey from a subset of the same villages sampled in the baseline survey. In other words, different households were sampled for the baseline and endline surveys, but the endline survey took place in a sub-sample of the same villages surveyed at baseline.

For the baseline survey, the ICF research team used a multi-stage clustered sampling approach to provide a statistically representative sample of the *Nobo Jatra* project target areas. In the first sampling stage, ICF randomly selected 86 villages from the *Nobo Jatra* project areas. The ICF research team then systematically sampled 35 households in each of these villages from ICF household listing data collected before the start of survey data collection. Out of those 35 households, 15 received only a household survey, 7 received both a child survey and a household survey, and 13 received only a child survey for a total of 20 child surveys and 22 household surveys. The details of ICF's sampling approach can be found in Annex D.

The ERIE research team used the baseline stunting rates within the treatment and comparison groups to determine the sample size needed to make both reliable pre-post and impact evaluation comparisons at endline. This sample size was 54 villages each in the treatment and comparison areas, with 20 child surveys per village and 22 household surveys per village. While the number of villages is smaller than the baseline sample, it still provided a statistically representative sample due to having more information to determine the correct sample size for the project. The team used the same survey data from the households from *Nobo Jatra* villages for the treatment group of the impact evaluation and for the endline group of the pre-post evaluation. As described above in section 5.1.2.1, the ERIE research team used a multi-stage sampling approach. First the team randomly selected 60 villages from the villages sampled by ICF at baseline, then randomly selected 31 households per village using the ERIE household listing data. Out of the 31 households, 11 were chosen from households with no children under five years of age. They received only a household survey. Twenty were chosen from households with children under five years of age. Of these 20, 11 received both a household and child survey, and 9 received only a child survey. This results in a total of 22 household surveys and 20 child surveys (the same number as the

baseline survey). Sampling was population based, meaning that the sample in both treatment and comparison villages should be considered representative of the entire village.

The household survey was administered to all relevant household members in the selected households in the treatment area, while only one representative for each module was surveyed in the selected households in the comparison area (although all U5 children in selected households were surveyed and weighed in both the treatment and comparison villages). For example, Module E in the treatment areas was administered to all women in the household aged 15-49 that were ever married and never married while Module E in the comparison areas was administered to one randomly selected woman in the household aged 15-49 who was ever married and one woman in the household aged 15-49 who was never married. Differences between treatment and comparison survey administration was accounted for during the analysis by utilizing different sampling weights to adjust for the number of respondents for each section. For more detailed information see sections 2.1.3 and 2.1.4 in Annex E: Endline Study Inception Report and Protocol.

Qualitative Sample Selection Overview

The qualitative sample for the *Nobo Jatra* program was a purposively selected subset of six of the *Nobo Jatra* villages that were selected for the endline/impact survey sample. To attain balanced coverage in relation to the *Nobo Jatra* intervention area, the research team chose three villages from each of the two districts where the program was implemented. Criteria for selection included villages that had at least 46 households, where *Nobo Jatra* had implemented most of their interventions, and where implementation and community engagement were viewed to be among the strongest based on implementer input and documentation. Ethnic diversity was also maximized when possible. If necessary, travel, logistics and ease of access had to be considered. This selection strategy offers the best chance of learning about what interventions and implementation processes work and how, allowing the qualitative evaluation to capture the potential of the interventions and any lessons regarding maintaining and building on successes in the years to come. The authors refer to these selected villages as best-case scenario villages.

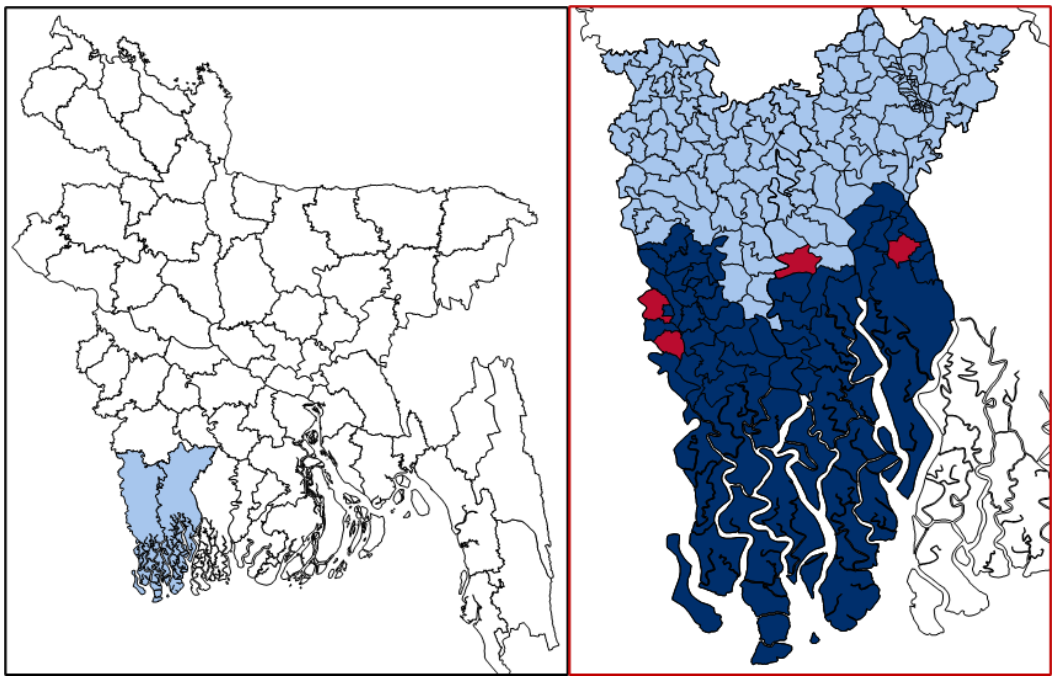
To select villages for the qualitative study, the research team implemented a multi-stage process described in the steps below.

1. **District-level:** *Nobo Jatra* was implemented in southern coastal areas of two districts, Khulna and Satkhira. The research team selected villages in each of the two districts where the program was implemented.
2. **Upazila and union-level:** *Nobo Jatra* worked in two upazilas per district. Within each district, the research team selected both upazilas, for a total of four (Dacope and Koyra upazilas in Khulna district and Kaliganj and Shyamnagar upazilas in Satkhira district). Within each upazila, the team selected one union where *Nobo Jatra* had implemented most or all of their interventions (Kailash Ganj union in Dacope upazila, Amadi union in Koyra upazila, Dhalbariya union in Kaliganj upazila, and Nurnagar union in Shyamnagar upazila).
3. **Village-level:** The implementers of *Nobo Jatra* provided a list of villages where they worked in each sampled union and marked those where they considered implementation and community engagement to have been the strongest. The research team prioritized villages on this list with at least 46 households with project participants and selected one village per sampled union, for a total of four villages. In

some unions, the research team identified back-up villages meeting the above criteria knowing difficulty of access might impact final village selection.

Village names are not included to maintain the confidentiality of respondents. The selected districts and unions are shown in Figure 2.3 below.

Figure 2.3: Locations of Nobo Jatra Districts and Sampled Unions



***Nobo Jatra* district** **Qualitative sampled upazila** **Qualitative sampled union**

Within each selected village, the team conducted six key informant interviews (KIIs)—two with community leaders and four with members of resilient households—as well as six focus groups with project participants. For each village the team also conducted KIIs with three local input and service providers who served that village. In each district the team interviewed one implementing partner staff member who worked on *Nobo Jatra*, selecting when possible, those who were most involved with implementation, most knowledgeable about *Nobo Jatra*, and had sustained contact with *Nobo Jatra* villages since the conclusion of program activities. Finally, in each district the team interviewed a collaborator; funder; or stakeholder in the private sector, government, NGO community or research community who was knowledgeable about *Nobo Jatra* or similar programs. Table 2.3 summarizes the interviews and focus groups conducted as well as the selection criteria used.

Table 2.3: Interviews and Focus Groups Conducted and Respondent Selection Criteria

Respondent and Data Collection Type	Number of Interviews	Individual Sample Identification and Participant Selection Criteria

Participant Focus Groups	6 focus groups per village (8 to 12 people per group)
	
	Total of 24 FDGs
		Within each selected village, the research team conducted six focus group discussions (FGDs):
		● 1-2 FGDs with men who participated in at least one *Nobo Jatra* intervention
		● 2-3 FGDs with women who participated in at least one *Nobo Jatra* intervention
		  ○ Depending on the context, some of these FGDs could be mixed gender (in fact, none were mixed).
		● 1 FGD with extremely poor and/or vulnerable community members* who participated in at least one *Nobo Jatra* intervention.
		  ○ A mix of men and women was possible, if acceptable in the community (in fact, none were mixed).
		● 1 FGD among youth who participated in at least one *Nobo Jatra* intervention. Youth must be at least 18 years of age. (Most youth FGDs were mixed gender.)

Resilient Household Member Interviews	4 KIIs per village Total of 16 KIIs	In each village, the research team conducted interviews with four (4) members of the most resilient households. These households were identified through implementing partners and village leaders. The criteria for resilient households were that they: (1) were households within the village; (2) had participated in *Nobo Jatra*; (3) had food throughout most of the year; (4) had diversified income sources; and (5) were able to recover in the event of a shock. If perspectives were different enough, more than one interview could be conducted with members of the same household. Or, if the situation required more information, one key informant interview could be conducted with more than one member of the household. At least one interview of the four in each village was done with a woman, and at least one was done with a man.
Community Leader Interviews	2 KIIs per village Total of 8 KIIs	In each village, the research team conducted two interviews with community leaders who were involved with and knowledgeable about the implementation of *Nobo Jatra* activities and the villages in which the activities were implemented. The research team sought participants who could provide perspectives regarding other programs that had occurred in the villages as well and included female leaders if possible.
Local Input and Service Provider Interviews	3 KIIs with LSPs that serve each village Total of 12 KIIs	The research team conducted interviews with three local service providers (LSPs) who served each selected village. The team tried to interview at least one woman and one man serving each village and tried to include providers of different services and inputs.

Respondent and Data Collection Type	Number of Interviews	Individual Sample Identification and Participant Selection Criteria
Implementing Partner Interviews	Total of 4 KIIs	The research team conducted interviews with four implementing partner staff members who each served at least one of the selected villages. The researchers tried to identify staff who had served in separate geographic locations. Criteria for selection included level of participation in and knowledge about *Nobo Jatra*, as well as work in and sustained contact with the selected villages. The team tried to interview staff who worked on different types of interventions and included a mix of men and women.
Stakeholder Interviews	Total of 4 KIIs	The research team conducted four interviews with collaborators, funders, or stakeholders in the private sector, government, community organizations, NGOs, and/or research organizations who were knowledgeable about *Nobo Jatra* or similar programs, who did work similar to *Nobo Jatra's*, who had a stake in the outcome of *Nobo Jatra*, or who could offer a broad perspective on the context in which the work was carried out. The research team identified stakeholders who also knew about the geographic locations where *Nobo Jatra* was implemented. The team interviewed people with a variety of perspectives, including local, national and international, and a mix of men and women.
Grand Total		**68 interviews and focus groups**

*Extremely poor and/or vulnerable community members were identified by project participants, since many knew their own and other community members' designation from the project. Local implementation staff also helped interviewers identify extremely poor and/or vulnerable community members.

LIMITATIONS

COVID-19 DELAYS

Due to lockdowns associated with COVID-19's rapid spread around the world, the team, in consultation with USAID, delayed the endline until December 2021. The lockdowns also delayed or halted some of the project's activities.

This data collection delay impacted the research in several ways. First, the research team did not conduct the endline at the same time of year as the baseline, which means the households could have been facing a different situation in December compared to May in terms of harvests, weather, schooling, etc. While this could have an impact on the pre-post indicators (see Annex C for pre-post indicator tables), it won't have an impact on the contrast between treatment and comparison households because both sets of households were surveyed at the same time at endline. Second, COVID-19 may have lessened the impact of the project during the two year delay through the disruption of activities and thus some results might have diminished. Third, the US-based researchers were unable to travel

to Bangladesh to collaborate with the data collection firm on training and quality control. This limitation was addressed in two ways. First, the US-based team adopted a training of trainers approach, in which the US-based team trained key personnel at the data collection firm over many days. Second, the evaluation team shifted travel budget funds to engage locally based external consultants who served as experts in the various sectors that *Nobo Jatra* addressed, such as nutrition and resilience. These consultants participated in the training activities and traveled to the field to observe the data collection activities. The teams also increased the communication with the data collection firm. With this mitigation, the evaluation team is satisfied that the data collected are high quality.

Field Work Issues

During the quantitative endline survey, approximately 19% of the originally sampled households could not be interviewed. This was mainly due to the timing of the survey, which fell within a school holiday period, so more households than normal were away from home. In addition, the same percentage of households in both the treatment and comparison areas were unavailable for the survey (18.8% in the treatment villages and 18.8% in the comparison villages). Households that were away from home were replaced with ordered randomly sampled households ensuring that households were randomly selected. Given that the same percentage of households were away in the comparison and treatment groups, the research team is confident that this non-response is not correlated with treatment status, which would introduce bias into the sample for the impact evaluation. Therefore, this non-response should have no effect on the analysis between the treatment and comparison areas. However, this could potentially affect the pre-post comparisons. Because the research team has no data on the sampled households that could not be interviewed, the team is unable to predict if this biased the estimates upwards or downwards for the pre-post analyses, which is another limitation of the pre-post method in this case.

Matching Limitations

Due to the retrospective nature of this evaluation, the identification of the comparison group faces certain limitations. Ideally, in order to get the most accurate measurement of impact, a control group would be identified at baseline. This was not done for this project. The alternative way to measure the causal impact (which would not be captured in a pre-post evaluation) is by matching villages retrospectively based on available data collected before the program began. In this matching design, researchers matched on estimated baseline child stunting rate at baselines. Since this is done retrospectively and focused on child stunting rates, other indicators from comparison villages might not be as comparable across other indicators. In this evaluation, *Nobo Jatra* treatment villages show lower consumption and higher poverty rates than in the comparison areas. Given that these are measures collected at endline and not available at baseline, it is not possible to know whether or not these villages were different at baseline, only that they are different at endline. Due to the differences, in the impact evaluation analysis, the research team both re-matched treatment and comparison villages on the basis of the survey data and controlled for household consumption and poverty in the analysis. Regardless of which analysis method was used to control for these differences, the main results stayed consistent throughout the impact evaluation. Such consistency in the analysis gives the research team confidence in the accuracy of the results; however, the researchers cannot say with absolute certainty that these analytical adjustments have eliminated all confounding differences, measured or unmeasured, between treatment and comparison groups.

Additionally, the selection of comparison villages had to be revised from the original plan due to the nature of how the treatment villages were chosen. The *Nobo Jatra* project worked in all villages in each union. Therefore, the team could not pursue the original plan of matching half of the comparison villages to treatment villages in the same union and half to unions outside the treated villages union. This created some matched pairs that were less well matched than others. However, for the research question analysis, the team used the endline data to re-match the villages based on a variety of different indicators to create more comparable village pairs (as well as using additional adjustment approaches) to ensure comparability across the treatment and comparison villages. For more information on this approach, see Annex B.

3. FINDINGS

INTRODUCTION TO FINDINGS

The findings section of this report provides responses to five (5) research questions. As described in the methodology section, the research team explores these questions using quantitative data collected at baseline from a large sample of treatment villages, quantitative data collected at endline from a subsample of those treatment villages, quantitative data collected at endline from a random sample of matched comparison villages, and qualitative data collected at endline from six purposively selected villages where *Nobo Jatra* was well-implemented and the community was engaged. Together, these data sources help us create a picture of how the *Nobo Jatra* communities changed over the course of the project. Findings that take baseline and endline data of treated villages to create a pre-post quantitative evaluation help describe how community qualities (such as nutritional status or resilience capacities) have changed in the communities since the activities began. Evidence from the qualitative evaluation in villages where *Nobo Jatra* implementation was well done draws attention to the program strategies that might have been the most influential in improving the program's targeted outcomes. The quantitative impact evaluation, which compares treated and matched, non-treated villages, demonstrates how the program's targeted outcomes in treated villages are the same or differ from those outcomes in villages that never benefited from the program. This final analysis helps differentiate the effects of *Nobo Jatra* from broader differences that happened across the region.

RESEARCH QUESTION 1 FINDINGS: TO WHAT EXTENT HAS *NOBO JATRA* MET ITS DEFINED GOAL, PURPOSES AND OUTCOMES?

3.1.1 OVERVIEW OF RESEARCH QUESTION 1

The goal of the *Nobo Jatra* project was to improve gender-equitable food security, nutrition, and resilience among vulnerable people in the Khulna and Satkhira districts of Bangladesh. *Nobo Jatra* designed their project around four purposes, which they hypothesized would lead to the achievement of the overall goal. (See *Nobo Jatra's* Theory of Change in Annex A for a detailed look at their theory of how their goal, purposes and outcomes would be met.) The four purposes are as follows.

1. Improve maternal and child nutrition by reducing nutrition-related diseases, decreasing adolescent pregnancy, increasing uptake of maternal and child health practices, and increasing the practice of gender-equitable norms.
2. Increase equitable household income by diversifying livelihoods, increasing access to markets, and improving production of nutritious foods.
3. Strengthen the ability of households and communities to mitigate, adapt to, and recover from natural shocks and stresses by improving community and government disaster preparedness and response.
4. Improve social accountability and national policy engagement of service provision for vulnerable men and women by increasing the responsiveness of private and public service providers while building the capacity of communities to raise demand on services.

In the next section, the research team shares high-level key findings regarding whether *Nobo Jatra* met its four purposes. In the sections that follow, the team provides more detail

regarding the extent to which *Nobo Jatra* achieved these purposes and the pathways by which these achievements occurred. These findings also show the potential of these interventions and lessons for future implementation.

3.1.2 Summary of Research Question 1 Findings and Key Takeaways

The key findings from our pre-post and qualitative performance evaluations suggest that *Nobo Jatra's* main strategies (purposes) contributed to greater or lesser extents to the program achieving its goal in the treatment villages. The impact evaluation shows that some of the outcomes identified can be attributed to *Nobo Jatra*; however, the research team is limited in being able to attribute others of these differences directly to the *Nobo Jatra* program. An overview of these findings can be found in Table 3.1. Figure 3.1 shows the success or lack of success of each of the project's purposes and sub-purposes in achieving *Nobo Jatra's* goal in best-case scenario villages.

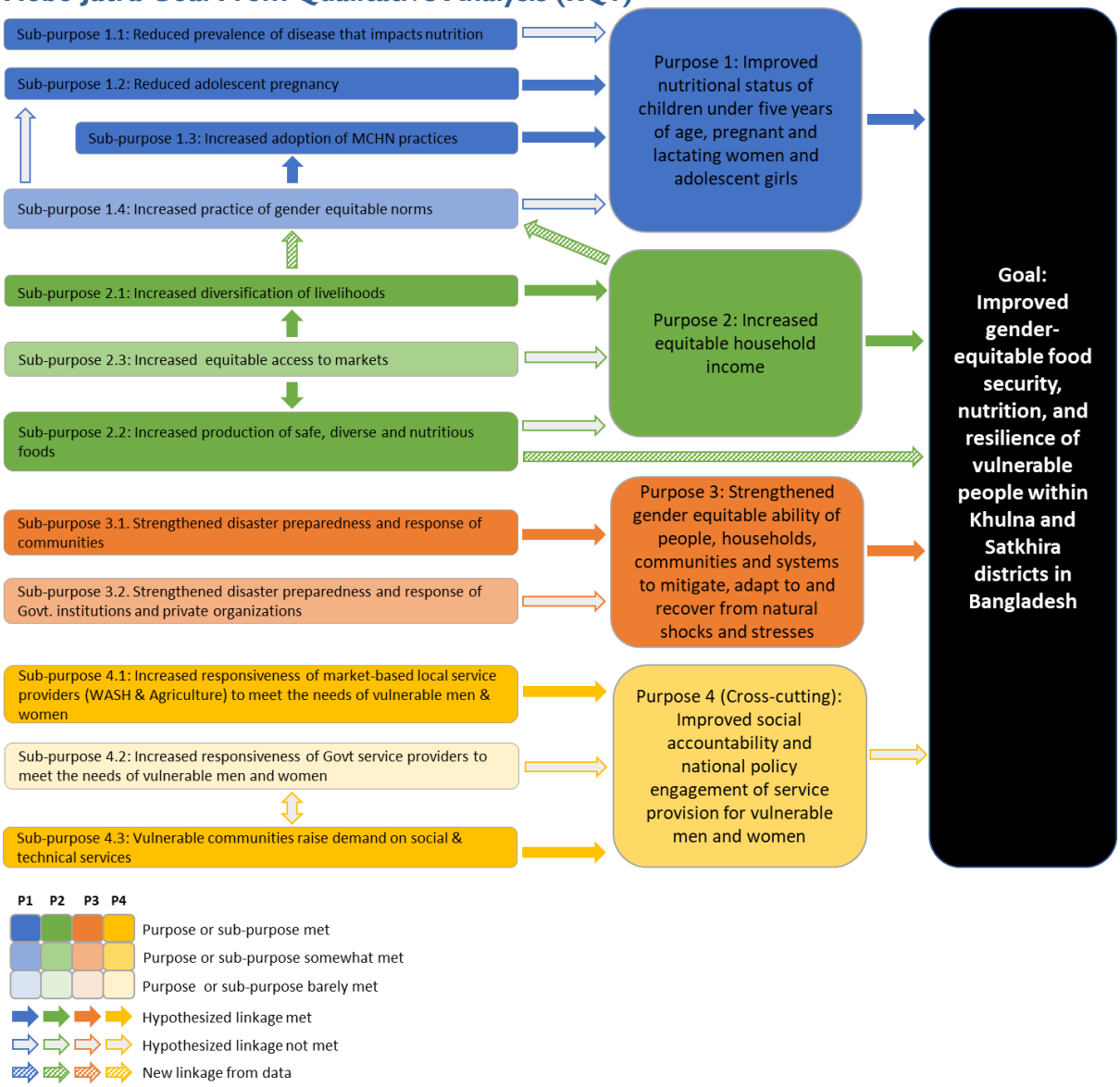
Table 3.1: Key Findings on the Extent to Which Nobo Jatra Met its Defined Purposes (RQ1)

Purpose	Key Findings from the Qualitative and Quantitative Research
Purpose 1: Improved nutritional status of children under five years of age, pregnant and lactating women and adolescent girls	● The **pre-post analysis** indicated that women's nutritional status improved after the program. ● Although **the pre-post analysis** showed that children's nutritional status improved after the program, the **impact analysis** indicated that the researchers cannot confidently attribute this improvement to the program. ● The **pre-post and impact analysis** suggest that the program did have some effect on the sub-purposes (or intermediary outcomes) to achieving improved nutritional status among women and children. The **qualitative analysis** elucidated how these sub-purposes were achieved. ○ Although the **pre-post analysis** showed a decline in diarrhea among children, the **impact analysis** suggests that this was not due to the program and rates were in fact higher in *Nobo Jatra* villages than comparison villages. The **pre-post** and **qualitative analysis** showed improvements in the use of clean water sources,,sanitary latrines, and increased accessibility of water. Village WASH committees appeared to play an important role in disease prevention and awareness. ○ The **pre-post analysis** showed improvements in early marriage and pregnancy, with the **impact analysis** indicating that this was likely from the *Nobo Jatra* program. **Qualitative** participants explained that increased awareness around the dangers of early marriage and pregnancy, along with strengthened community child protection committees, contributed to these outcomes. ○ According to **pre-post findings**, the percentage of women and children with an adequate diet improved over time, but the **impact evaluation** found no meaningful differences between treatment and comparison villages. The **qualitative analysis** suggests that dietary improvements can be achieved through (1) improved knowledge and awareness, (2) cash transfers, and (3) homestead food production. ○ **Pre-post findings** reveal that women's access to and use of healthcare services improved between baseline and endline, but the **impact evaluation** found no meaningful differences between treatment and comparison groups for antenatal care and contraceptive use (the only women's health indicators analyzed in the impact evaluation).

Purpose	Key Findings from the Qualitative and Quantitative Research
Purpose 1: Improved nutritional status of children under five years of age, pregnant and lactating women and adolescent girls (cont.)	○ Besides more equitable household food distribution, the increased practice of gender-equitable norms was not linked to improved nutritional status. Even so, findings from both the **pre-post and qualitative analyses** suggested increased control over income, more equitable decision-making, more equitable division of labor, and improved mobility between baseline and endline. The **impact evaluation** likewise saw positive differences in mobility, suggesting that the *Nobo Jatra* program led to this gender-equitable norm shift. The **qualitative analysis** suggests that women's participation in livelihood diversification and agricultural activities were the main contributors to improved gender-equitable norms.
Purpose 2: Increased equitable household income	● According to the **pre-post analysis,** there were improvements in poverty (as a proxy for income) at the end of the program. ● According to the **qualitative analysis**, the program was able to contribute to increased incomes through increased diversification of livelihoods, which was facilitated by increased access to savings and financial services. ○ Qualitative findings show that *Nobo Jatra* participants, particularly women, were able to gain knowledge and skills around different income-generating activities, including handiwork, tailoring, and livestock rearing. ○ Both the pre-post and qualitative analysis showed increased adoption of sustainable and improved livestock practices, with qualitative participants attributing this to new knowledge from technical trainings, inputs, and financial support they received from the *Nobo Jatra* program. ● The **qualitative findings** suggest that increased agricultural production led primarily to improved food and nutrition security rather than increased incomes as hypothesized. ○ Both the pre-post and qualitative findings indicate the *Nobo Jatra* participants increased their adoption of sustainable agricultural practices, which improved production. ○ However, qualitative participants reported that agricultural challenges including weather-related incidents and access to land and water remained. This may have been due to the fact that *Nobo Jatra* villages did not increase adoption of sustainable natural resource management practices. ● Both **qualitative and pre-post data** indicated an increase in access to savings and financial services. Participants in best-case scenario villages cited that this improvement was mostly for women, who could access services through VSLAs. ● According to **qualitative findings,** *Nobo Jatra* did not appear to increase participant access to markets. ● Both **qualitative and pre-post data** indicated an increase in access to savings and financial services. Participants in best-case scenario villages cited that this improvement was mostly for women, who could access services through VSLAs. Qualitative participants also reported that this facilitated their income-generating and agriculture activities.

Purpose	Key Findings from the Qualitative and Quantitative Research
Purpose 3: Strengthened gender equitable ability of people, households, communities and systems to mitigate, adapt to and recover from natural shocks and stresses	**According to the pre-post evaluation:** ● Households in *Nobo Jatra* villages perceived reduced exposure to shocks and reduced impact from shocks at endline than at baseline. However, households also perceive less ability to recover from past and future shocks. **According to qualitative analysis in best-case scenario villages:** ● *Nobo Jatra* supported increased disaster preparedness and response between baseline and endline among households and communities through disaster management committees and social behavior change communication. **According to the impact evaluation:** ● Households in *Nobo Jatra* villages that experienced major shocks were better able to mitigate the effects of the shocks—maintaining their food consumption—than households in comparison villages that also experienced major shocks. ● Households in Nobo Jatra villages were also better able to recover from shocks than households in comparison villages through access to agricultural extension services and adoption of sustainable agricultural and storage practices
Purpose 4 (Cross-cutting): Improved social accountability and national policy engagement of service provision for vulnerable men and women	**According to qualitative analysis in best-case scenario villages:** ● Market-based local services providers appeared to be responsive to community needs, providing inputs and technical information. ● Government responsiveness to community needs was mixed and varied across unions. ● Village development committees were central in advocating for community needs with local governments.

Figure 3.1: Perceived Extent to Which Sub-Purposes and Purposes Met the Overall Nobo Jatra Goal From Qualitative Analysis (RQ1)



Below the research team breaks-down *Nobo Jatra's* theory of change and looks at how, whether, and to what extent the project met its goal through each purpose, its sub-purposes and outcomes.

3.1.3 Detailed Findings of Purpose 1: Improved nutritional status of children under five years of age, pregnant and lactating women and adolescent girls

Overview of Purpose 1 Findings

In this section, the research team first looks at whether the *Nobo Jatra* program had any effect on women's and children's nutrition status from a quantitative perspective. The research team used the pre-post evaluation to assess any changes in nutrition status, and the impact evaluation to analyze whether these differences between the treatment and comparison villages were due to the *Nobo Jatra* program. Secondly, the team assesses which determinants of improved nutritional status the *Nobo Jatra* program had any effect on, which

offers potential insights into the paths by which any change in nutrition status occurred. There were four determinants of malnutrition, or sub-purposes, the program aimed to address: (1) reduced water-borne diseases tied to malnutrition (Sub-Purpose 1.1); (2) reduced adolescent pregnancy (Sub-Purpose 1.2), (3) increased positive maternal and child health and nutrition practices (Sub-Purpose 1.3), and (4) increased practice of gender-equitable norms (Sub-Purpose 1.4). To assess each of these sub-purposes, the research team relied on a mix of the three different evaluation methods.

The **pre-post analysis** compared measures and outcomes under each sub-purpose for the sample of households in *Nobo Jatra* communities who participated in the household survey at baseline to a similar group of households from the same communities who participated in the endline survey in 2021. The difference between these measures can be understood as changes in the sub-purposes and outcomes in these communities that may have been caused by *Nobo Jatra* interventions, by broader changes in Bangladesh during that period, or by a combination of the two; a pre-post design does not allow the research team to identify what caused any of the measured changes. Similarly, the perspectives of participants in the **qualitative study** in "best case scenario" communities where *Nobo Jatra* implementation was particularly strong provides descriptions of the changes they have experienced since the project began and perspectives on how and why changes occurred. While participants might have attributed changes to *Nobo Jatra*, this does not provide definitive causal evidence of its effects. Rather, it highlights possible pathways of change and insights on project implementation, acceptance, and engagement. The **impact analysis** can help to clarify our understanding of the cause of any measured differences over time by comparing the sub-purposes and outcomes in the treatment villages to the similar comparison villages, as was done for the purposes.

Overall, when looking at improved nutrition for women and children from the perspective of the pre-post analysis, **the research team sees positive results of improved women's nutritional status and decreased malnutrition of children under five years of age across all three malnutrition indicators;** however, the impact evaluation suggests that the research team **cannot confidently attribute decreased malnutrition of children under five years of age to the *Nobo Jatra* program**. The impact evaluation finds no significant differences in the rates of children who are underweight, stunted, or wasted between *Nobo Jatra* and non-*Nobo Jatra* villages.

Nobo Jatra appears to have had some effect on the *sub-purposes* that they hypothesized could facilitate their overall goal of improving nutritional status of women and children. For example, dietary diversity is an intermediary outcome (or sub-purpose) to achieving improved nutritional status. The impact evaluation reveals that increased dietary diversity for children *did* positively differ between treatment and comparison groups, suggesting that the *Nobo Jatra* program contributed to children's dietary adequacy. When exploring each sub-purpose, the research team observes the following conclusions as noted in Table 3.2.

Table 3.2: Key Findings on the Extent to Which Sub-Purpose Pathways Produced Positive Outcomes for Purpose 1 (RQ1)

Sub-Purpose	Key Findings from the Qualitative and Quantitative Research
Sub-Purpose 1.1: Reduced prevalence of disease that impacts nutrition	• While children's diarrhea rates declined for male infants between baseline and endline in the **pre-post analysis**, the **impact evaluation results** indicated that these differences are not attributable to the project, and that endline levels for children in treatment villages were in fact higher than in comparison villages. • In villages where interventions were well-implemented, participants reported adopting improved hygiene practices that reduce open defecation and diseases. They credited this to *Nobo Jatra* training and improved sanitary latrine access. In fact, at the time of data collection, participants observed that most households in each **qualitative** sample village had a latrine. • **Pre-post findings** backed up these observations, revealing that more households had access to a handwashing station with soap and used improved sanitation facilities. • **Pre-post results** indicated that access to and availability of clean drinking water improved in *Nobo Jatra* villages, although the use of water-treatment technologies decreased. Best-case scenario villages *did* see improved use of water-treatment technologies due to *Nobo Jatra* training, but they cited several persistent challenges around water accessibility, affordability, and seasonal availability. • Village WASH and water committees, revitalized by *Nobo Jatra*, also played some role in reducing the prevalence of disease that impacts nutrition in best-case scenario villages according to **qualitative analysis.**
Sub-Purpose 1.2: Reduced adolescent pregnancy	• **Pre-post findings** showed that the average age of married women's first pregnancy increased by almost two years. The age of marriage also increased, although the average age of marriage still remained below 18. **Impact evaluation findings** suggested that the improved differences in early marriage and pregnancy can likely be credited to the *Nobo Jatra* program. • **Qualitative** respondents in base-case scenario villages linked improvements in first pregnancy and marriage rates to increased awareness of the dangers of marrying at a young age and strengthened child protection mechanisms following *Nobo Jatra* training sessions. • **Qualitative** respondents also explained that they leveraged formal and informal structures within their communities that were strengthened by *Nobo Jatra* to advocate for behavior change around child marriage. • Participants in the **qualitative research** stated that financial hardships were a critical driver behind persisting child marriage and that COVID-19, which took children out of school and exacerbated hardships, led to an uptick in child marriages during this time.
Sub-Purpose 1.3: Increased adoption of maternal and child health and nutrition (MCHN) practices	• **Pre-post findings** reveal only mild improvements in women's dietary diversity between baseline and endline, and the **impact evaluation** reveals no meaningful differences between rates in treatment and comparison villages. • According to **pre-post findings**, the percentage of children exclusively breastfeeding up to six months increased by approximately 30%. **Impact evaluation results** suggest that this cannot be confidently attributed to *Nobo Jatra*, although the sample size for this indicator was small.

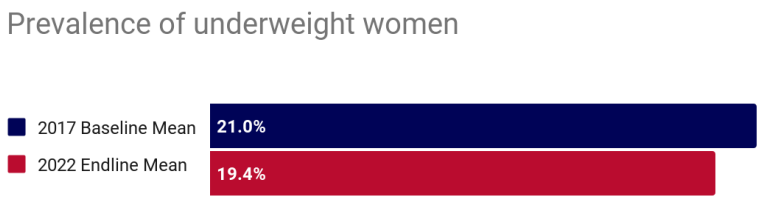
Sub-Purpose	Key Findings from the Qualitative and Quantitative Research
Sub-Purpose 1.3: Increased adoption of maternal and child health and nutrition (MCHN) practices (cont.)	• **Pre-post findings** saw a 40.2 percentage point increase in women who accessed primary healthcare services. The **impact evaluation** supported that there were meaningful differences between the rate of women accessing antenatal care in treatment versus comparison villages. • **Pre-post results** indicated that more women used contraceptive methods at endline, but **impact evaluation findings** show no meaningful difference between treatment and comparison groups. • **Qualitative** participants from best-case scenario villages linked the adoption of health-seeking practices to increased awareness of, and demand for, health services available in communities, though not necessarily an increase in supply of quality healthcare services.
Sub-Purpose 1.4: Increased practice of gender-equitable norms	• Besides more equitable household food distribution (see Sub-purpose 1.3 below), the increased practice of gender-equitable norms was not linked to improved nutritional status (Purpose 1). Therefore, the research team did not find the hypothesized linkage between Sub-purpose 1.4 and Purpose 1 to have been met. • However, notably, the research team found that in best-case scenario villages participants' increased incomes (Purpose 2) and participation in livelihood diversification activities (Sub-purpose 2.1) were the main contributors to increased practice of gender-equitable norms, though neither of these pathways had been hypothesized to have contributed to Sub-Purpose 1.4. • Both the **pre-post** and **qualitative** findings showed that women's decision-making regarding their own income improved between baseline and endline. **Qualitative** findings credit this to more diversified income sources. • According to the **pre-post analysis**, fewer women and men made joint decisions about their incomes at endline. However, **qualitative** findings suggest that more non-income decisions within households are being made with both spouses due to women's increased incomes. • The **pre-post evaluation** and **qualitative analysis** both reported more equitable division of household labor. • Both the **pre-post** and the **impact evaluation** support that women's mobility improved across age groups and likely could be attributed to *Nobo Jatra*. **Qualitative findings** supported this but suggest that such mobility improvements were limited to specific activities. • **Pre-post findings** revealed that there was an overall decrease in women's contribution to household income and that the gap between male and female cash earners increased.

WOMEN'S NUTRITIONAL STATUS

To measure women's nutritional status, the research team relied on body mass index (BMI). A woman's BMI can give insights into her nutritional health. A high BMI (>25) can mean a woman is overweight while a low BMI (<18.5) can indicate that a woman has low energy or decreased energy reserves. Malnourished women experience increased risks for both themselves and their children. Underweight mothers are more likely to have infants with a low birthweight, further increasing the child's risk of stunted mental/motor development, obesity, hypertension, cardiovascular disease, and diabetes (USAID, 2017).

The pre-post evaluation indicates that women's nutritional status, as measured by BMI, improved between baseline and endline. The share of women who were mildly or severely underweight decreased from 21% baseline to 19.4% at endline, though this finding was not statistically significant.

Figure 3.2: Pre-post results - Prevalence of underweight women at baseline and at endline (RQ1)

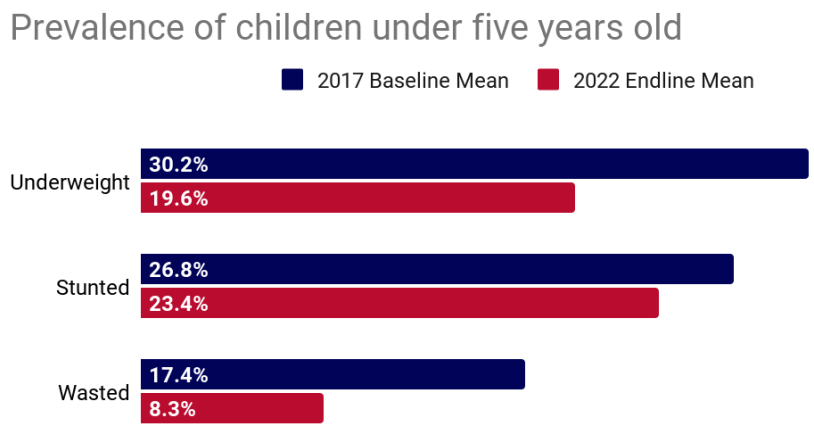


CHILDREN'S NUTRITIONAL STATUS

For this evaluation, the research team analyzed three indicators that measure malnutrition among children: underweight, stunting, and wasting. Childhood stunting is an important measurement of children's well-being as well as an indicator used to measure social inequalities (Onis and Branca 2016). Children who face malnutrition can have long term growth and development issues which can impact their economic productivity and their physical and mental wellbeing later in life (Shrestha et al. 2022). In addition to poverty rates and diarrhea, stunting is tied to a multitude of factors. As mentioned in a USAID 2021 report, "stunting is a consequence of several factors that limit physical growth and general development, but it is not specific to undernutrition. For example, stunting could indicate a deficit in home hygiene environment or access to health systems services. As a marker, stunting shows that one or more factors have affected linear growth, but does not reveal what those factors are." (USAID, 2021) The World Bank in 2019 released a report specifically focused on Bangladesh that acknowledges that the causes of stunting are multifaceted and there is also a strong connection between stunting and WASH issues (World Bank, 2019). Therefore, there could be other factors (other than poverty level and diarrhea) that affect why non-poor households have higher stunting rates in the sampled villages beyond the indicators that we have available in this report.

Findings from the pre-post evaluation show that malnutrition among children under five years of age decreased across all three indicators. The largest decrease was observed for underweight children, which dropped by 10.6% (Figure 3.3). Wasting and stunting rates declined by 9.1% and 3.4%, respectively.

Figure 3.3: Pre-post results - Stunting, underweight, and wasting for children under 5 years of age (RQ1)



However, findings from the impact evaluation suggest that there are no effects on any of the three indicators of child nutritional status due to the *Nobo Jatra* program. As shown in Figure 3.3, there are no significant differences in the rates of children who are underweight, stunted, or wasted between *Nobo Jatra* and non-*Nobo Jatra* villages. These results indicate the *Nobo Jatra* program does not appear to have reduced childhood malnutrition rates more so than what occurred in other, comparable communities.

As shown in Table 3.3, the research team controls for each child's age category, gender, the predicted baseline stunting rate in each village, fixed effects for each originally matched pair, polynomials in each village's mean per capita consumption level, poverty rate, and mean mothers' education levels, as well as whether the village experienced a major shock and the mean number of shocks reported by households in each village. This is used to adjust the estimates of the means to compensate for differences between the *Nobo Jatra* and comparison villages. With all of these controls in place, the research team finds that the difference in stunting, wasting, and underweight between treatment and comparison groups is effectively zero. In columns 3-7, the team alternatively employs propensity score matching, kernel-based matching, k-nearest neighbor matching, and coarsened exact matching using the aforementioned covariates. While the impact estimates vary slightly under each of these alternatives, they are never large or statistically significant. Taken together, **these results indicate the *Nobo Jatra* program does not appear to have reduced childhood stunting rates more so than what occurred in other, comparable communities.** That is, rates of child stunting have improved in *Nobo Jatra* villages as seen in the pre-post analysis, but they are similar to child stunting in comparison villages at endline.

Table 3.3: Impact Evaluation - Impacts on Child Nutrition (RQ1)[19]

Comparison Group Adjustment	Regression Adjustment[20]	Propensity Score Matching[21]	Kernel Matching[22]	Kernel Matching	K-Nearest Neighbor Matching[23]	Coarsened Exact Matching[24]	Coarsened Exact Matching
	Base Covariates	Full Covariates	Full	Full	Full	Base	Full
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Treatment Effect on...							
Stunting	0.033**	0.014	0.066	0.026	0.018	0.009	0.006
confidence interval	[0.009 ,0.057]	[-0.009, 0.036]	[-0.004, 0.136]	[-0.008, 0.059]	[-0.020, 0.056]	[-0.031, 0.050]	[-0.032 ,0.045]
p-value	(0.01)	(0.24)	(0.07)	(0.13)	(0.36)	(0.65)	(0.75)
N	2329	2329	2329	2329	2329	1571	1571
Underweigh t	0.03**	0.017	0.011	0.023	0.004	0.01	0.006
confidence interval	[0.008, 0.051]	[-0.008,0.042]	[-0.031, 0.054]	[-0.008, 0.055]	[-0.032, 0.040]	[-0.028, 0.048]	[-0.034, 0.047]
p-value	(0.01)	(0.19)	(0.60)	(0.14)	(0.81)	(0.60)	(0.75)
N	2332	2332	2332	2332	2332	1562	1562
Wasting	0.009	0.003	0.009	0.011	0.009	0.01	0.008
confidence interval	[-0.007, 0.026]	[-0.020, 0.025]	[-0.019, 0.036]	[-0.011, 0.032]	[-0.016, 0.034]	[-0.017, 0.036]	[-0.020, 0.036]
p-value	(0.25)	(0.82)	(0.54)	(0.34)	(0.50)	(0.47)	(0.58)
N	2330	2330	2330	2330	2330	1571	1571

[19] A negative treatment effect means the treatment group indicator was lower compared to the comparison group and a positive treatment effect means that the treatment group indicator was higher compared to the comparison group.

[20] Regression adjustment used a set of variables to adjust the estimates of the means to compensate for differences between the *Nobo Jatra* and comparison villages. Base covariates used the estimated baseline stunting while full covariates used village consumption, poverty, mothers' education, and whether or not the village faced a large shock.

[21] Propensity Score Matching (PSM) was done at the individual level and matched households located in *Nobo Jatra* villages and households located in comparison villages on consumption, poverty, the mothers education, and whether or not the village faced a large shock.

[22] Kernel-based matching used the same set of covariates as PSM, but using a kernel estimator (rather than probit, as in PSM) to predict the likelihood that a household participated in *Nobo Jatra* villages

[23] K-Nearest Neighbor seeks to classify households based on the likelihood that a household in either the *Nobo Jatra* villages or the comparison villages could be reasonably assumed to be part of the other group based on consumption, poverty, the mothers education, and whether or not the village faced a large shock. Children in those household groupings are then compared in terms of each outcome.

[24] Coarsened exact matching creates a comparison group with households whose characteristics exactly match those of treatment group households. To do so, it creates categories of each of the aforementioned covariates along which households are compared. For example, the approach creates categories of poverty such that, for each household participating in *Nobo Jatra*, there is a comparison group household that also falls into the same poverty category. Children in the *Nobo Jatra* and comparison groups are then compared in terms of each outcome.

Comparison Group Adjustment (cont.)	Regression Adjustment[25]	Propensity Score Matching[26]	Kernel Matching[27]	Kernel Matching	K-Nearest Neighbor Matching[28]	Coarsened Exact Matching[29]	Coarsened Exact Matching
	Base Covariates	Full Covariates	Full	Full	Full	Base	Full
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Treatment Effect on...							
Children 6-24 months receiving Minimum Acceptable Diet	0.034	0.07	0.025	0.035	0.045	0.041	0.048
confidence interval	[-0.023, 0.090]	[0.010, 0.129]	[-0.076, 0.126]	[-0.036, 0.106]	[-0.038, 0.127]	[-0.027, 0.110]	[-0.022, 0.117]
p-value	(0.24)	(0.02)	(0.63)	(0.33)	(0.29)	(0.24)	(0.18)
N	756	756	756	756	756	564	564
Infants exclusively breastfed	-0.128	-0.018	-0.114	-0.124	-0.073	-0.16	-0.108
confidence interval	[-0.277, 0.022]	[-0.183, 0.146]	[-0.299, 0.071]	[-0.265, 0.018]	[-0.236, 0.091]	[-0.327, 0.006]	[-0.284, 0.067]
p-value	(0.09)	(0.82)	(0.23)	(0.09)	(0.39)	(0.06)	(0.22)
N	178	178	182	182	182	126	126
Child diarrhea	0.03***	0.029***	0.012	0.029***	0.027**	0.028*	0.029*
confidence interval	[0.014, 0.047]	[0.013, 0.044]	[-0.025, 0.048]	[0.009, 0.048]	[0.007, 0.047]	[0.006, 0.051]	[0.005, 0.052]
p-value	0.00	(0.00)	(0.52)	(0.00)	(0.01)	(0.02)	(0.02)
N	2331	2331	2331	2331	2331	1566	1566

* p<0.05, ** p<0.01, *** p<0.001

[25] Regression adjustment used a set of variables to adjust the estimates of the means to compensate for differences between the *Nobo Jatra* and comparison villages. Base covariates used the estimated baseline stunting while full covariates used village consumption, poverty, mothers' education, and whether or not the village faced a large shock.

[26] Propensity Score Matching (PSM) was done at the individual level and matched households located in *Nobo Jatra* villages and households located in comparison villages on consumption, poverty, the mothers education, and whether or not the village faced a large shock.

[27] Kernel-based matching used the same set of covariates as PSM, but using a kernel estimator (rather than probit, as in PSM) to predict the likelihood that a household participated in *Nobo Jatra* villages

[28] K-Nearest Neighbor seeks to classify households based on the likelihood that a household in either the *Nobo Jatra* villages or the comparison villages could be reasonably assumed to be part of the other group based on consumption, poverty, the mothers education, and whether or not the village faced a large shock. Children in those household groupings are then compared in terms of each outcome.

[29] Coarsened exact matching creates a comparison group with households whose characteristics exactly match those of treatment group households. To do so, it creates categories of each of the aforementioned covariates along which households are compared. For example, the approach creates categories of poverty such that, for each household participating in *Nobo Jatra*, there is a comparison group household that also falls into the same poverty category. Children in the *Nobo Jatra* and comparison groups are then compared in terms of each outcome.

Similarly, the results in Table 3.3 indicate **no significant impacts on the share of children who are underweight for their age.** This second outcome consistently shows negligible and statistically insignificant estimates across all seven of the alternative approaches to causal inference. The research team also finds no impacts on wasting rates. Again, rates of child underweight status have improved in *Nobo Jatra* villages, but endline results did not meaningfully differ from the endline results in comparison villages.

The research team next assesses whether these overall effects differed across children's gender, the level of schooling attained by their mother, and the household's poverty status. The authors show the treatment effects on child stunting rates across these subgroups in Table 3.4 below, with three alternative causal approaches shown for each subgroup estimate. **For both male and female children, there are no statistically significant impacts of *Nobo Jatra* on stunting rates**, irrespective of which causal approach is used. The researchers find **similar estimates for both males and females for the underweight, MAD, and diarrhea outcomes** (omitted for brevity).

There does appear to be some divergence in impacts among children whose mothers have 6 years of school or fewer and those whose mothers have more years of schooling. **The *Nobo Jatra* program may have led to slightly lower stunting rates among children whose mothers' have 6 years of school or fewer. However it also may have led also to slightly higher stunting rates among children whose mothers' have more than 6 years of school.** There appears to be similar divergence in treatment effects on the basis of households' poverty status, with **slightly lower stunting rates among households below the poverty line, offset by slightly higher stunting rates among households above the poverty line.** Similarly, there appear to be slightly lower stunting rates due to the program among households with 5 or fewer members, offset by higher stunting rates due to the program in larger households.

Table 3.4: Impact Evaluation - Impacts on Child Stunting by Subgroup (RQ1)

Causal Inference Approach: Comparison Group And …	Base	Regression Adjustment	Coarsened Exact Matching
Subgroups:	**(1)**	**(2)**	**(3)**
Treatment Effect for Males	0.036	0.026	0.005
	(0.11)	(0.22)	(0.87)
Treatment Effects for Females	0.027	0.017	0.022
	(0.19)	(0.42)	(0.47)
Treatment Effect Among Children w. Mothers >6 Yrs of School	0.037**	0.028	0.011
	(0.01)	(0.04)	(0.64)
Treatment Effect Among Children w. Mothers <=6 Yrs of School	-0.02	-0.034	-0.094
	(0.72)	(0.56)	(0.19)
Treatment Effect Among Children in HHs Above Poverty Line	0.047*	0.038	0.027
	(0.03)	(0.11)	(0.33)
Treatment Effect Among Children in HHs Below Poverty Line	-0.058	-0.065	-0.018
	(0.18)	(0.14)	(0.73)
Treatment Effect Among Children in HHs of > 5 people	0.021	0.006	0.01
	(0.36)	(0.83)	(0.77)
Treatment Effect Among Children in HHs of <= 5 people	0.035	0.017	0.027
	(0.36)	(0.67)	(0.54)

t-statistics in parentheses. * p<0.05, ** p<0.01, *** p<0.001

Although the impact evaluations suggest that there were limited impacts of the *Nobo Jatra* program on women and children's nutritional status (Purpose 1), the program appears to have had some effect on the sub-purposes to achieving this overall goal.

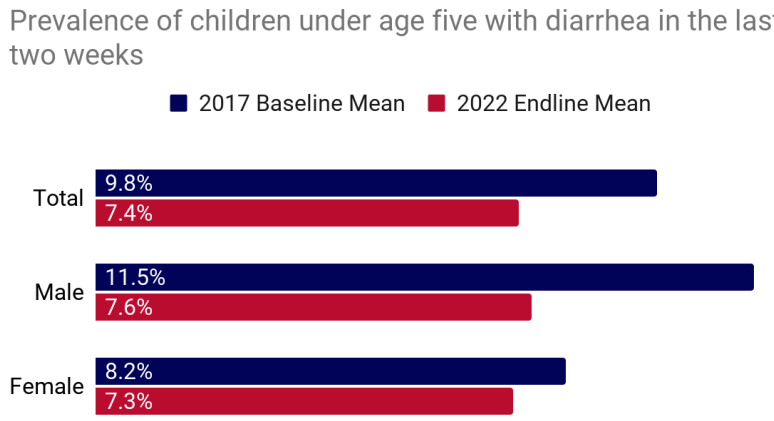
The sections below focus on each sub-purpose, using the pre-post evaluation to assess whether there was a change in each sub-purpose or underlying outcome, the impact evaluation findings to assess whether the *Nobo Jatra* program causes these differences, and the qualitative performance evaluation to describe pathways of effective interventions and factors that contributed to these differences.

SUB-PURPOSE 1.1: REDUCED PREVALENCE OF DISEASE THAT IMPACTS NUTRITION

The first pathway (or Sub-Purpose 1.1) hypothesized to help reduce malnutrition was through reduced prevalence of diseases that impact nutrition. For this evaluation, the research team focused on one water-borne disease: diarrhea. Every year, about 525,000 children under the age of five die due to diarrhea worldwide. In fact, diarrheal disease is the second leading cause of death among this age group (WHO, 2017). If children experience diarrhea frequently, it can lead to deficiencies in nutrients that are necessary for proper growth and development. As a result, children may face stunting and general malnutrition. While the consumption of clean drinking water and proper sanitation infrastructure can lead to dramatic decreases in the prevalence of diarrhea, the condition can also be treated with an oral rehydration solution (ORS). This solution of clean water, sugar, and salt can help to resolve diarrhea faster and lessen its negative effects (WHO, 2017).

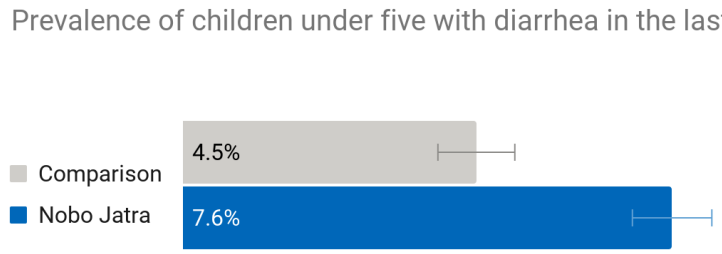
The pre-post evaluation demonstrates that children's rate of diarrhea has decreased slightly since baseline. As shown in Figure 3.4, the percentage of children with diarrhea in the last 2 weeks dropped from 9.8% at baseline to 7.4% at endline in the *Nobo Jatra* villages, with the change driven by boys having lower rates since girls maintained similar rates. There is not sufficient available data in this evaluation to understand why there was a difference between the diarrhea rates for boys and girls. The evaluation also does not have the statistical power to distinguish effects on diarrhea rates by sub-regions or other geographic locations.

Figure 3.4: Pre-post results – percentage of children under age 5 with diarrhea in the last two weeks (RQ1)



In contrast to the pre-post evaluation findings, the impact evaluation findings show that children in *Nobo Jatra* villages exhibit *higher* diarrhea rates than that of children in comparable villages. As Figure 3.5 above lays out, these differences of approximately 3 percentage points (over a baseline rate of approximately 10%) are statistically significant and robust across alternative causal estimation strategies. It is not clear what drove these negative impacts; further controls for WASH programming in comparison areas (i.e. non-*Nobo Jatra* programs), households' water sources, and mothers' breastfeeding practices do not appear to account for the change.

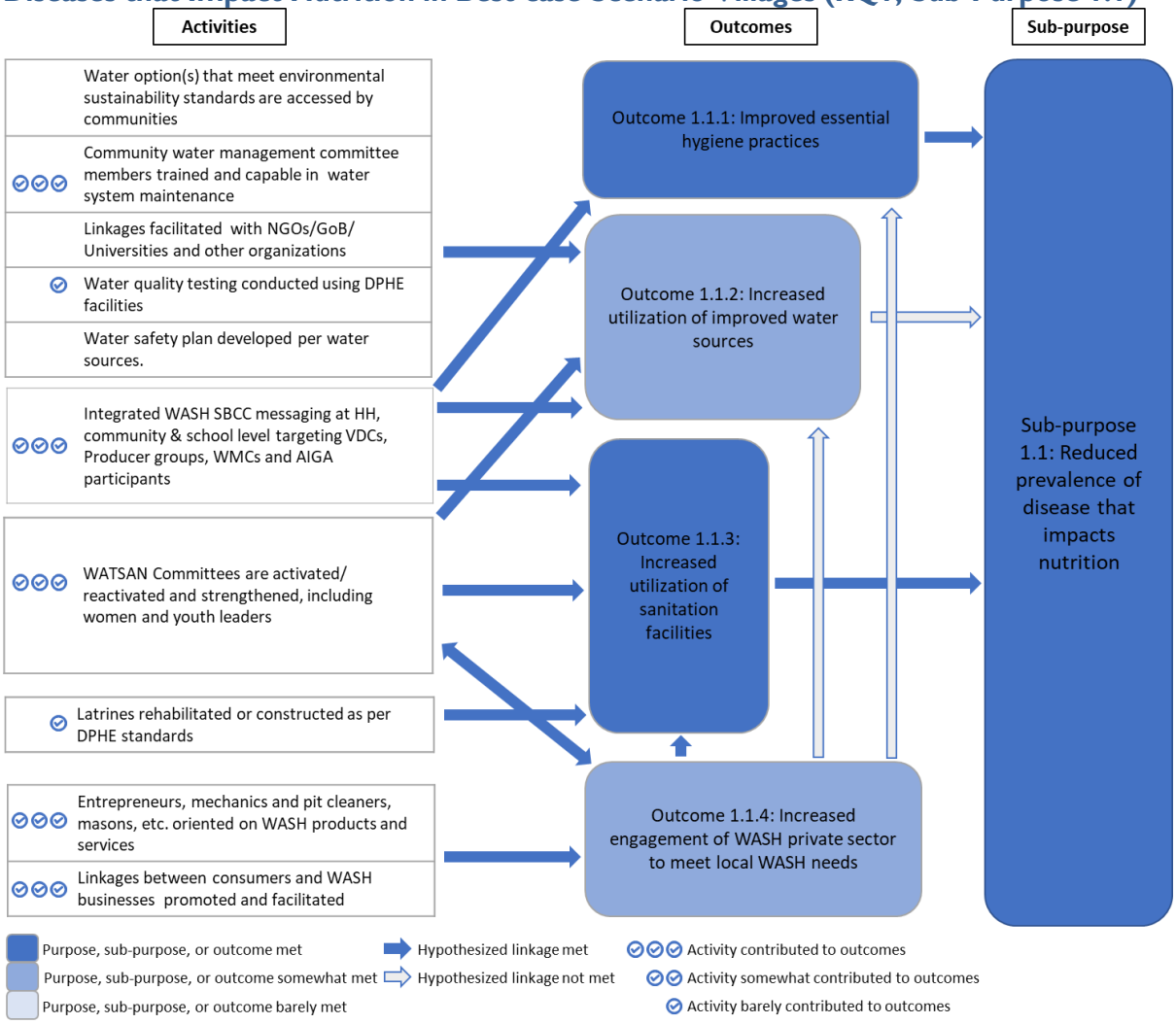
Figure 3.5: Impact evaluation results -Percentage of children under age 5 with diarrhea in the last two weeks in treatment and comparison villages (RQ1)



Even so, the research team used findings from both the pre-post and qualitative performance evaluations to understand some possibly influential pathways for addressing diarrhea among children. The pre-post evaluation found that the use of Oral Rehydration Therapy (ORT) to treat children with diarrhea remained high, increasing **from 85.2% at baseline to 90.8% at endline however the change was not statistically significant.**

In addition to treatment of diarrhea with ORT, the research team looked at pre-post and qualitative analyses of outcomes that *Nobo Jatra* theorized would help prevent diarrhea, namely adhering to essential hygiene practices (Outcome 1.1.1.) and using closed latrines (Outcome 1.1.3), and to some extent drinking clean water (Outcome 1.1.2). The qualitative research also indicates that respondents perceive that local service providers met latrine services needs among participants from best case scenario villages, which the authors briefly describe in the section on Outcome 1.1.1. The authors describe how *Nobo Jatra* further worked on these outcomes by revitalizing WASH and water committees (Outcome 1.1.4), as shown from the qualitative data.

Figure 3.6: Activities and Outcomes that Contributed to Reduced Prevalence of Diseases that Impact Nutrition in Best-case Scenario Villages (RQ1, Sub-Purpose 1.1)



OUTCOME 1.1.1: IMPROVED ESSENTIAL HYGIENE PRACTICES

The first immediate outcome was to improve essential hygiene practices. Using findings from the pre-post and qualitative performance evaluations, the research team assessed if and how *Nobo Jatra* participants adopted these practices after the program.

In villages where *Nobo Jatra* was well implemented, qualitative interview participants reported adopting improved hygiene practices, resulting in decreased open defecation and diseases. Qualitative respondents from these villages attributed improvements in these outcomes to increased knowledge about hygiene and disease prevention from *Nobo Jatra* training as well as improved access to sanitary latrines. Qualitative participants reported learning about these practices from backyard meetings held by *Nobo Jatra* and WASH committee awareness building activities (see Section 1.1.4). They reported increased knowledge around the key moments for handwashing (e.g., before and after handling food and after using the bathroom) and the linkages between hygiene, open defecation, and disease prevention and spread. Interview participants described how, following training from *Nobo Jatra*, they began using and keeping soap in bathrooms, washing hands with soap at key moments, covering drinking water and food, wearing slippers in the bathroom, cleaning toilets regularly, and using sanitary latrines instead of openly defecating. One woman summarized the sanitation situation before and after the project.

"We used to go to the toilet barefoot. We … would get infected with germs, we would not wash our hands after coming from the bathroom, then we would eat again, [and] we would get infected with various diseases…After the arrival of Nobo Jatra, we found out that we did not keep the water covered with the lid [as we should have]. But now we cover the water. But we did not know these things before. If you have dirt on your hands, and if you drink water or food that way [with dirt on your hands], the dirt will go in your stomach with the food. Since then, we all maintain [these practices]." (FG_F2_F3)

Findings from the pre-post analysis likewise show a large increase in the share of households having a handwashing station with soap[30] in their households, as shown in Figure 3.7.

Figure 3.7: Pre-post results - percentage of households with soap and water at a handwashing station commonly used by family members (RQ1)

OUTCOME 1.1.2: INCREASED UTILIZATION OF IMPROVED WATER SOURCES

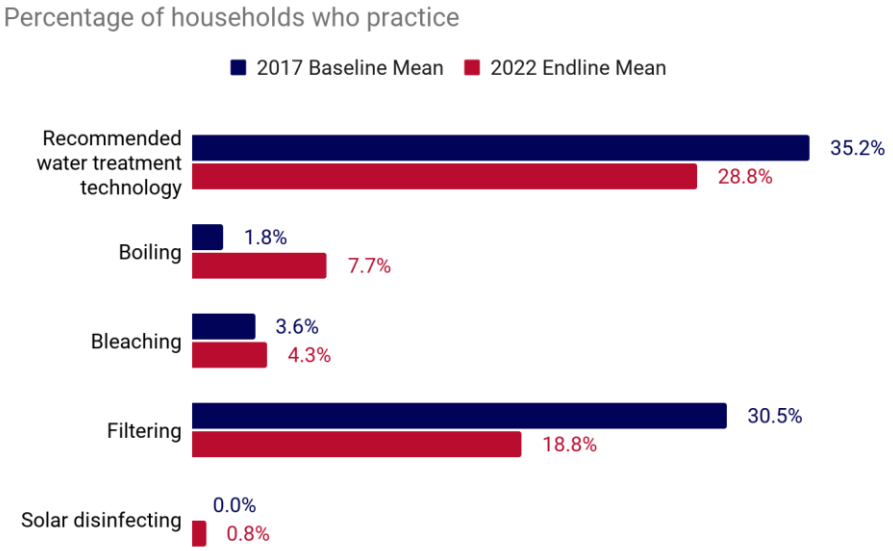
The second immediate outcome was to increase access to safe drinking water for PEP households. Using findings from the pre-post and qualitative performance evaluations, the research team assessed access to safe drinking water in three ways: use of improved drinking water sources, use of water treatment technologies, and distance to improved water sources.

Findings from the pre-post analysis show that after the *Nobo Jatra* project, access to, and availability of, clean drinking water has increased. Households using an improved drinking source rose from 52% at baseline to 58.6% at endline. Water sources can vary widely in quality, availability, and accessibility. In order to be considered an "improved" water source, the water must not be affected by dangerous contaminants, specifically fecal matter. Additionally, the water source must be accessible year-round without delay of a day or longer over a two-week period (USAID, 2015). Despite disparities in environmental availability and infrastructure, improved water sources can be achieved through sources such as piped water, boreholes, protected wells/springs, and rainwater collection (BBS, 2014).

Another strategy for improving drinking sources is to promote the use of water treatment technologies. Water treatment technologies can help make safe water for drinking and other household use. These technologies include boiling, bleaching, filtering, and solar disinfection. **The pre-post evaluation suggests that the use of water treatment technologies decreased between baseline and endline.** The use of such technologies declined from 35.2% to 28.8%. At endline, water filtering was the most commonly practiced form of water treatment (Figure 3.8).

[30] This indicator was calculated using questions f14, f15 and f16 in the household survey. Households were considered to have a handwashing station that has soap and water if the handwashing station was observed by the interviewer at the time of the survey and it had water and a soap/other cleansing agent.

Figure 3.8: Pre-post results - percentage of households practicing correct use of recommended household water treatment technologies (RQ1)



In contrast, findings from the qualitative data from best-case scenario villages suggest that *Nobo Jatra* was able to increase the adoption of water treatment practices in households in these villages through increased awareness about safe water sources and knowledge around previous contaminated water sources. Most participants reported using purification methods such as filtering pond water, using a pressure faucet, and boiling water. Participants, particularly women community members and resilient household members, said they learned of unsafe water sources like shallow tube wells,[31] arsenic-contaminated water, and iron-contaminated water, and to not drink from water sources until after they were tested. As one program participant noted, *"There have been many benefits. Before, everyone drank tube well water but didn't know that iron-free water should be consumed. Now people know."* (FG_F4_F5)

Another important aspect of WASH strategies is to make sure households can access water within a 30-minute round trip, giving households more convenient access to water. This ensures households obtain enough water on a regular basis to meet their household needs. As shown in Figure 3.9, **the share of households able to access drinking water in under 30 minutes at endline was 79.8% which increased from baseline**.

[31] A tube well is a perforated pipe with a pointed end which is either hammered or jetted into the ground. When a well is less than 7m deep it is called a shallow well, and when more than 7m deep, a deep well. Tube wells are usually connected to pumps for people to lift and access the water. (https://www.fao.org/3/s1250e/S1250E1e.htm)

Figure 3.9: Percent of households that can obtain drinking water in less than 30 minutes (round trip) (RQ1)

Our qualitative data, collected only in villages with high quality intervention implementation and a high degree of community engagement, reveal that **the low usage of water treatment technologies found in the quantitative pre-post data may have been due to persistent challenges around accessibility, affordability, and seasonal availability of water (during the dry season)**. Although *Nobo Jatra* appears to have improved knowledge about safe drinking water sources in these best-case scenario villages, qualitative respondents explained that *Nobo Jatra's* efforts to rehabilitate or establish clean water sources were insufficient to meet community needs. Therefore, these respondents often had to use various water sources, each with their own challenges. Although many preferred to harvest rainwater using tanks provided by *Nobo Jatra*, they were only able to do so during the rainy season. Many qualitative respondents also utilized community Pond Sand Filters (PSFs) and some relied on Reverse Osmosis plants for clean drinking water, but they highlighted accessibility challenges around long travel distances and long queues. This may explain the 20.2% of quantitative respondents from the pre-post analysis who could not access water in under thirty minutes. Others might find sources are a long distance to travel even if less than 30 minutes. Qualitative respondents noted that clean water was available for purchase. Although our quantitative pre-post data show that bottled water was among the most common drinking water sources, our qualitative data highlight that these sources may have only been accessible for those who could afford it. When qualitative respondents were unable to access these water sources, they relied on water treatment technologies, namely filtering and boiling. However, using water treatment technologies also depended on access to a water source, and many qualitative respondents expressed challenges around high salinity and salt-water intrusion into their water sources. Water shortages, particularly during the dry season, were often cited by qualitative participants. As one man summed up,

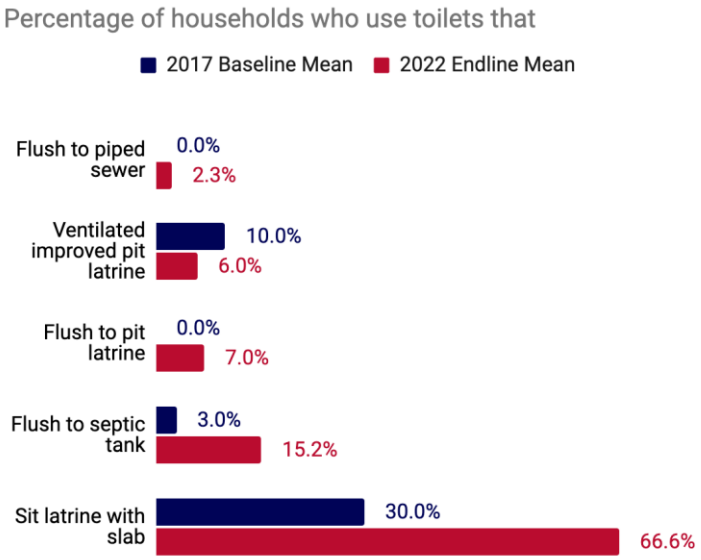
> "*[I]n the south our biggest problem is water. We still need water [after the Nobo Jatra project]. Separate water for cooking, separate water for eating, and separate water for work are our problems. In the dry season, all the canals [and] beels [lake-like wetland with static water] you see here will dry up. At that time [the dry season] many of us suffer from water shortages.*" (FG_M2_MX)

OUTCOME 1.1.3: IMPROVED USE OF SANITARY LATRINES

The third outcome for sub-purpose 1.1 was the improved use of sanitary latrines. In areas with unhygienic sanitation infrastructure, many health detriments are possible, including contraction of diarrheal diseases, increased contact with disease-carrying vectors, and increased risk of parasitic infections. Using "improved sanitation" facilities can help protect individuals from these adverse health outcomes. In order to meet this standard, individual households must have distinct toilet facilities that securely separate waste products from human contact. Examples of improved sanitation facilities include flush or pour-flush toilets as well as pit latrines (UNICEF and WHO, 2020).

The percentage of households using improved sanitation facilities increased in the *Nobo Jatra* treatment areas compared to before the project. Specifically, households using improved sanitation facilities rose from 42.2% at baseline to 63.4%. The most common improved sanitation facilities used in the treatment area are pit latrines with a slab (66.6%) followed distantly by a flush to septic tank toilet (15.2%) (see Figure 3.10 below).

Figure 3.10: Pre-post results - What Kind of Improved Not Shared Toilet Facility Do Members of Your Household Usually Use? (RQ1)[32]



Findings from the qualitative analysis suggest that *Nobo Jatra* may have contributed to the increase in sanitary latine use seen in the pre-post analysis by improving the accessibility of sanitary latrines in the best-case scenario villages. Nearly every interview participant mentioned the improved availability of sanitary facilities/latrines in their communities, some of which were constructed/provided by *Nobo Jatra,* and others that were constructed by households themselves following *Nobo Jatra* training. Local latrine service providers (LSPs), who were linked to community members through *Nobo Jatra*, described supporting households in constructing latrines, and providing payment plans for community members who could not afford latrine materials. Latrine LSPs also explained that they provided households with information on essential hygiene practices and latrine usage through extension services, including how to construct latrines in sanitary ways and the importance of latrine usage in preventing diseases. As a result, participants observed that, at the time of data collection, most households in each qualitative sample village had a latrine.

OUTCOME 1.1.4: REVITALIZED WASH AND WATER COMMITTEES

Village WASH and water committees, which were revitalized by *Nobo Jatra*, also were reported to play some role in reducing the prevalence of disease that impacts nutrition in best-case scenario villages by supporting the achievement of improved hygiene, sanitation, and water outcomes. As described by participants,

[32] This table includes only improved toilet facilities for households using improved toilet facilities.

committees were active in their communities and supported these outcomes by managing community water supplies, fixing and maintaining water filters and latrines, distributing latrines, and ensuring hygienic practices were followed. A few participants also explained that the WASH and water committees were responsible for making decisions with union parishads, including decisions around to which households latrines should be distributed and monitoring water tank purchases to try to ensure community water demands were met. Moreover, one implementer observed that water committees started regularly taking water from community sources (e.g., PSF water) to the Department of Public Health for testing, ensuring that these water sources remained clean.

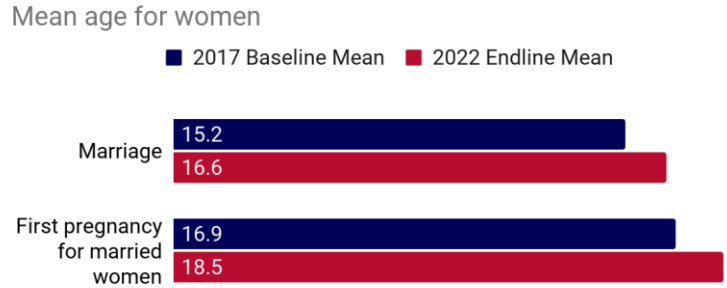
Figure 3.11: A Female Community Water Management Committee Member Stands by a Safe Water Point (RQ1)

SUB-PURPOSE 1.2: REDUCED ADOLESCENT PREGNANCY

The second pathway (or Sub-Purpose 1.2) to help reduce malnutrition was through reduced adolescent pregnancy and child marriage. Across Bangladesh, it remains common practice for individuals, particularly women, to marry at a young age. Across all of Bangladesh 22% of girls are married before the age of 15 (UNICEF 2019b) and in rural areas 60% of girls are married before the age of 18 (NIPORT 2020). Early marriage is embedded in the culture of Bangladesh: families are often very involved in the marriages of women, and it is very common for fathers to make the ultimate decision about who his daughters will marry. Families may also attempt to marry women off at younger ages in hopes of safeguarding their financial and social wellbeing. Additionally, dowries remain common practice in Bangladesh, further driving the push for earlier marriages, since the price of a dowry likely increases as a woman gets older. Thus, financial factors may push a family to marry off a young woman as soon as possible. This financial element also results in a higher rate of child marriages among groups with lower socioeconomic status (Plan International Bangladesh, 2013). As a result of early marriages, pregnancies also frequently occur at younger ages. Nearly 19% of women across Bangladesh between the ages of 15-19 years have already begun childbearing, with 14.1% already having given birth and 4.6% pregnant with their first child (BBS, 2014).

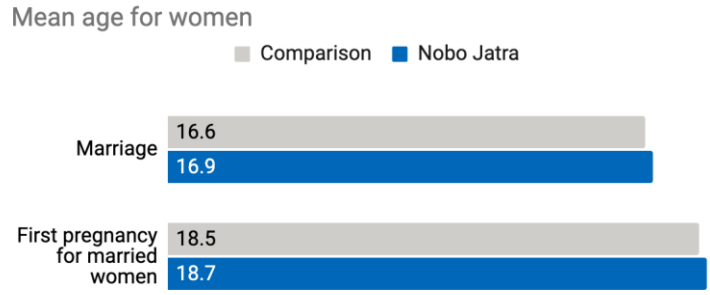
Our pre-post indicator data suggest improvements in both adolescent pregnancy and early marriage between baseline and endline. As shown in Figure 3.12, on average, married women in the treatment areas had their first pregnancy at age 18.5, compared to baseline, when the average age was 16.9 years old.[33] Although marriage increased from 15.2 at baseline to 16.6 at endline, these ages remained below 18 – the legal marriage age in Bangladesh (Government of Bangaldesh, 1929 Child Marriage Restraint Act).

Figure 3.12: Pre-Post results - Mean age at marriage and first pregnancy for women aged 15-49 (RQ1)



Findings from the impact analysis suggest that these improvements in early marriage and pregnancy may be due to the *Nobo Jatra* program. The *Nobo Jatra* program appears to have led to slightly higher age at first marriage and age at first pregnancy among women aged 15-49 (effects equivalent to delays of 2.5-3 months, on average) in *Nobo Jatra* communities than comparison communities (Figure 3.13).

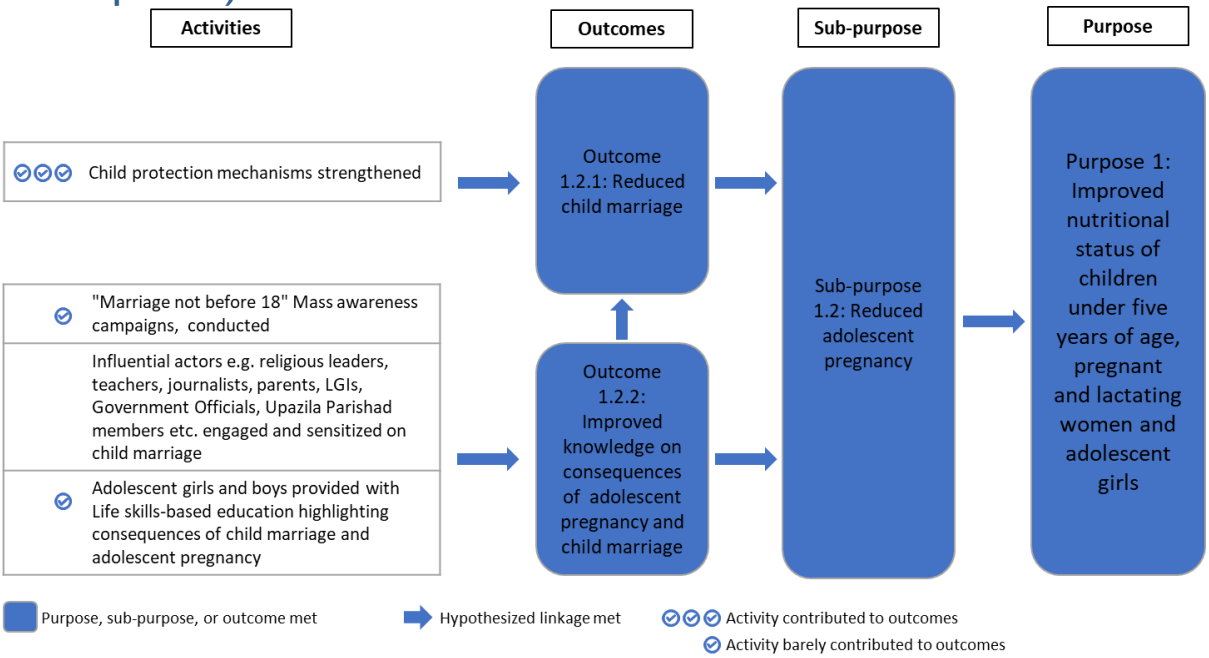
Figure 3.13: Impact Evaluation Results - Mean age at marriage and first pregnancy for women aged 15-49 in the Nobo Jatra and comparison villages (RQ1)



Qualitative respondents attribute the improvements in child marriage and early pregnancy seen in the pre-post and impact analyses to increased awareness around the dangers of marrying at a young age and strengthened child protection mechanisms following *Nobo Jatra* training sessions. The authors illustrate how these outcomes occurred in these villages and show the connections between activities, outcomes and the sub-purpose in Figure 3.14.

[33] These results are statistically significant

Figure 3.14: Activities and Outcomes Leading to Reduced Adolescent Pregnancy (RQ1, Sub-Purpose 1.2)



Qualitative respondents reported that following *Nobo Jatra* activities, they were more aware of the negative health- and nutrition-related consequences of child marriage and adolescent pregnancy. Respondents said that most women knew it was important to delay marriage until after 18, explaining that if a child were to be married, they would become pregnant within the following year. This can lead to sickness, malnutrition, and even death, for both the adolescent mother and her child(ren), born and unborn. A few women and men mentioned the importance of delaying pregnancy even after marriage for these reasons. According to one community leader, after *Nobo Jatra* activities peer-to-peer positive pressure within these cohesive communities played a part in preventing child marriages from occurring.

Many qualitative respondents reported leveraging formal and informal structures within their communities, strengthened by *Nobo Jatra*, to prevent child marriages. These structures included mothers/village groups, child protection committees, village development committees, and union/ward committees. These structures also involved the police, an entity of which *Nobo Jatra* helped increase community awareness. Many respondents explained that if a community member heard that a family was planning to marry their daughter at a young age, committee members would try to convince them against it by citing the potential health risks for their child. If the committee members were unable to convince the family, they would notify the union/ward committees or the police, who would then stop the marriage and even fine or jail the guardians.

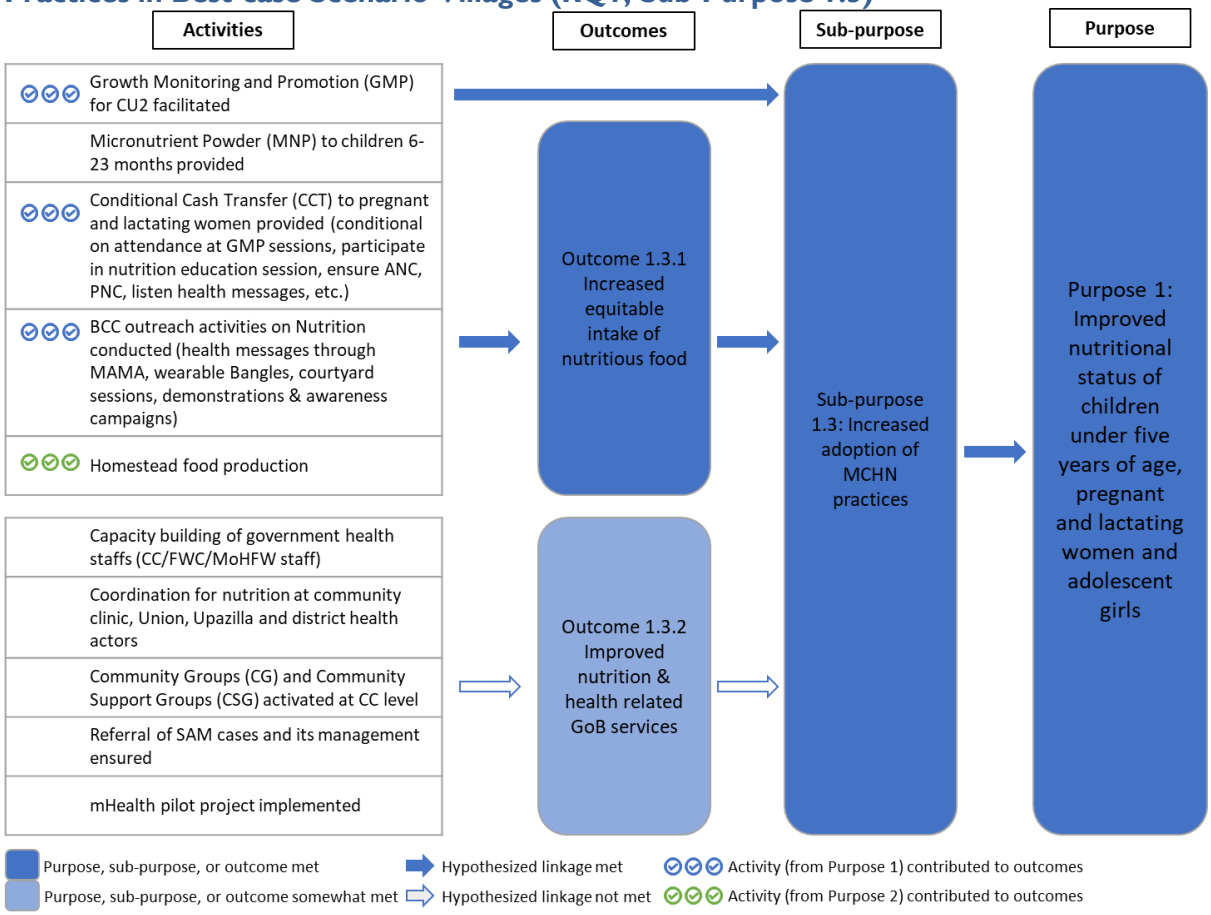
> *"When a 12 or 13 year old girl gets married, after one year she has a baby. It is seen that she is still a child, but she is having a child of her own. She is bleeding profusely while giving birth and she is dying. When such child marriages are taking place in any house, we tell her [the mother] that her daughter will die during childbirth due to her early marriage. She will lose her life prematurely due to child marriage. Then we say, 'do you want your child to die at a young age?' We go and explain to them about child marriage, and it has decreased a lot in this way. In a word, child marriage is not happening now."* (FG_F2_F3)

However, despite increased community awareness and strengthened child protection mechanisms, men and youth respondents noted that a few families still practiced child marriage, usually due to financial hardships. Participants explained that these families would attempt to avoid the community child protection mechanisms using strategies such as marrying their daughters to men in other villages or bribing union council members to accept fake birth certificates showing their daughters were legally of age to get married. Moreover, a few participants highlighted how child marriages increased during COVID-19, despite decreasing before the pandemic, with some reasoning that children were out of school during this time and families were experiencing catastrophic financial shocks.

SUB-PURPOSE 1.3: INCREASED ADOPTION OF MCHN PRACTICES

The third pathway (or Sub-Purpose 1.3) to help reduce malnutrition was through increased adoption of maternal and child health and nutrition practices. In Figure 3.15, the researchers highlight the main activities that led to the outcome of increased equitable intake of nutritious food, which was the outcome that contributed most to Sub-Purpose 1.3 in these villages. Health behaviors contributed as well.

Figure 3.15: Activities and Outcomes Leading to Increased Adoption of MCHN Practices in Best-case Scenario Villages (RQ1, Sub-Purpose 1.3)



OUTCOME 1.3.1 INCREASED EQUITABLE INTAKE OF NUTRITIOUS FOOD

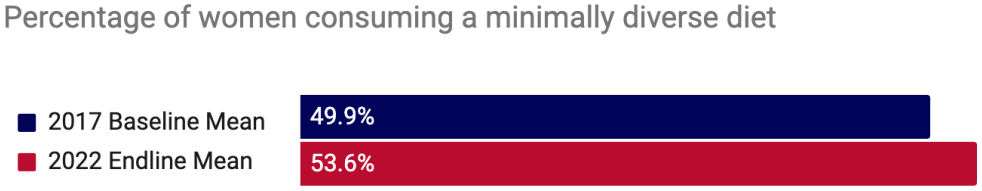
The first outcome leading to Sub-purpose 1.3 was the increased equitable intake of nutritious food – an important determinant of nutritional status, with evidence suggesting a link between dietary diversity and underweight, stunting, and wasting (Arimond and Ruel 2004). The authors first discuss the consumption of nutritious foods among women and subsequently among U5 children, relying on findings from the pre-post evaluation and impact evaluations. Subsequently, the research team discusses findings from the qualitative performance evaluation to assess the factors and pathways that contributed to the adoption of positive nutrition practices among women and children.

DIETARY ADEQUACY OF WOMEN

To quantitatively measure women's dietary adequacy, the research team used the woman's minimum dietary diversity (MDD-W) indicator. This indicator defines an adequately diverse diet for a woman as the consumption of at least 5 out of 10 mutually exclusive food groups in the past 24 hours. These food groups include everything from dairy products to grains, roots and tubers to vegetables. If a woman consumed five (5) or more of these food groups, the woman is considered to be consuming a minimum dietary diversity.

Findings from the pre-post evaluation suggest that there were modest improvements in women's dietary diversity between baseline and endline. As shown in Figure 3.16, the share of women consuming a minimally diverse diet increased to 50.8% at endline.

Figure 3.16: Pre-Post results - Minimum Dietary Diversity (MDD-W) (RQ1)



Findings from the impact evaluation, however, show that there are no meaningful differences in the share of women consuming a minimum degree of dietary diversity between *Nobo Jatra* treatment communities and comparison communities. This suggests that, although the pre-post analysis showed improvements in dietary diversity among women, other factors than the *Nobo Jatra* program likely contributed to these improvements.

DIETARY ADEQUACY OF CHILDREN UNDER FIVE YEARS OLD

To quantitatively measure the dietary adequacy of children under five, the research team used two indicators: exclusive breastfeeding for children under six months and minimum acceptable diet (MAD). Children who are not exclusively breastfed are often given water, other milk, and other complementary foods. In comparison, exclusive breastfeeding is where an infant exclusively receives breast milk for the first 6 months and then adds solid and semi-solid foods after that age. This is an encouraged practice for infants and young child feeding (IYCF), as it is correlated with lowered infection risk, decreased infant mortality, long-term improvement in cognition, and stronger immune responses (--WHO,

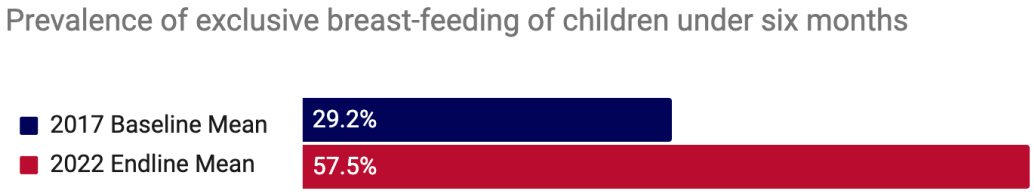
Infant and young child feeding). After 6 months, caregivers are recommended to start introducing complementary foods to their child's diet. While breastfeeding can supplement a child's diet up until the age of two, children should continue to increase the variety and number of foods they consume alongside breast milk as they age (UNICEF, 2019). MAD is calculated by adding dietary diversity (nutrient density proxy) and feeding frequency (representing energy density) (INDDEX, 2018).

Exclusive Breastfeeding

Compared to children at the beginning of the *Nobo Jatra* program, the share of children at the end of the program exclusively breastfed for the first six months increased substantially. The share of children exclusively breastfed for the first six months increased by nearly 30% between baseline and endline (Figure 3.17). Notably, girls (53.2%) are less likely to be exclusively breastfed than boys (60.4%).

The impact evaluation shows that the *Nobo Jatra* program did not appear to change the share of infants who were exclusively breastfed. This suggests that the improvements shown by the pre-post evaluation may not be attributable to the *Nobo Jatra* program. However, the sample of infants in our data is small.

Figure 3.17: - Pre-post Findings - Prevalence of exclusive breastfeeding of children under 6 months of age (RQ1)



Minimum Acceptable Diet (MAD)

According to the pre-post evaluation, the number of children receiving a MAD has increased from 38.9% at baseline to 46.0% at endline. Girls were slightly less likely to receive a MAD (45.9%) than boys (50.4%). This may be due to inequitable food allocation practices, where boys and men are fed higher quantities and quality of food (e.g., protein-rich foods) (D'Souza and Tandon, 2019); however, our qualitative evidence suggests that these practices were less common after the program. The MAD indicator has also been associated with stunting (Jones et al., 2013) and therefore this finding could be related to the higher stunting rates among girls compared to boys.

Findings from the impact evaluation indicate that the *Nobo Jatra* program may have improved the diversity and frequency of food consumed by infants and young children. As shown in Figure 3.18, the research team finds meaningful impacts of between 3.5 percentage points and 12 percentage points, with the **average estimate being a 6 percentage point improvement in the share of children receiving a MAD**. This is equivalent to a 15% improvement over the baseline.

Figure 3.18: Impact Evaluation Findings - Children age 6-24 months receiving a MAD (RQ1)

Our qualitative findings in best-case scenario villages reveal three main facilitators of improved nutrition behaviors among women and children, including the consumption of diverse and nutritious foods: (1) improved knowledge and awareness, (2) cash transfers, and (3) homestead food production. The authors look at each more closely below.

Qualitative participants attributed the adoption of positive nutrition practices among mothers and children to improved knowledge within communities gained through behavior change communication and outreach activities. The most pervasive change in nutritional knowledge reported following these activities surrounded the importance of mothers and children consuming diverse diets, which consisted of milk, eggs, vegetables, fish, meat, and other protein-rich foods, according to participants. Many participants, including male community members and mothers-in-law, also described the importance of women consuming additional food, particularly nutritious foods, during pregnancy. For male community members and mothers-in-law, this represented a marked change from prior to *Nobo Jatra* awareness-building activities, according to best-case scenario interview participants. This is exemplified in the following quote.

> *"It used to be that no one cared about pregnant women. Mothers-in-law used to say, 'We have had children before, we didn't get so much food, so did we not get well?' …People did not understand - didn't give any extra food to the pregnant women. Then, when we were trained by Nobo Jatra, we learned how to feed a pregnant woman. Then we explained to mothers-in-law that for the health of the child, the pregnant mother should be fed nutritious food."* (FG_F2_F3)

Some qualitative participants in best-case scenario villages also highlighted shifts within their households towards more equitable food intake practices (Sub-purpose 1.4) after *Nobo Jatra* behavior change activities. For example, some women discussed how before *Nobo Jatra*, female household members would be served last, and would receive smaller quantities and lower quality food. One woman explained that meat or fish would first be served to her husband, father-in-law, mother-in-law, and children, and only if any remained would she be able to consume meat and fish. Following *Nobo Jatra*, however, their households now eat and share food together, increasing women's access to and consumption of nutritious and diverse foods.

The majority of qualitative participants reported that cash transfers provided by *Nobo Jatra* facilitated the consumption of diverse and nutritious foods by making them affordable. Women in best-case scenario villages who received cash transfers

reported using the money to purchase nutritious foods for themselves and their children. Male community members also reported that with the money their wives received, their families were able to afford more nutritious foods for mothers and children.

> *"Many malnourished children are being born in our area. Now, as a result of giving financial assistance through Nobo Jatra, pregnant mothers are eating nutritious food. Rich people who can afford it are eating nutritious food. Poor people around my house are eating vegetables with money. They are eating good food. They are eating different fruits. My child is getting better."* (FG_M3_M7)

Participants in best-case scenario villages highlighted the increased availability and accessibility of vegetables and animal-sourced food for consumption from adopting homestead food production practices. Specifically, participants explained that they no longer had to spend money on nutritious foods from markets for mothers and children. Some participants also described using income from selling surplus vegetables, livestock, and livestock products to purchase additional nutritious foods for mothers and children.

OUTCOME 1.3.2 IMPROVED NUTRITION & HEALTH RELATED GOB SERVICES

The second outcome leading to the adoption of improved maternal and child health practices was improved nutrition and health related public services. For this evaluation, we focus on access to primary health care, antenatal care, and family planning services.

PRIMARY HEALTH CARE SERVICES

In Bangladesh, many different providers deliver primary health care (PHC), including the public sector (Ministry of Health and Family Welfare), non-government organizations (NGOs), and for-profit private providers. There are over 12,000 functional community clinics that provide primary care, and services are available at the community level as well as at more specialized health centers (Asia Pacific Observatory on Health Systems and Policies, 2015).

Findings from the pre-post evaluation show a great improvement in access to government primary health care services after *Nobo Jatra*. At endline, a high share of women accessed primary healthcare services, increasing by 31.7 percentage points from 38% to 69.9% of women (Figure 3.19). The most commonly used services in the treatment areas at both baseline and endline were antenatal care (82.6%), child health care services (23.9%), routine immunization and vitamin A supplementation (25%), and medication and deworming (28.7%). The least accessed services were postnatal care and postnatal vitamin A supplementation (7.8%) and newborn care (7.6%).

Figure 3.19: Pre-post results - Percentage of women of reproductive age who have access to primary healthcare services received from health department of GoB (RQ1)

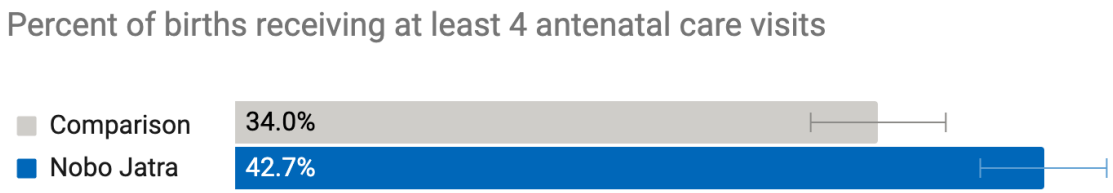
Antenatal Care

In order to address any possible pregnancy complications and lower the risk of adverse outcomes, antenatal care is crucial during a woman's pregnancy. In Bangladesh, women from higher socioeconomic statuses are three times more likely than lower socioeconomic statuses to receive antenatal care (ANC), often called prenatal care, from a medical professional (Asia Pacific Observatory on Health Systems and Policies, 2015).

Findings from the pre-post evaluation show that, compared to women at baseline, women at endline had greater access to and use of antenatal care services. In the treatment areas, 39.8% of women reported having four or more antenatal care visits for their most recent pregnancy that resulted in a live birth. Fewer women at baseline (24.1%) reported receiving 4 or more antenatal care visits.

Similarly, findings from the impact evaluation show that more women in *Nobo Jatra* treatment villages access antenatal care than comparison villages. Specifically, as shown in Figure 3.20, women in *Nobo Jatra* treatment villages were 9 percentage points more likely to receive at least 4 antenatal care visits during their most recent pregnancy (a 25% improvement over the 36% of women who do so in comparison villages). This suggests that the *Nobo Jatra* program had some effect on women's improved access to antenatal care shown in the pre-post evaluation.

Figure 3.20: Impact evaluation results - Percent of births receiving at least 4 antenatal care visits (RQ1)



Contraceptive Prevalence Use (CPR)

A country's rate of contraceptive use can be a key determinant in reducing maternal and infant mortality, and can serve as an indication of women's education levels (UN, 2015). In Bangladesh, about 63% of married women currently use some form of contraception (World Bank, 2019).

Our pre-post data show a slight increase in contraceptive use prevalence after *Nobo Jatra*. 78.8% of married women aged 15-49 in the treatment areas report using a contraceptive method at the time of the interview. This is higher than baseline, where 77.5% of women reported using one. 95.2% of those that use a contraceptive method, use a modern contraceptive and only 3.7% use a traditional contraceptive method.

However, the impact evaluation found no meaningful differences in women's contraception use. This suggests that although the pre-post evaluation observed improvements in contraceptive use among women, other factors besides the *Nobo Jatra* program contributed to this outcome.

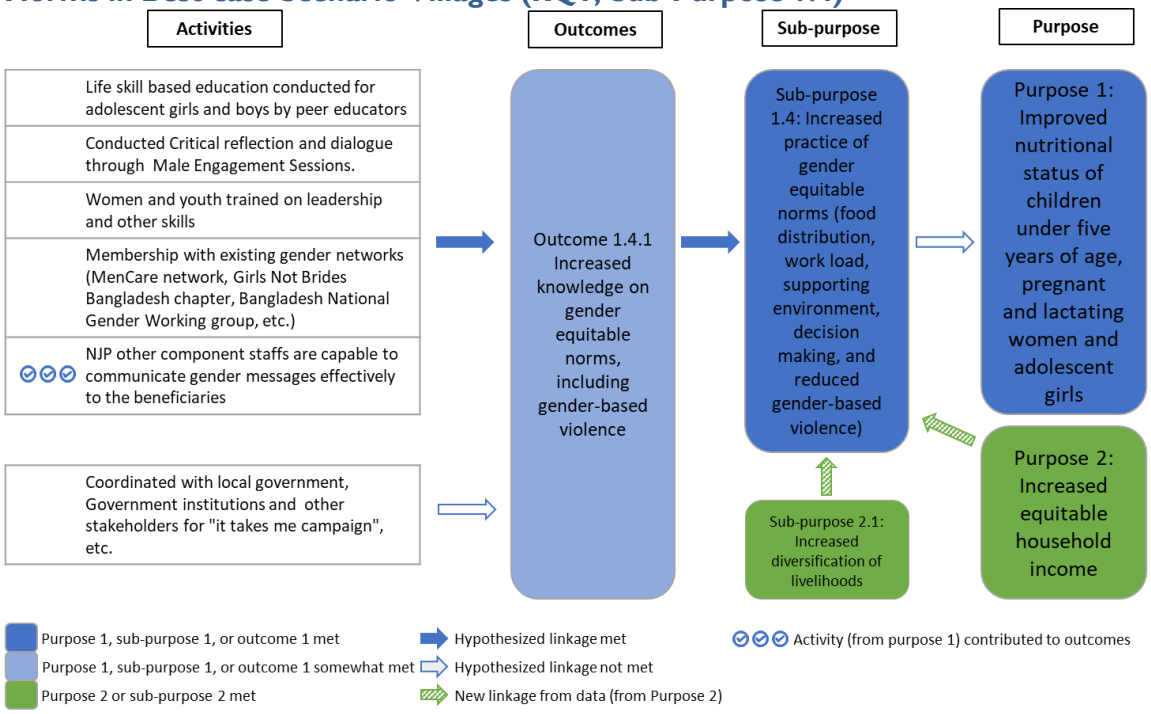
Qualitative participants from best-case scenario villages linked the adoption of health-seeking practices to increased awareness of, and demand for, health services available in communities, though not necessarily an increase in supply of quality healthcare services. Participants noted learning and gaining awareness about different health practices through various *Nobo Jatra*-supported backyard sessions and digital health messages. The digital health messages were social behavior change communications sent to intervention participants through text message. Across all stakeholders, it was reported that due to these activities, women were now more aware of health care services such as vaccination, vitamin distribution, ante- and postnatal care, and growth monitoring that they and their children can, and should, receive at hospitals and clinics. One community leader reported this increase in awareness of health services translated into an increase in demand for quality health services by community members. On the other hand, very few qualitative respondents mentioned improved quality or improved access to health services.

Our qualitative findings from best-case scenario villages show that health-seeking and positive nutrition practices were mutually reinforcing. Community members and community leaders noted that the benefits of growth monitoring encouraged women to consume and feed their children nutritious and diverse foods. The positive impacts on their health, in turn, encouraged women to continue participating in growth monitoring. Mothers and fathers explained that they were able to see the progress of their children's growth, feeding them more if they were underweight or continuing to feed them nutritious foods if they were a healthy weight, and returning to health facilities for regular growth monitoring and pediatric care. Our pre-post findings (not shown) likewise indicate an increase in growth monitoring in treatment areas from 4% at baseline to 18.9% at endline.

Sub-Purpose 1.4: Increased practice of gender-equitable norms

The fourth pathway (Sub-purpose 1.4) hypothesized to contribute to Purpose 1 was the increased practice of gender-equitable norms. Findings from both the pre-post and qualitative analyses suggested increased control over income, more equitable decision-making, more equitable division of labor, and improved mobility between baseline and endline, each of which is discussed in more detail below. The impact evaluation likewise saw positive differences in mobility, suggesting that the *Nobo Jatra* program led to this gender-equitable norm shift. However, besides more equitable household food distribution (see Sub-purpose 1.1), the increased practice of gender-equitable norms was not linked to improved nutritional status (Purpose 1). Therefore, the research team did not find the hypothesized linkage between Sub-purpose 1.4 and Purpose 1 to have been met.

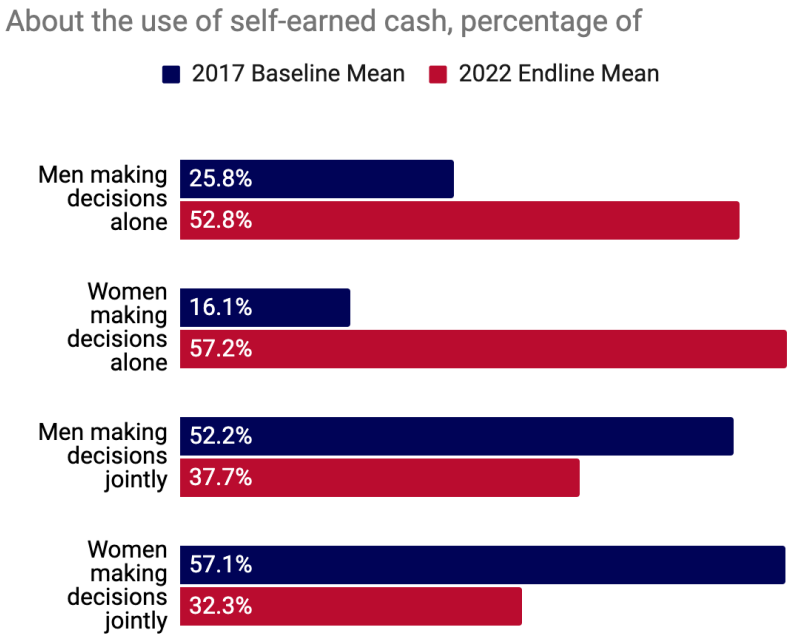
Figure 3.21: Activities, Outcomes, and Purpose that Led to Improved Gender-Equitable Norms in Best-case Scenario Villages (RQ1, Sub-Purpose 1.4)



CONTROL OVER INCOME

The pre-post findings show that women's decision making over their own income improved between baseline and endline. At endline, women were just as likely as men to make decisions alone about the use of self earned cash unlike at baseline, a shift from baseline where men were more likely to make decisions alone (Figure 3.22).

Figure 3.22: Pre-post results - Percentage of men and women in a union who are earning cash making joint decisions or decisions alone about the use of self-earned cash (RQ1)



Similarly, women in best-case scenario villages who participated in qualitative interviews reported that their control over and decision-making around self-earned income improved, due to additional income they earned from diversified livelihood activities. Several women described being able to be economically independent from their husbands with the money they earned from *Nobo Jatra*-promoted income-generating activities. By earning their own income and having their own savings, they reduced their dependence on male household members when they needed money, they explained. Our qualitative data revealed that women chose to use their self-earned money on their children's education, health, or other family-related needs. A few women also expressed that with their own income, they felt a sense of security in being able to manage their households when their husbands temporarily migrated outside the village for work.

HOUSEHOLD DECISION-MAKING

The pre-post analysis findings show that the share of women and men making joint decisions about the cash they earned declined. Even so, the rates at which women and men report making joint decisions remained relatively the same at 34.4% and 36.1%, respectively, at endline (Figure 3.22). In other words, the quantitative analysis did not show that more men or more women made joint decisions with their spouses.

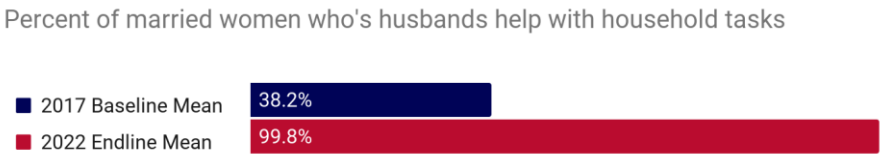
Although the pre-post analysis indicates that decision making over income did not become more shared, the qualitative analysis suggests that decision making over other factors did. Qualitative participants from sampled villages described making household decisions together regarding agriculture, including what crops to grow and sell, **due to women's increased incomes.** Some participants explained that by earning

money, women had more respect and status within the household, which in turn, allowed them to contribute to household decision-making.

INTRA-HOUSEHOLD DIVISION OF LABOR

Findings from the pre-post evaluation indicate that households divided household labor more equitably at endline than baseline, suggesting that intra-household relationships were more equitable. At endline, nearly all women reported that their husbands helped them with household tasks—a 61.6 percentage point improvement from baseline (Figure 3.23). Household tasks include cleaning the house, gathering water or firewood, cooking, agricultural activities, selling produce or going to the market, and helping with homestead farming and poultry rearing.

Figure 3.23: Pre-post results - Percent of married women aged 15-49 who's husbands help with household tasks (RQ1)

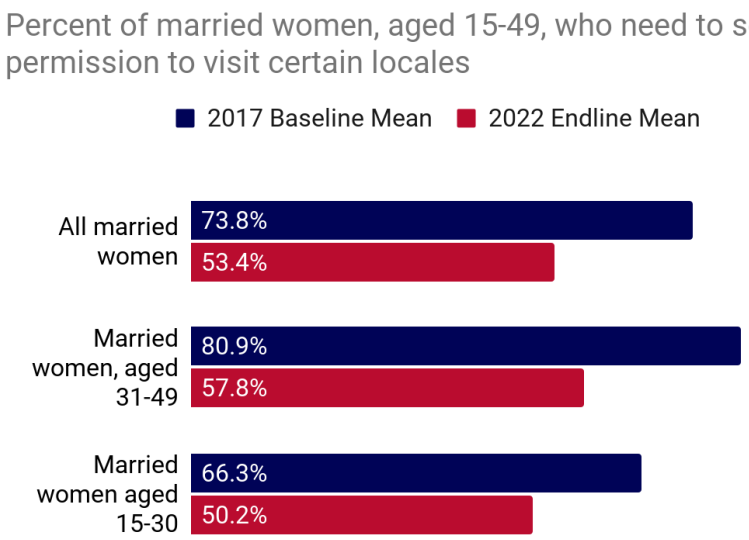


Qualitative participants from best-case scenario villages likewise reported more equitable division of labor, both within and outside the household, due to women's involvement in livelihood activities. For example, husbands began taking on more child-rearing and cooking tasks while women took on more income-generating tasks. A few participants mentioned husbands taking on responsibilities in the home so that women had time to participate in income-generating activities.

WOMEN'S MOBILITY

Pre-post comparisons between the baseline and endline data indicate that women's mobility improved across all age groups. As shown in Figure 3.24 the percentage of married women seeking permission to visit certain locales declined by 20.4 percentage points. At baseline, a higher share of younger women (under 30 years old) had to seek permission to travel outside the home than older women (over 40 years old), but this gap declined at endline and the decline for women under 30 showed the biggest change.

Figure 3.24: Percent of married who need to seek permission to visit certain locales (RQ1)



Findings from the impact evaluation likewise show positive differences in women's mobility. There are **notable differences in the share of married women who need to seek permission to visit certain locales between treatment and comparison groups,** with the difference concentrated among younger women aged 15-29 (a reduction of 11 percentage points due to the program, from a base of 68% in comparison villages). This suggests that the mobility improvements seen from the pre-post analysis are likely due to the *Nobo Jatra* program.

Many women from our qualitative best-case scenario sample described shifts toward improved mobility due to their participation in income-generating activities and healthcare services. However, these improvements appeared to be limited to certain activities. That is, while women could rarely leave the house alone before, they were now able to attend *Nobo Jatra* trainings and meetings unaccompanied, and seek healthcare services alone. Even so, mobility restrictions were still mentioned by participants for other activities such as going to the market.

In addition to improved gender-equitable norms, some community members and leaders from best-case scenario villages observed a decline in household conflict (only a few mentioned a decline in violence specifically) due to improved household financial security. Women explained that the main driver of household conflict was poverty, and now that household financial (and therefore food) security has improved from women's contributions, there was less violence/conflict in the household. A few women also mentioned that shared decision-making has contributed to less domestic conflict.

> *"If there is poverty in the family, the quarrel[ing] just happens. Suppose I don't have rice in my house. After a while the [man] will come and ask me to give him rice. How will I cook rice [with no money]? [This] caused the problems. But now there is no problem [conflict], [because] there is no [money] shortage."* (FG_F3_FX)

Participation in Cash-Earning Activities

The research team found that in best-case scenario villages participants' increased incomes (Purpose 2) and participation in livelihood diversification activities (Sub-purpose 2.1) were the main contributors to increased practice of gender-equitable norms. Notably, as shown in Figure 3.21, Purpose 2 and Sub-purpose 2.1 were not intended to contribute to increased gender equitable norms by *Nobo Jatra*, which hypothesized that awareness-building training, sensitization, and campaigns would be the primary means of shifting norms. However, women participants from best-case scenario villages reported that due to their increased self-earned incomes from alternative livelihood activities (Sub-Purpose 2.1), they had increased control over their income. They also reported that their contributions to household income (Purpose 2) and involvement in agriculture led to improvements in equitable decision-making, equitable division of labor, and mobility described above.

Figure 3.25: *Nobo Jatra* Participant with Her Cows (RQ1)

However, the pre-post analysis suggests that there were limited improvements in women's contributions to household income. As shown in Figure 3.26, women's contribution to household incomes remained low and declined between baseline and endline. Similarly, the pre-post analysis indicates that men continue to earn more cash than women, and that the gap between women and men cash earners increased between baseline and endline (Figure 3.26).

Figure 3.26: Pre-post results - Cash earning for men and women (RQ1)

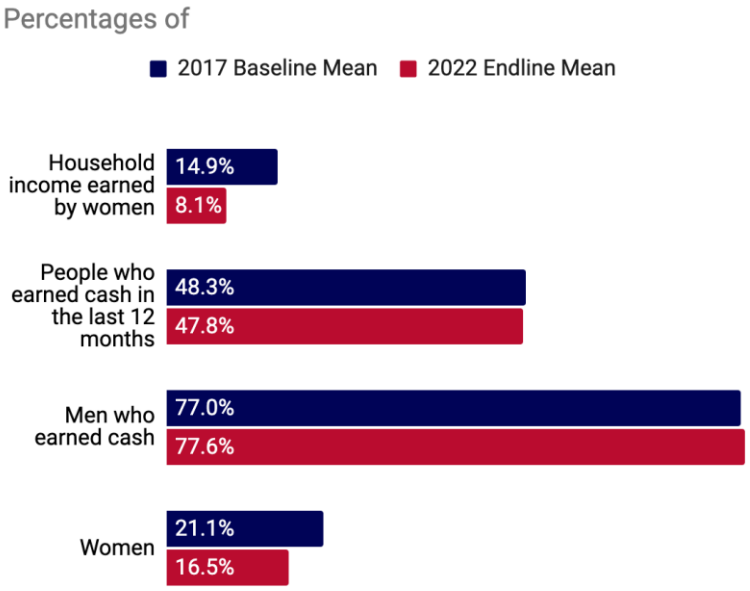


Table 3.5: Indicator Tables for Purpose I (RQ1)

Indicator	Baseline value	Endline value	Raw Difference (Baseline-Endline)	SD of BL value	SD of EL value	P value of difference
WASH Indicators						
Percentage of households using an improved source of drinking water	52.0 n = 1,849	58.6 n = 1,188	6.6	50.0	49.3	0.000***
Percentage of households in target areas practicing correct use of recommended household water treatment technologies	35.2 n = 1,849	28.8 n = 1,188	-6.4	47.8	45.3	0.000***
Percent of households in target areas practicing boiling	1.8 n = 1,849	7.7 n = 1,188	5.9	13.1	26.6	0.000***
Percent of households in target areas practicing bleaching	3.6 n = 1,849	4.3 n = 1,188	0.7	18.6	20.2	0.358
Percent of households in target areas practicing filtering	30.5 n = 1,849	18.8 n = 1,188	-11.7	46.0	39.1	0.000***
Percent of households in target areas practicing solar disinfecting	0.0 n = 1,849	0.8 n = 1,188	0.8	0.0	8.6	0.0027**
Percent of households that can obtain drinking water in less than 30 minutes (round trip)	50.3 n = 1,849	79.8 n = 962	29.5	47.6	40.2	0.000***
Percentage of households using improved sanitation facilities	42.2 n = 1,849	63.4 n = 1,188	21.2	49.4	48.2	0.000***
Percent of households in target areas practicing open defecation	0.9 n = 1,849	0.1 n = 1,188	-0.8	9.6	3.8	0.023***
Percentage of households with soap and water at a handwashing station commonly used by family members	39.0 n = 1,849	53.0 n = 1,188	14.0	48.8	49.9	0.000***

Indicator (cont.)	Baseline value	Endline value	Raw Difference (Baseline-Endline)	SD of BL value	SD of EL value	P value of difference
Women's Health and Nutrition Indicators						
Minimum Dietary Diversity - Women (MDD-W)	49.9 n = 2,067	50.8 n = 1,309	0.9	50.0	50.0	0.610
Women's Dietary Diversity Score (WDDS)	4.5 n = 2,067	4.4 n = 1,309	-0.1	1.5	1.3	0.041
Prevalence of underweight women	21.0 n = 1,960	19.4 n = 1,316	-1.6	41.1	39.5	0.264
Contraceptive Prevalence Rate	77.5 n = 1,634	78.8 n = 1,109	1.3	41.7	40.9	0.418
Percent of births receiving at least 4 antenatal care (ANC) visits	24.1 n = 589	39.8 n = 611	15.7	42.8	49.0	0.000***
Children's Health and Nutrition Indicators						
Prevalence of underweight children under 5 years of age (Total)	30.2 n = 1,672	19.0 n = 1,179	-11.2	45.9	-10.6	0.000***
Male	32.4 n = 833	19.1 n = 615	-14.4	46.8	-13.3	0.000***
Female	28.0 n = 839	20.2 n = 564	-8.0	44.9	-7.8	0.000***
Prevalence of stunted children under 5 years of age (Total)	26.8 n = 1,650	23.4 n = 1,178	-3.8	44.3	-3.4	0.039*
Male	28.5 n = 818	24.7 (n = 614)	-4.9	45.2	-3.8	0.106
Female	25.1 n = 832	21.8 n = 564	-2.6	43.4	-3.3	0.152
Prevalence of wasted children under 5 years of age (Total)	17.4 n = 1,652	8.3 n=1,178	-9.1	38.0	-9.1	0.000***
Male	19.8 n = 821	8.2 n = 614	-11.9	39.9	-11.6	0.000***
Female	15.1 n = 831	8.5 n = 564	-6.3	35.8	-6.6	0.000***
Percentage of children under age 5 with diarrhea in the last two weeks (Total)	9.8 n = 1,700	7.4 n = 1,179	-2.2	29.8	-2.4	0.023*
Male	11.5 n = 849	7.6 n = 615	-4.6	31.9	-3.9	0.010*
Female	8.2 n = 851	7.3 n = 564	0.1	27.5	-0.9	0.533

Indicator (cont.)	Baseline value	Endline value	Raw Difference (Baseline-Endline)	SD of BL value	SD of EL value	P value of difference
Percentage of children under age 5 with diarrhea treated with ORT (Total)	85.2 n = 165	90.8 n = 87	6.8	35.6	5.6	0.181
Male	86.2 n = 90	92.7 n = 44	8.5	34.7	6.5	0.230
Female	84.0 n = 75	88.5 n = 43	5.5	37.0	4.5	0.487
Prevalence of exclusive breast-feeding of children under six months of age	29.2 n = 160	55.0 n = 96	28.3	45.6	25.8	0.000***
Male	27.8 n = 65	57.4 n = 55	32.7	45.1	29.6	0.000***
Female	30.1 n = 95	51.7 n = 41	23.1	46.1	21.6	0.020*
Prevalence of children 6-23 months of age receiving a minimum acceptable diet (MAD)	38.9 n = 567	46.0 n = 381	9.2	48.8	7.1	0.030**
Male	38.5 n = 285	44.7 n = 200	11.9	48.7	6.2	0.174
Female	39.2 n = 282	47.6 n = 181	6.7	48.9	8.4	0.075
Gender Indicators						
Percentage of men and women who earned cash in the past 12 months	48.3 n = 5,678	47.8 n = 5,198	-0.5	50.0	49.5	0.602
Percentage of men who earned cash in the past 12 months	77.0 n = 2,759	77.6 n = 2,598	0.6	42.1	40.5	0.600
Percentage of women who earned cash in the past 12 months	21.1 n = 2,919	16.5 n = 2,600	-4.6	40.8	27.7	0.000***
Percentage of men in union and earning cash who make decisions alone about the use of self-earned cash	25.8 n = 1,486	55.1 n = 1,277	29.3	43.8	49.9	0.000***
Percentage of women in union and earning cash who make decisions alone about the use of self-earned cash	16.1 n = 503	55.0 n = 220	38.9	36.8	49.6	0.000***
Percentage of men in union and earning cash who make decisions jointly with spouse/partner about the use of self-earned cash	52.2 n = 1,486	36.1 n = 1,277	-16.1	50.0	48.5	0.000***
Percentage of women in union and earning cash who make decisions jointly with spouse/partner about the use of self-earned cash	57.1 n = 503	34.4 n = 220	-22.7	49.5	46.9	0.000***
Project Specific Indicators						
Mean percent of household income earned by women in the month before assessment	14.9 n = 1,347	8.1 n = 1,148	-6.8	31.5	21.3	0.000***

Indicator (cont.)	Baseline value	Endline value	Raw Difference (Baseline-Endline)	SD of BL value	SD of EL value	P value of difference
Percentage of women of reproductive age who have access to primary healthcare services received from health department of GoB	38.2 n = 2,067	69.9 n = 1,197	31.7	48.6	45.9	0.000***
Antenatal Care	5 n =2,067	82.6 n = 155	77.6	21.8	38.0	0.000***
Postnatal care and vitamin A supplementation	3.6 n = 2,067	7.8 n = 1,197	4.2	18.6	26.8	0.000***
Iron, folic acid and vitamin A supplementation	15.8 n = 2,067	16.5 n = 1,309	0.7	36.5	37.2	0.591
Child health care services	7.9 n = 2,067	23.9 n = 1,197	16.0	27.0	42.7	0.000***
Treatment and preventative advice	9.0 n = 2,067	21.0 n = 1,309	12.0	28.7	40.7	0.000***
Growth monitoring and promotion	4.0 n = 2,067	11.0 n = 1,197	7.0	19.6	31.3	0.000***
Medication and deworming	15.4 n = 2,067	28.7 n = 1,309	13.3	36.1	45.2	0.0000
Routine immunization and vitamin A supplementation	15.4 n = 2,067	25.0 n = 1,197	9.6	36.1	43.3	0.000***
Newborn care	3.1 n = 2,067	7.6 n = 1,197	4.5	17.5	26.6	0.000****
Other services	6.1 n = 2,067	36.9 n = 1,309	30.8	24.0	48.3	0.000***
Mean age at marriage for women aged 15-49	15.2 n = 1,835	16.6 n = 1,197	1.4	2.5	2.4	0.000***
Mean age at marriage for women 15 to 17 years	14.3 n = 92	15.2 n = 30	0.9	1.0	1.0	0.000***
Mean age at first pregnancy for married women aged 15 - 49	16.9 n = 1,712	18.5 n = 1,114	1.6	2.7	2.7	0.000***
Mean age at first pregnancy for women 15 to 17 years	14.8 n = 56	15.8 n = 16	1.0	0.9	1.0	0.000***
Percent of married women aged 15 - 49 who need to seek permission to visit certain locales	73.8 n = 2,067	53.4 n = 1,197	-20.4	44.0	49.9	0.000***
Percent of women < 30 who seek permission	80.9 n = 1,070	57.8 n = 582	-23.1	39.4	49.4	0.000***
Percent of women ≥ 30 who seek permission	66.3 n = 997	50.2 n = 615	-16.1	47.3	50.0	0.000***
Percent of married women aged 15 - 49 who's husbands help with household tasks	38.2 n = 2,067	99.8 n = 1,197	61.6	48.6	4.6	0.000***

3.1.4 Detailed Findings of Purpose 2: Increased equitable household income

Overview of Purpose 2 Findings

The second pathway or purpose *Nobo Jatra* designed to meet their goal was increased equitable household income. In this section, the authors first look broadly at how the income of *Nobo Jatra* households changed using pre-post findings. Next, the authors look closely at the extent to which each sub-purpose was achieved (using both pre-post findings and qualitative data) and the extent to which participants *perceived* that each of these sub-purposes influenced *Nobo Jatra's* goal of improved equitable access to income (using qualitative data). No impact evaluation data pertains to this section.

Overall, *Nobo Jatra* villages saw only modest improvements in poverty, based on marginally positive results from all three pre-post indicators (which all used poverty as a proxy for income). When exploring each Sub-Purpose, the research team observes the following conclusions as noted in Table 3.6.

Table 3.6: Key Findings on the Extent to Which Sub-Purpose Pathways Produced Positive Outcomes for Purpose 2 (RQ1)

Sub-Purpose	Key Findings from the Qualitative and Quantitative Research
Sub-Purpose 2.1: Increased diversification of livelihoods	• **Qualitative** participants, particularly women, reported diversifying their income streams to selling crafts, tailoring, and rearing livestock. • The **pre-post** and **qualitative analysis** suggest that *Nobo Jatra* participants increased or diversified their involvement in livestock activities and that they adopted sustainable and improved livestock practices. • **Qualitative** participants explained that, by adopting improved livestock practices, their animals had higher survival rates and production, resulting in increased incomes. • **Qualitative** participants also credited improved livestock production and income to the inputs and financial support they received from *Nobo Jatra* and animal health LSPs they were linked to by *Nobo Jatra* to purchase inputs and services.
Sub-Purpose 2.2: Increased production of safe, diverse and nutritious foods	• **Pre-post** results indicate that 9.1% of households experienced moderate or severe hunger in the *Nobo Jatra* areas at baseline in 2016. This declined dramatically at endline, dropping to 1% in the treatment areas. The Food Consumption Scores also dramatically improved between baseline and endline. • Participants from the **qualitative evaluation** attributed their improved food and nutrition security to increased production of nutritious fruits and vegetables. Findings from the **pre-post evaluation** similarly show that *Nobo Jatra* participants expanded their typical production to include more vegetables. • Both **pre-post** and **qualitative analysis** results indicated that households in *Nobo Jatra* villages increased their knowledge and adoption of sustainable crop production practices. **Pre-post results** suggested that increased access to agriculture extension services may have contributed to this change. **Qualitative** participants suggested that *Nobo Jatra* facilitated increased access to agriculture inputs and offered training that supported agriculture production. • Persistent agriculture challenges included weather-related incidents and access to land and water. At the same time, *Nobo Jatra* was not successful in increasing the adoption of sustainable natural resource management practices.

Sub-Purpose (cont.)	Key Findings from the Qualitative and Quantitative Research
Sub-Purpose 2.2: Increased production of safe, diverse and nutritious foods (cont.)	• Overall, findings on Sub-Purpose 2.2 suggested that increased agricultural production led primarily to improved food and nutrition security rather than increased incomes as hypothesized.
Sub-Purpose 2.3: Increased equitable access to markets	• **Qualitative** participants reported that *Nobo Jatra* facilitated linkages with buyers and markets for producers to sell their handiwork and tailoring products, but seldom for agricultural and livestock products. • Women participants in the **qualitative research** involved in livestock rearing in best-case scenario villages reported selling their products at lower-than-market prices at their homes because they were restricted from going to markets and lacked negotiating power. • Both **qualitative** and **pre-post** data indicated an increase in access to savings and financial services. Participants in best-case scenario villages cited that this improvement was mostly for women, who could access services through VSLAs. • While the research team did not find evidence of increased equitable access to markets leading directly to increased equitable household income in the best-case scenario villages, the team did find that increased access to markets did so indirectly, by facilitating the increased diversification of livelihoods (Sub-Purpose 2.1) and the increased production of safe, diverse and nutritious foods (Sub-Purpose 2.2).

Overall Analysis of Income Changes in *Nobo Jatra* Villages

The **pre-post analysis** compared measures of poverty (as a proxy for income) for a sample of households in *Nobo Jatra* communities who participated in a household survey at baseline to a similar group of households from the same communities who participated in the endline survey in 2021. The difference between these measures can be understood as changes in poverty in these communities that may have been caused by *Nobo Jatra* interventions, by broader changes in Bangladesh during that period, or by a combination of the two; a pre-post design does not allow the research team to identify what caused any of the measured changes. Similarly, the perspectives of participants in the **qualitative study** in "best case scenario" communities where *Nobo Jatra* implementation was particularly strong provides descriptions of the changes they have experienced since the project began and perspectives on how and why changes occurred. While participants might have attributed changes to *Nobo Jatra*, this does not provide definitive causal evidence of its effects. Rather, it highlights possible pathways of change and insights on project implementation, acceptance, and engagement.

Findings from the pre-post evaluation show modest improvements in household poverty after 5 years of implementation of the *Nobo Jatra* program. The research team used three different indicators to analyze household poverty: daily per capita expenditures, prevalence of poverty, and mean depth of poverty. Our data show improvements in all three poverty measures. Detailed findings are listed below, and detailed definitions and analysis guidelines for these indicators can be found in Annex E.

DAILY PER CAPITA EXPENDITURES

Households' daily per capita expenditures were calculated using a household's consumption expenditures on food items, non-food items, housing, and assets/durable goods over the previous 12 months. BHA prefers to use daily per capita expenditures as a proxy for income due to the challenges with collecting accurate income information. Consumption can be used as a measure of wealth, due to the fact that increased expenditure is closely tied with an increase in income. **At baseline, the average household daily per capita expenditure was $2.62. In the treatment areas at endline, the average sits slightly higher, at $2.77.** Individuals living in households with only adult women ($2.09) are less well off than households with both an adult man and adult woman ($2.78) .

PREVALENCE OF POVERTY

Prevalence of poverty is calculated based on the percent of households living on less than $1.90 a day. **At baseline, 26.7% of households were living on less than $1.90 a day in the *Nobo Jatra* locations. At endline in the treatment locations, this number decreased slightly, with 22.6% of all households living on less than $1.90/day.** Significantly more individuals living in female-only households (54.1%) were living below the threshold than individuals living in households with both an adult man and an adult woman (22.2%) in treatment areas. However, due to the small number of male and female only households, the confidence intervals are quite large for both of those groups.

MEAN DEPTH OF POVERTY

At baseline in the *Nobo Jatra* areas, the depth of poverty was 6.6% of the poverty line in treatment areas. At endline, this number is lower at 3.3%. Depth of poverty can be looked at as the per capita cost of increasing a household's daily per capita consumption to the USD $1.90/day poverty line. The 3.3% endline amount means that it would take approximately 6 cents (3.3% of $1.90) to lift households above the $1.90 poverty threshold in the treatment areas. However, individuals in adult female-only households in the treatment areas are worse off (10.5%), and even have a higher depth of poverty than at baseline (8.1%).

POVERTY AND CASH-EARNING

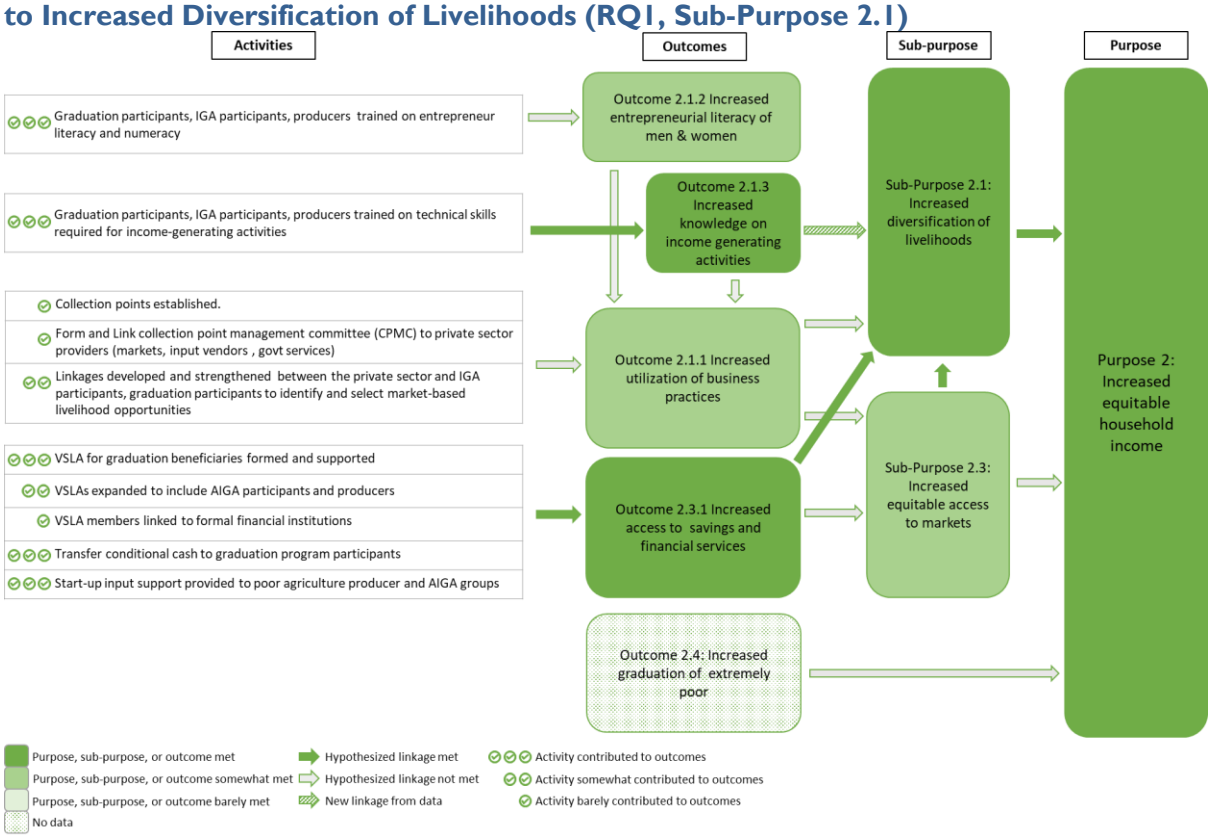
It does not appear that earning cash has a large impact on households living above or below the US $1.90/day poverty line. Households with men and women earning cash, households with men earning cash, and households with women earning cash all have approximately the same chance of being above or below the poverty line as their counterparts that do not earn cash at endline.

In the next section the authors will describe the three sub-purposes that *Nobo Jatra* hypothesized would increase the incomes of women participants to create more equitable household income. The first sub-purpose, increased diversification of livelihoods (Section 2.1), was the main sub-area of focus through which qualitative participants reported the project helped women increase their incomes in best-case scenario villages. Second, the research team shows how increased agricultural production (Section 2.2) led to the project goal of improved food security, though the team did not find strong evidence that it contributed to increased incomes as intended. Third, the authors explain how increased equitable access to markets (Section 2.3) facilitated the diversification of livelihoods and improved agricultural production. The authors highlight that access to savings and financial services through VSLAs facilitated livelihood diversification and homestead food production and thus increased income.

SUB-PURPOSE 2.1: INCREASED DIVERSIFICATION OF LIVELIHOODS

In the qualitative sample villages, the main pathway (or sub-purpose) to increased equitable household income was through Sub-Purpose 2.1, increased diversification of livelihoods. In Figure 3.27, the authors highlight the extent to which hypothesized activities and outcomes contributed to achieving increased diversification of livelihoods (Sub-Purpose 2.1) in the best-case scenario villages. Women participants from qualitative interviews reported diversifying their income into crafts and tailoring after learning new trades from the program. Findings from the pre-post and qualitative analyses show increased adoption of improved livestock practices, with the qualitative participants reporting that the resulting production improvements increased their income. Qualitative participants also reported that the inputs and financial support they received from *Nobo Jatra* and animal health LSPs they were linked to by *Nobo Jatra* to purchase inputs and services improved livestock production and income.

Figure 3.27: Activities, Outcomes and Market Access (RQ1, Sub-Purpose 2.3) Leading to Increased Diversification of Livelihoods (RQ1, Sub-Purpose 2.1)

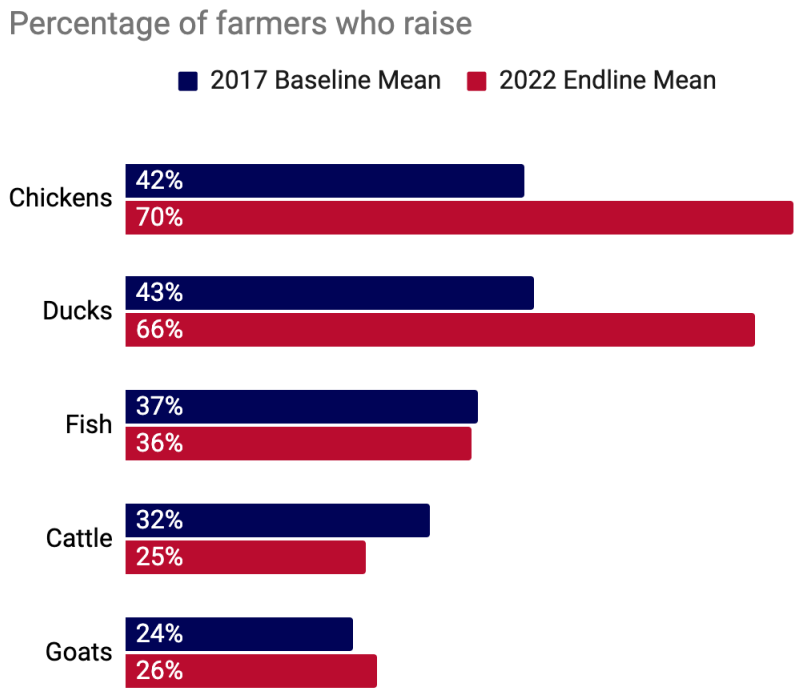


Women participants in best-case scenario villages reported being able to diversify their livelihoods and earning additional income through handiwork and tailoring. Participants reported being involved in pottery, bamboo/cane work, *puti* (bead) work, and tailoring. Some participants explained that, rather than learning new trades entirely, they were able to refine their existing skills from *Nobo Jatra* trainings. For example, some participants already knew how to make bamboo/cane crafts (Figure 3.28), but said they learned how to be more efficient and precise through the trainings.

Figure 3.28: Woman Weaves Bamboo Products as an Income-Generative Activity (RQ1)

The pre-post and qualitative analysis suggest that *Nobo Jatra* participants increased or diversified their involvement in livestock activities. Many qualitative women participants reported new or diversified involvement in livestock activities, which served as additional sources of income. Specifically, women reported selling calves, goats, sheep, chicklings, pigeons, eggs, fish, and cow dung. The pre-post analysis, as seen in Figure 3.29, shows that compared to baseline, households at endline raised more chickens and ducks. However, they experienced fewer changes in terms of cultivating fish and raising cattle and goats.

Figure 3.29:Percentage of farmers raising chickens, ducks, cattle, fish, and goats at baseline and at endline in the Nobo Jatra villages (RQ1)



OUTCOME 2.1.3 INCREASED KNOWLEDGE ON INCOME GENERATING ACTIVITIES

Both the pre-post and qualitative analysis showed increased adoption of sustainable and improved livestock practices, with qualitative participants attributing this to new knowledge from technical trainings, inputs, and financial support they received from the *Nobo Jatra* program. Farmers using at least two sustainable livestock practices increased by 11.9% between baseline and endline. The gendered breakdown has more male farmers (69.5%) than female farmers (48.3%) currently using 2 or more practices. Interestingly, at baseline, more female farmers (39.8%) than male farmers (35%) were using at least 2 sustainable livestock practices. In Table 3.7 below, the researchers show which livestock, poultry, and aquaculture practices the pre-post and qualitative participants adopted following *Nobo Jatra* activities. Participants explained that they received training on cattle and poultry rearing, fish farming, and handiwork, with some receiving inputs (e.g., feed, fish fingerlings, sewing machines) and others receiving financial support to start their businesses.

Findings from our qualitative data from best-case scenario villages suggest the adoption of improved livestock practices led to improved survivability and production, resulting in increased incomes. Participants explained that prior to the *Nobo Jatra* activities, many of their livestock and poultry would die. After *Nobo Jatra* training and information dissemination, participants were able to understand the health needs of their livestock and cattle, including the vaccinations, nutrition, and shed hygiene practices necessary to prevent diseases and death. A few participants highlighted the use of integrated farming systems, including livestock-crop, poultry-fish, and *gher* farming (fish-crop). Participants explained the diverse yields and symbiotic benefits of such integrated farming, such as poultry droppings providing fish with food and fish consuming pests that attack crops.

> *"Earlier we didn't know if the chickens were sick. Now there are vaccines [and] medicines. There are doctors for chickens, and I buy medicine from them [while taking the doctor's] advice. I have seen before [Nobo Jatra] that ten out of ten chickens would die, and now [after Nobo Jatra], [only] two die and eight [survive]."* (FG_F6_FX)

Table 3.7: Adoption of Improved Poultry and Livestock and Aquaculture Practices Using Pre-Post and Qualitative Data (RQ1)

Sector	Phase	Activities	Percent of pre-post respondents who adopted at endline	Adoption by qualitative participants	Widespread Adoption[34] by qualitative participants
Poultry and livestock		Improved breed identification	27.8%	No	No
		Improved housing	31.8%	Yes	Yes
		Proper feeding, improved feed	9.6%	Yes	Yes
		Bio-security maintenance		No	No
		Vaccination-preparation, carrying and pushing	29.2%	Yes	Yes
		Disease Management		No	No
		Integrated farming (crop/poultry)		Yes	No
Aquaculture	Pre-stocking	Pond preparation		Yes	Yes
		Liming		Yes	Yes
		fertilizer application		Yes	Yes
	Stocking	Quality fingerling identification		No	No
		Stocking density		No	No
		Appropriate feeding		Yes	Yes
	Post-stocking	Feeding		Yes	Yes
		Fertilizer application		Yes	Yes
		Disease management		Yes	Yes
		Partial harvesting and restocking		No	No
		Horra pulling		No	No
		Final harvesting		No	No
	Production	Integrated farming (poultry/fish)		Yes	No

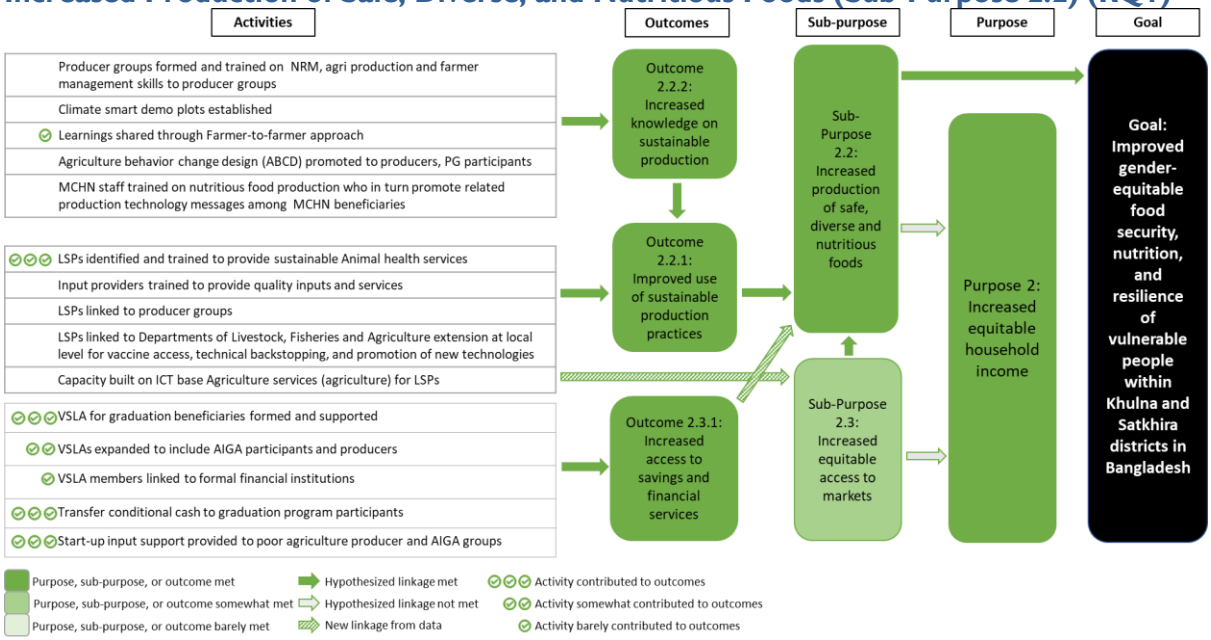
SUB-PURPOSE 2.2: INCREASED PRODUCTION OF SAFE, DIVERSE AND NUTRITIOUS FOODS

The second sub-purpose hypothesized to lead to fulfilling Purpose 2 was to increase production of safe, diverse and nutritious foods. Findings from the best-case scenario villages reported beginning or increasing production of diverse and nutritious vegetables and fruits following *Nobo Jatra* training, leading primarily to improved food and nutrition security rather than increased incomes as hypothesized, as shown in Figure 3.30. Findings from the pre-post evaluation likewise indicate that food and nutrition security improved after the program and that respondents at endline increased their production of vegetables. Finally,

[34] Practices were considered to have been widely adopted based on the frequency they were mentioned by qualitative participants.

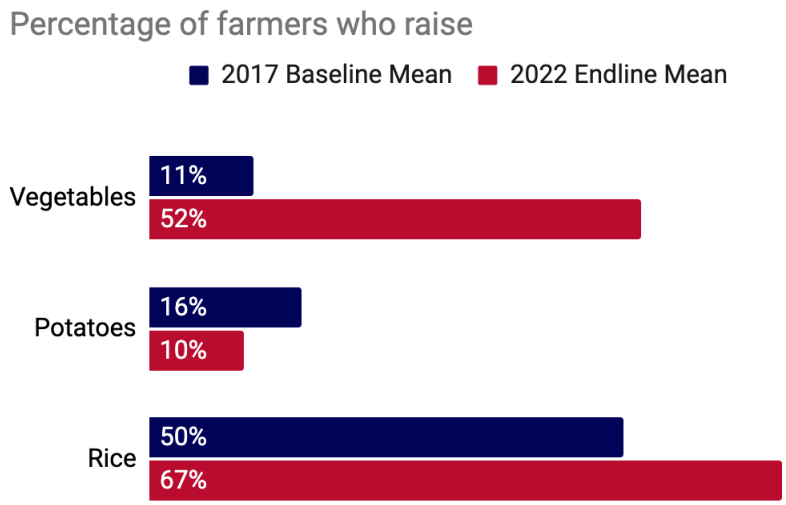
the researchers describe in the Outcome 2.3.1 section how increased access to savings and financial services were also perceived to contribute to food production in best-case scenario villages, a linkage that was not previously hypothesized.

Figure 3.30: Activities, Outcomes and Market access (Sub-Purpose 2.3) Leading to Increased Production of Safe, Diverse, and Nutritious Foods (Sub-Purpose 2.2) (RQ1)



Participants from the qualitative evaluation attributed their improved food and nutrition security to increased production of nutritious fruits and vegetables. Findings from the pre-post evaluation similarly show that *Nobo Jatra* participants expanded their typical production to include more vegetables. As shown in Figure 3.31, findings from the pre-post evaluation indicate that at endline, farmers reported a growth in vegetable production by 41% over time, shifting from the production focus of rice and potatoes at baseline.

Figure 3.31: Pre-post results - change in vegetables being grown in the Nobo Jatra villages (RQ1)



OUTCOME 2.2.1 AND 2.2.2 INCREASED KNOWLEDGE AND IMPROVED USE OF SUSTAINABLE PRODUCTION PRACTICES

The first outcome that the program hypothesized would lead to improved production of nutritious foods was increased knowledge and adoption of sustainable production practices. Qualitative participants who adopted sustainable production practices introduced by *Nobo Jatra* reported an increase in yields and in the diversity of vegetables and fruits produced. Participants in these villages noted that these increased yields from homestead production translated into improved household food security and dietary diversity.

Both pre-post and qualitative analyses results suggest that *Nobo Jatra* households increased their knowledge and adoption of sustainable crop production practices. According to the pre-post findings, a higher share of farmers report using at least two sustainable crop practices at endline (48.4%) than baseline (44.5%). However, adoption was significantly higher for men (69.5%) than for women (10.4%). Qualitative participants reported learning and adopting new practices for inputs and sustainable production from *Nobo Jatra* trainings. The level of adoption of these practices by pre-post survey respondents and qualitative participants is shown in Table 3.8. Qualitative participants also reported gaining knowledge more broadly on how to cultivate vegetables, sow seeds, fertilize, and use pesticides. These participants were able to save money by producing their own fertilizer and pesticides.

Table 3.8: Agricultural Input and Production Practices Adopted by Participants (RQ1)

Point on Value Chain	Category	Activities	Percent of pre-post respondents who adopted at endline Respondents	Adoption by Qualitative Participants	Widespread Adoption[35] by Qualitative Participants
Inputs	Pesticides	Neem Leaves		Yes	Yes
		Mahogany Powder		Yes	Yes
		Soap Water		Yes	No
		Light trap method		Yes	No
		Sex-pheromone trap		No	No
		Integrated Pest Management	12.6%	No	No
	Fertilizers	Composting with food and livestock waste	42.1%	Yes	Yes
		Vermicomposting		No	No
	Seeds	Use of quality/improved seeds	13.0%	Yes	No
		Natural seed preservation		Yes	No
Production		Land preparation, bed and pit preparation and spacing	18.7%	Yes	Yes
		Tied ridges	22.2%		
		Sack method		Yes	Yes
		Vertical and tower gardening		Yes	No
		Intercropping	6.1%	Yes	Yes
		Seasonal crop rotation	3.0%	Yes	Yes
		Gher farming, dyke cropping	1.2% (dyke cropping)	Yes	No

IMPROVED FOOD SECURITY

Our qualitative data also revealed that participants who adopted sustainable production practices introduced by *Nobo Jatra* reported an increase in yields and in the diversity of vegetables and fruits produced, which translated into improved household food security and dietary diversity. Qualitative households reported that producing foods at their households allowed them to increase the frequency of meals they consumed per day. Households also reported being able to consume more diverse foods, including animal-source foods, such as poultry eggs, fish, and chicken, and to eat a larger variety of vegetables, particularly those rich in vitamin-A and iron. While

[35] Practices were considered to have been widely adopted based on the frequency they were mentioned by qualitative participants.

increased production did not often lead directly to increased income, some participants reported spending less household income on purchasing vegetables and fruits.

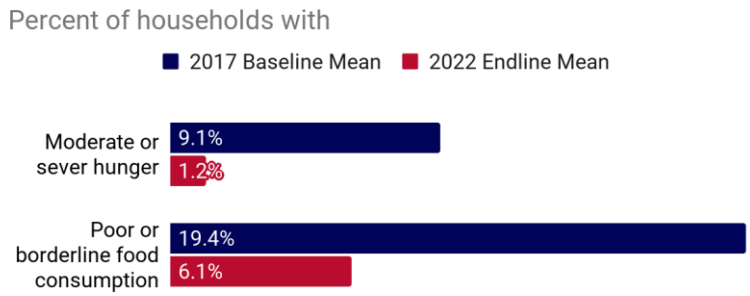
The pre-post analysis likewise found improved food security among households over time. For the pre-post analysis, the research team used two different indicators to analyze household food security: household hunger scale and food consumption score. Detailed findings are displayed below, and detailed definitions and analysis guidelines for these indicators can be found in Annex E.

Household Hunger Scale (HHS)

At baseline in 2016, survey results indicated that 9.1% of households experienced moderate or severe hunger in the *Nobo Jatra* areas. This declined dramatically at endline, dropping to 1.2% in the treatment areas.

When HHS and type of household are examined side-by-side, it is clear that moderate or severe hunger decreased for all types of households. In treatment areas, at endline 10.5% of adult female-only households report facing moderate or severe hunger, which has decreased t since baseline (16.2%). Moderate or severe hunger also dropped about 8 percentage points for households with both male and female adults, from 8.6% at baseline to 0.9% at endline.

Figure 3.32: Pre-post results - Households with moderate or severe hunger (HHS) and households with poor or borderline consumption (FCS) (RQ1)



Food Consumption Score (FCS)

The Food Consumption Score (FCS) was calculated at endline, using the same methodology used at baseline. Based on the calculated score, each household in the study population was placed into four groups, indicating the level of food insecurity experienced. These groups include (1) poor consumption, (2) borderline consumption, (3) acceptable low consumption, and (4) acceptable high consumption. **At baseline, 19.4% of households had rates of poor or borderline consumption. At endline, poor or borderline consumption fell to 6.1% in treatment areas, with most of these households falling in the borderline range of FCS.**

Facilitators of Improved Production Practices

Findings from the pre-post evaluation suggest that improved access to agricultural extension, in addition to *Nobo Jatra* training described by qualitative participants, may have contributed to increased knowledge and adoption of sustainable production practices. In the treatment areas, more farmers report having access to agricultural extension services from the Government of Bangladesh at endline (25%) than at baseline (12.9%). The main services used by farmers in the treatment areas

are vaccinations for cows, goats, sheep, chickens, and ducks. Access to agriculture-related information and access to agriculture inputs, such as cash or in kind goods (seeds, fertilizer, and irrigation), are also popular.

Besides improved sustainable farming practices, the qualitative analysis suggests that *Nobo Jatra* facilitated increased access to agriculture inputs to support agricultural production for best-case scenario farmers in four ways. Participants described: (1) receiving inputs (or financial support to purchase inputs) from *Nobo Jatra* directly; (2) receiving inputs from agricultural extension agents; (3) purchasing inputs from markets or LSPs, some of which *Nobo Jatra* directly linked communities to; and (4) making their own inputs, which participants learned from *Nobo Jatra*. The input production techniques adopted are shown in Table 3.8 above.

Figure 3.33: Dyke Cropping of Sweet Gourd (RQ1)

PERSISTENT PRODUCTION CHALLENGES

Despite increased yields from adopting new production techniques and methods, participants described a number of challenges with agricultural production, including weather-related challenges and access to land and water. Participants, community leaders, and implementers noted that storms and floods often ruined household crops. Because participants lived in high salinity coastal areas, they also emphasized limited access to water for irrigating their crops. One female participant describes the challenge of living in a high-salinity area in the quote below.

> *"You know why we don't cultivate here (in this area)? Because there is salt water here. Nothing (agriculture production) happens with this water…Aman (rice variety) paddy cultivates during the rainy season, and those who can block water can cultivate, and those who do not have it cannot cultivate. He who has water can cultivate vegetables. But the one who does not have water, he will take the water by putting the deep tube wells, but that water is salty also. For this reason, people reduce the summer season cultivation of vegetables or paddy here."* (FG_F7_F3)

At the same time, it appears that there were no improvements in the adoption of sustainable natural resource management (NRM) practices during the project period. These practices could have played a role in helping address the land and water challenges above. However, no farmers in the treatment areas use at least two sustainable NRM practices—a decrease from the 0.7% of farmers at baseline reported utilizing at least two sustainable NRM practices.

Land access and ownership may have also contributed to production challenges. Many participants explained that they did not own their own land, and instead cultivated by *barga* (lease). Although participants said that after the methods and techniques they learned from *Nobo Jatra*, they were able to increase their yields and earnings, they expressed that the cost of leasing land to cultivate crops was expensive and rising. While some participants started leasing land or expanding the amount of land they leased following higher yields, others said they were unwilling to pay the rising costs of leasing.

Sub-Purpose 2.3: Increased equitable access to markets

The third sub-purpose hypothesized to lead to the fulfillment of increased equitable household income (Purpose 2) was increased equitable access to markets. While the research team did not find evidence of this pathway leading directly to increased equitable household income in the best-case scenario villages, the team did find that increased access to markets did so indirectly, by facilitating the increased diversification of livelihoods (Sub-Purpose 2.1) and the increased production of safe, diverse and nutritious foods (Sub-Purpose 2.2. See Figures 3.27 and 3.30).

Qualitative participants reported that *Nobo Jatra* facilitated linkages with buyers and markets for producers to sell their handiwork and tailoring products, but seldom for agricultural and livestock products. For crafts and handiwork products, participants described how *Nobo Jatra* helped establish linkages between their businesses and wholesalers, traders or shopkeepers who would purchase their products and sell them to consumers. The research team found evidence of these strengthened linkages improving participants' handicraft sales, but little evidence of such linkages improving prices. In addition, participants described low farmgate prices, which reduced the value of these linkages. For tailoring work, some participants mentioned that they were linked to shopkeepers to purchase inputs (e.g., cloth). An implementer explained that *Nobo Jatra* linked some participants to NGOs involved in tailoring, allowing participants to provide sewing services when there was high demand, such as during the holidays like Eid, Puja, and Pahela Boishakh.

Although *Nobo Jatra* intended to link producer groups to markets, very few participants in the sample villages for qualitative research mentioned *Nobo Jatra* forming producer groups or participants being a part of producer groups, let alone the groups being linked to markets.

Women participants involved in livestock rearing in best-case scenario villages reported selling their products at lower-than-market prices at their homes because they were restricted from going to markets and lacked negotiating power. Most participants sold vegetables, eggs, and ducklings to traders or wholesalers who came directly to their homes. Neighbors were often buyers of surplus vegetables produced by participants. Most participants explained that they established these

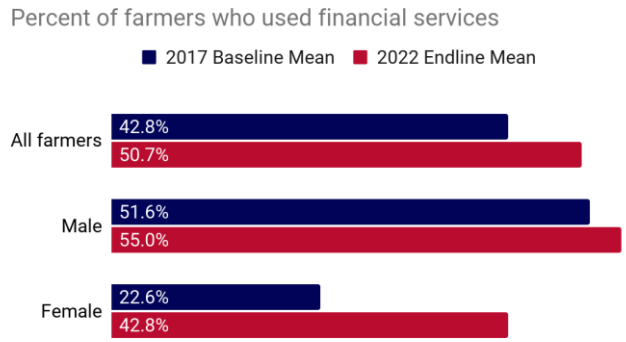
connections without the support of *Nobo Jatra*. For most participants who sold to wholesalers and traders from their homes, prices were usually set by the wholesalers and traders. Some participants mentioned that, compared to prices at the market, the prices they got from wholesalers and traders were often lower; however, participants explained that few women were able to go to the market to sell their products because of cultural norms limiting women's mobility. Market management committees and producer groups, which allow for members to negotiate better prices, were seldom mentioned by participants.

OUTCOME 2.3.1 INCREASED ACCESS TO SAVINGS AND FINANCIAL SERVICES

One of the hypothesized outcomes for Purpose 2 was increased access to savings and financial services. Both the pre-post and qualitative analysis indicate that this outcome was achieved. Women participants from the qualitative evaluation reported that increased access to savings and financial services facilitated their participation in income-generating activities and homestead food production.

Findings from the pre-post analysis show that the use of financial services among farmers increased between baseline and endline. As shown in Figure 3.34, the share of farmers using financial services increased by approximately 8 percentage points, with more farmers accessing savings than credit services. At endline, the gendered gap in accessing financial services remained but decreased.

Figure 3.34: Farmers who used financial services at baseline and endline (RQ1)



Qualitative participants from best case scenario villages likewise reported improvements in access to financial services by *Nobo Jatra* participants after the program. However, the qualitative data suggest that this improvement was primarily among women, who were able to access financial services through Village Savings and Loans Associations (VSLAs). These VSLAs, which were reportedly established or revitalized by *Nobo Jatra*, facilitated women's involvement in income-generating and homestead food production activities. Many women used the savings, loans, or interest-based profits from VSLAs to invest in alternative livelihood activities. Women reported taking out loans to start or expand businesses, using the money to purchase start-up inputs such as poultry chicks and sewing machines. Some women also used their savings or money gained from interest at the end of the year for the same purposes. Many women also used the savings, loans, or interest-based profits from VSLAs to invest in homestead food production such as starting or expanding homestead farms and using the money to purchase start-up inputs such as seeds. Some women considered the loan interest they gained from being involved with VSLAs as another form of income. Fewer

men reported participating in VSLAs, but reasons for this difference were not apparent in implementation documents or in data collected for this evaluation.

Table 3.9: Indicator Tables for Purpose 2 (RQ1)

Indicator	Baseline value	Endline value	Raw Difference (Baseline-Endline)	SD of BL value	SD of EL value	P value of difference
Food Security Indicators						
Prevalence of households with moderate or severe hunger (HHS)	9.1 n = 1,849	1.2 n = 1,188	-7.9	28.7	11.0	0.000***
Male and female adults	8.6 n = 1,695	0.9 n = 1,153	-7.7	28.2	9.5	0.000***
Adult female, no adult male	16.2 n = 134	10.5 n = 32	-5.7	36.4	31.1	0.370
Adult male, no adult female	NA	NA	NA	NA	NA	NA
Child, no adults	NA	NA	NA	NA	NA	NA
Poverty Indicators						
Per capita expenditures (as a proxy for income) of USG-assisted areas	$2.62 n = 7,788	$2.77 n = 5,190	$0.15	1.2	1.3	0.000***
Male and female adults	$2.62 n = 7,424	$2.78 n = 5,134	$0.16	1.2	1.3	0.000***
Adult female, no adult male	$2.68 n = 313	$2.09 n = 49	-$0.59	1.9	0.8	0.000***
Adult male, no adult female	NA	NA	NA	NA	NA	NA
Child, no adults	NA	NA	NA	NA	NA	NA
Prevalence of poverty: Percent of people living on less than $1.90/day[2]	26.7 n = 7,788	22.6 n = 5,190	-4.1	44.3	43.5	0.000***
Male and female adults	26.6 n = 7,424	22.2 n = 5,134	-4.4	43.4	43.4	0.000***
Adult female, no adult male	30.3 n = 313	54.1 n = 49	2.4	60.9	50.2	0.003**
Adult male, no adult female	NA	NA	NA	NA	NA	NA
Child, no adults	NA	NA	NA	NA	NA	NA
Mean depth of poverty (expressed as percent of poverty line)	6.6 n = 7,788	3.3 n = 5,190	-2.52	14.2	8.2	0.000***
Male and female adults	6.5 n = 7,424	3.3 n = 5,143	-2.46	13.9	8.1	0.000***
Adult female, no adult male	8.1 n = 313	10.5 n = 49	4.00	20.8	12.6	0.274
Adult male, no adult female	NA	NA	NA	NA	NA	NA
Child, no adults	NA	NA	NA	NA	NA	NA

Indicator (cont.)	Baseline value	Endline value	Raw Difference (Baseline-Endline)	SD of BL value	SD of EL value	P value of difference
Agricultural Indicators						
Percentage of farmers who used financial services in the past 12 months	42.8 n = 1,397	50.7 n = 1,547	7.9	49.5	50.0	0.000***
Male farmers	51.6 n = 962	55.0 n = 998	3.4	49.7	49.8	0.047*
Female farmers	22.6 n = 435	42.8 (n = 549)	20.2	42.4	49.5	0.000***
Percentage of farmers who used three sustainable agricultural practices in the past 12 months	47.0 n = 1,397	56.1 n = 1,547	9.1	49.9	49.6	0.000***
Male farmers	57.0 n = 962	73.6 n = 998	16.6	49.2	44.1	0.000***
Female farmers	24.0 n = 435	24.7 n = 549	0.7	43.3	43.2	0.914
Percentage of farmers who used at least two sustainable crop practices in the past 12 months	44.5 n = 1,397	48.4 n = 1,547	3.9	49.7	50.0	0.030*
Male farmers	60.0 n = 962	69.5 n = 998	9.5	48.7	46.1	0.000***
Female farmers	8.8 n = 435	10.4 n = 549	1.6	28.8	30.6	0.000***
Percentage of farmers who used at least two sustainable livestock practices in the past 12 months	36.5 n = 1,397	48.4 n = 1,547	11.9	48.2	50.0	0.000***
Male farmers	35.0 n = 962	69.5 n = 998	34.5	47.5	46.1	0.000***
Female farmers	39.8 n = 435	48.3 n = 549	8.5	49.6	50.0	0.105
Percentage of farmers who used at least two sustainable NRM practices in the past 12 months	0.7 n = 1,397	NA n = 1,547	NA	8.1	NA	NA
Male farmers	0.8 n = 962	NA n = 998	NA	9.0	NA	NA
Female farmers	0.3 n = 435	NA n = 549	NA	5.3	NA	NA
Percentage of farmers who used improved storage practices in the past 12 months	38.9 n = 1,397	19.0 n = 1,169	-19.9	48.8	39.2	0.000***
Male farmers	53.0 n = 962	28.9 n = 998	-24.1	49.6	45.4	0.000***
Female farmers	6.6 n = 435	1.0 n = 549	-5.6	25.2	10.0	0.000***

Indicator (cont.)	Baseline value	Endline value	Raw Difference (Baseline-Endline)	SD of BL value	SD of EL value	P value of difference
Project Specific Indicators						
Food consumption score (FCS)	59.7 n = 1,847	61.2 n = 1,188	1.5	19.5	15.2	0.018*
Percent households with FCS ≤ 28 (Poor)	3.6 n = 1,847	0.2 n = 1,188)	-3.4	18.5	4.5	0.000***
Percent households with FCS > 28 and FCS ≤ 42 (Borderline)	15.8 n = 1,847	5.9 n = 1,188	-9.9	36.5	23.6	0.000***
Percent households with FCS > 42 and FCS ≤ 52 (Acceptable Low)	15.9 n = 1,847	20.5 n = 1,188	4.6	36.5	40.4	0.002**
Percent households with FCS > 53 (Acceptable High)	64.7 n = 1,847	73.4 n = 1,188	8.7	47.8	44.2	0.000***
Percent of farmers that have access to agriculture and livestock extension services from agriculture and livestock departments of GoB	12.9 n = 1,397	23.8 n = 1,547	10.9	33.5	42.60	0.000***
Percentage of male farmers with access to services	14.0 n = 962	28.8 n = 998	14.8	34.8	45.33	0.000***
Percentage of female farmers with access to service	10.3 n = 435	14.8 n = 549	4.5	30.4	35.49	0.035*
Agriculture related knowledge or information	5.6 n = 1,397	6.8 n = 1,547	1.2	23.0	25.10	0.176
Agriculture inputs (Cash or kind, i.e. seed, fertilizer, irrigation)	3.2 n = 1,397	6.6 n = 1,547	3.4	17.6	24.80	0.000***
Agriculture service through field visit	1.7 n = 1,397	2.9 n = 1,547	1.2	12.9	16.85	0.029*
Agriculture through demo plot	0.8 n = 1,397	0.6 n = 1,547	-0.2	8.7	7.82	0.5357
E-agriculture services through hotline	0.9 n = 1,397	0.6 n = 1,547	-0.3	9.5	7.87	0.354
Livestock related knowledge and information	1.8 n = 1,397	7.0 n = 1,547	5.2	13.5	25.50	0.000***
Vaccination for chicken and duck	2.4 n = 1,397	9.1 n = 1,547	6.7	15.4	28.75	0.000***
Vaccination for goat and sheep	1.4 n = 1,397	6.8 n = 1,547	5.4	11.7	25.15	0.000***
Vaccination for cows	3.1 n = 1,397	6.1 n = 1,547	3.0	17.3	23.98	0.000***
Other services	0.7 n = 1,397	1.9 n = 1,547	1.2	8.1	13.62	0.003**

3.1.5 Detailed Findings of Purpose 3: Strengthened gender equitable ability of people, households, communities and systems to mitigate, adapt to and recover from shocks and stresses

Overview of Purpose 3 Findings

The third pathway or purpose *Nobo Jatra* designed to meet their goal was through the strengthened gender-equitable ability of people, households, communities and systems to mitigate, adapt to, and recover from man-made and natural shocks. Findings for Research Question 2 will reveal that although the pre-post and performance evaluations demonstrate progress being made in strengthening these abilities, the impact evaluation found that this progress was likely not due to the *Nobo Jatra* program. However, the impact evaluation did find that households in *Nobo Jatra* villages that experienced major shocks were better able to mitigate the effects of the shocks—maintaining their food consumption—than households in comparison villages that also experienced major shocks. A strengthened ability to recover from shocks through access to agricultural extension services and adoption of sustainable agricultural and storage practices was also developed. Here, qualitative evidence from six best-case scenario villages shows how some of these abilities were strengthened by *Nobo Jatra*; however, the research team was not able to measure the gender equity of the changes.

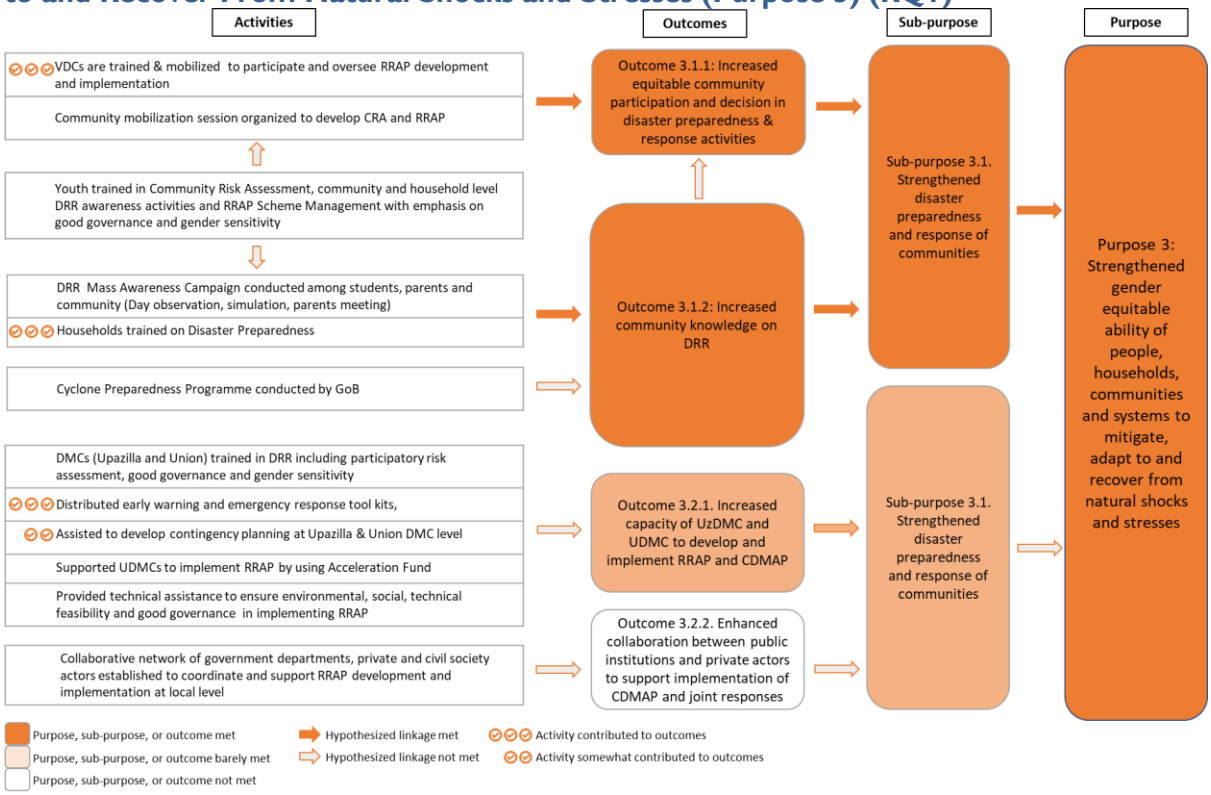
In this section below, the authors illustrate that Purpose 3 was achieved primarily through improved community-level disaster preparedness and response (Sub-Purpose 3.1) after *Nobo Jatra*. At the same time, some evidence indicates that the capacities of sub-national governments to prepare and respond to disasters improved through *Nobo Jatra*-supported disaster action plan development, implementation, and fund allocation (Sub-Purpose 3.2). These findings highlight the possible pathways Purpose 3 was achieved. The research team observes the following conclusions as noted in Table 3.10.

Table 3.10. Key Findings on the Extent to Which Sub-Purpose Pathways Produced Positive Outcomes for Purpose 3 (RQ1)

Sub-Purpose	Key Findings from the Qualitative and Quantitative Research
Sub-Purpose 3.1: Strengthened disaster preparedness and response of communities	• **Qualitative** participants described increased equitable participation and decision-making in disaster preparedness and response activities through community disaster management committees (DMCs), which *Nobo Jatra* helped revitalize. • Participants in the **qualitative research** exhibited increased knowledge around disaster preparedness and response from *Nobo Jatra*-led backyard meetings, ethno-dramas, and disaster drills.
Sub-Purpose 3.2: Strengthened disaster preparedness and response of government institutions and private organizations	• Some **qualitative** participants reported improvements in the capacity of sub-national governments to prepare for and respond to disasters at least in part due to *Nobo Jatra* training. As a result, sub-national governments were able to develop, fund, and implement disaster risk reduction and action plans. • However, some **qualitative** participants expressed that upazila/union DMCs were not responsive to their needs.

In Figure 3.35, the authors show the activities, outcomes, and sub-purposes that were hypothesized and reported to contribute to Purpose 3. Our qualitative evidence indicates that as a result of improved disaster mitigation and preparedness after the *Nobo Jatra* program, some participants noted fewer lives lost and less damage within their communities following Cyclones Bulbul in 2019, Amphan in 2020, and Yas in 2021 than from Cyclone Aila in 2009.

Figure 3.35: Sub-Purposes, Outcomes and Activities Leading to Strengthened Gender Equitable Ability of People, Households, Communities and Systems to Mitigate, Adapt to and Recover From Natural Shocks and Stresses (Purpose 3) (RQ1)



SUB-PURPOSE 3.1: INCREASED DISASTER PREPAREDNESS AND RESPONSE BY COMMUNITIES

Participants described increased equitable participation and decision-making in disaster preparedness and response activities through community disaster management committees (DMCs), which *Nobo Jatra* helped revitalize.
Community members, including women and youth, participated in disaster management committees (DMCs), which played a key role in preparing the community for disasters, spreading awareness of disaster response actions, and implementing disaster response plans. The capacities of DMCs to support communities in responding to disasters improved, as shown by their increase in knowledge about disaster response activities in Table 3.11 below. *Nobo Jatra* strengthened community DMCs to support communities in better preparing and responding to cyclones:

> *"We had a meeting of the Disaster Management Committee before Nobo Jatra but it was not done properly. But since the advent of Nobo Jatra, [our DMC] has been in full swing. And there is awareness among people about disasters, what people should do before a disaster, what to do during a warning. There is management before a disaster, there is management during a disaster and there is management after a disaster. The committees*

we have here, they all work well now. We would have lost a lot of lives in the disaster here but later [when] our disasters happened [such as] Aila, Amphan, Sidar, the amount of damage was very small. Because we were already alert, aware. People have become much more aware with the advent of this Nobo Jatra project." (FG_M2_MX)

Participants exhibited increased knowledge around disaster preparedness and response from *Nobo Jatra*-led backyard meetings, ethno-dramas, and disaster drills. Prior to *Nobo Jatra* training, most community members said that, during a disaster, community members would stay in their homes rather than seeking safety at shelters/disaster centers and were not aware of the different disaster warning signals. Following *Nobo Jatra* training, however, most community members were better-equipped to respond and prepare for disasters, as shown in Table 3.11.

Table 3.11: Disaster Preparedness and Response Practices Adopted at the Community, Household, and Individual Levels in Best-case Scenario Villages (RQ1, Sub-Purpose 3.1)

Level	Disaster and Response Preparedness	Adoption by Participants	Widespread Adoption[36]
Community level	Differentiating the various disaster signals to deploy	Yes	No
	Identifying the correct color-coded warning flags to hoist during disasters	Yes	Yes
	Helping community members get to shelters during disasters	Yes	Yes
	Prioritizing vulnerable community members (e.g., pregnant, sick, elderly, and children) to be taken to disaster shelters during disasters	Yes	Yes
	Delivering house-to-house disaster warnings	Yes	No
Individual- and household- level	Understanding of color-coded flag meanings	Yes	Yes
	Knowledge of where to access early disaster warnings	Yes	Yes
	Keep food and important documents in a safe and dry place (e.g. above house)	Yes	No
	Secure house with rope	Yes	No
	Set net around household ponds to protect fish	Yes	No
	Bring cattle to safe place	Yes	No
	Bring children, pregnant women, and elderly to cyclone center	Yes	Yes
\			
	Bring water, dry food, candles, and clothes to cyclone center	Yes	Yes

[36] Practices were considered to have been widely adopted based on the frequency they were mentioned by qualitative participants.

Sub-Purpose 3.2: Strengthened disaster preparedness and response of government institutions and private organizations

Some participants reported that the capacity of sub-national governments to prepare for and respond to disasters improved in best-case scenario villages, at least in part due to *Nobo Jatra* training. As a result of these *Nobo Jatra* trainings, sub-national governments were able to develop, fund, and implement disaster risk reduction and action plans. For example, one local chairman explained that they were able to establish systematic disaster action plans that designated various responsibilities and tasks during a disaster, which minimized cyclone-related deaths and harms in their communities. Moreover, participants reported receiving disaster supplies (e.g., flashlights, raincoats, life jackets) before disasters, early warnings during disasters, and food relief after disasters from sub-national governments. Implementers tied these outcomes to *Nobo Jatra* disaster training with members of upazila/union DMCs.

Notably, a few women participants expressed that upazila/union DMCs were not responsive to their needs. Specifically, these women explained that their houses were destroyed after cyclones, but the government did not provide any support to repair the damages.

3.1.6 Detailed Findings of Purpose 4 (cross-cutting): Improved social accountability and national policy engagement of service provision for vulnerable men and women

Overview of Purpose 4 Findings

Our qualitative evidence shows that, in best-case scenario villages, *Nobo Jatra* contributed to improved social accountability and national policy engagement of service provision (Purpose 4). The three sub-purposes that *Nobo Jatra* focused on to achieve purpose 4 were 1) increasing the responsiveness of market-based LSPs to meet community needs (Sub-Purpose 4.1), 2) increasing the responsiveness of government service providers to meet community needs (Sub-Purpose 4.2), and 3) strengthening communities in their ability to raise demand on public and private services (Sub-Purpose 4.3).

Below, the authors describe how LSPs were able to meet community needs for input and extension services (Sub-Purpose 4.1). Next, the authors show that sub-national governments did not always meet community demands for public services (Sub-Purpose 4.2). Finally, the authors discuss how Purpose 4 was primarily met by strengthened community groups that advocated for government services to meet their needs (Sub-Purpose 4.3). The research team observes the following conclusions as noted in Table 3.12.

Table 3.12: Key Findings on the Extent to Which Sub-Purpose Pathways Produced Positive Outcomes for Purpose 4 (RQ1)

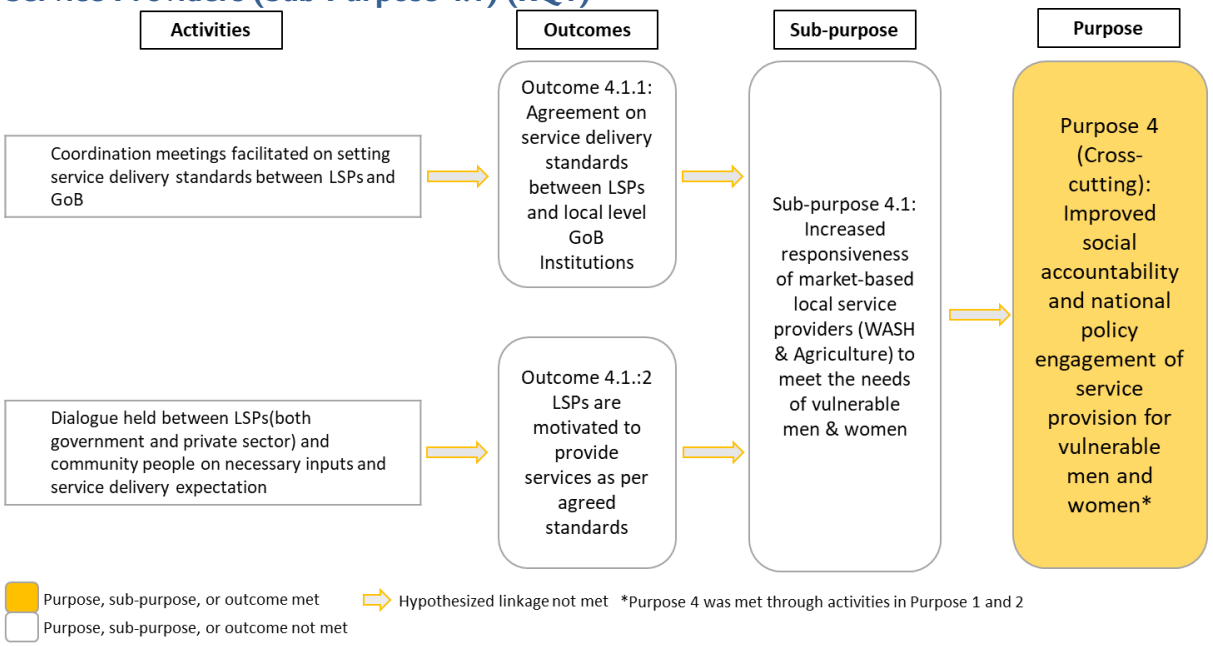
Sub-Purpose	Key Findings from the Qualitative Research
Sub-Purpose 4.1: Increased responsiveness of market-based local service providers (WASH & Agriculture) to meet the needs of vulnerable men & women	• According to **qualitative** participants in best-case scenario villages, WASH, agriculture, and livestock service providers seemed to be responsive to community needs through the provision of inputs and technical information. • However, the project did not achieve this sub-purpose through the hypothesized activities, outcomes, and pathways. There is no evidence to suggest that *Nobo Jatra* was able to facilitate formal agreements on service delivery standards between LSPs and sub-national governments (Outcome 4.1.1), or motivate LSPs to meet these standards (Outcome 4.1.2)
Sub-Purpose 4.2: Responsiveness of government service providers to meet the needs of vulnerable men and women	• **Qualitative findings** showed that Government responsiveness to community needs was mixed and seemed to vary across unions.
Sub-Purpose 4.3: Vulnerable communities raise demand on social & technical services by vulnerable communities	• With the support of *Nobo Jatra* through the strengthening and revitalization of VDCs, participants described increased advocacy for their needs and engagement with sub-national governments. • Most **qualitative** participants highlighted increased community member involvement in community groups, especially VDCs. Participants also stated that these groups then engaged sub-national level government bodies to represent and meet the needs of their villages.

SUB-PURPOSE 4.1: INCREASED RESPONSIVENESS OF MARKET-BASED LOCAL SERVICE PROVIDERS (WASH & AGRICULTURE) TO MEET THE NEEDS OF VULNERABLE MEN & WOMEN

As discussed in more detail under Research Question #4 below, **WASH, agriculture, and livestock service providers seemed to be responsive to community needs through the provision of inputs. LSPs also served as sources of technical information for community members,** with WASH LSPs providing advice on how to construct latrines in a sanitary way, agriculture LSPs providing advice on good quality seeds, and livestock LSPs providing advice on timely vaccinations. The information and extension services provided by LSPs, combined with concurrent *Nobo Jatra* community-based awareness building, increased the demand for LSP products. To meet the increased demand for their products, WASH and Agriculture LSPs explained that they often allowed community members to pay by credit or payment plans, acknowledging that many could not afford to pay for their services and products upfront.

Although *Nobo Jatra* contributed to the increased responsiveness of local service providers, the project did not achieve this sub-purpose through the hypothesized activities, outcomes, and pathways (see Figure 3.36). *Nobo Jatra* aimed to facilitate formal agreements on service delivery standards between LSPs and sub-national governments (Outcome 4.1.1), and motivate LSPs to meet these standards (Outcome 4.1.2), but there was no evidence that these outcomes were met. However, a few implementers and collaborators mentioned that *Nobo Jatra* helped establish linkages between LSPs and sub-national governments, encouraging public-private collaboration.

Figure 3.36: Outcomes and Activities Leading to Increased Responsiveness of Local Service Providers (Sub-Purpose 4.1) (RQ1)



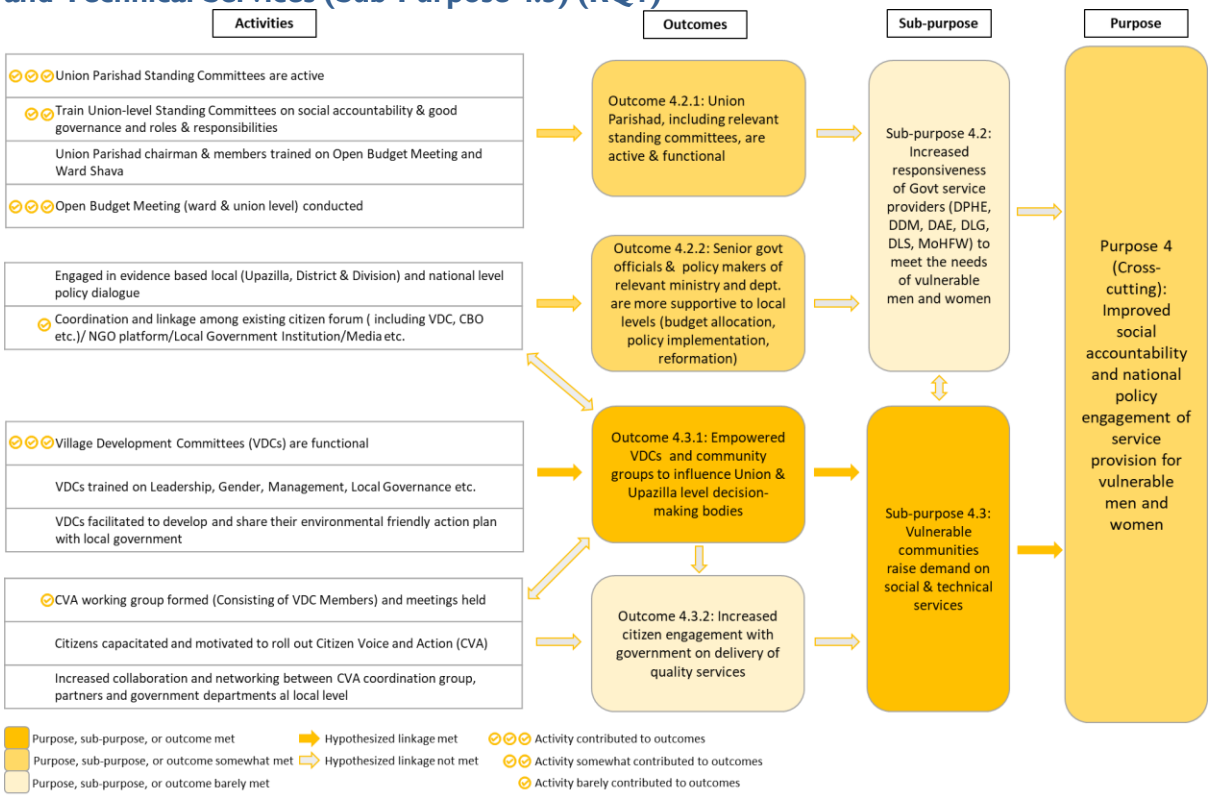
SUB-PURPOSE 4.2: RESPONSIVENESS OF GOVERNMENT SERVICE PROVIDERS TO MEET THE NEEDS OF VULNERABLE MEN AND WOMEN

Government responsiveness to community needs was mixed and seemed to vary across unions. In some cases, participants found union councils to be responsive to their needs (Sub-Purpose 4.2, see Figure 3.37 below). For example, some youth community members explained that they worked together with the union parishad, discussing the different issues that needed to be addressed in their village, and developed priorities for what needs were to be addressed, with which funds, and by whom. In another example in the subsequent quote, one resilient household member describes how the union council addressed the sanitary latrine and water tank issues in her area.

> *"We speak about these [public services issues] in the union council [meeting]. Roads were not good before, there was no clean water system, there were no good bathrooms. [Council members] who are at the union level are told that the [village] bathrooms are not good, people use open spaces [as bathrooms]. [The Union Council members then] make arrangements to provide a bathroom. [There is also a] water problem in this [village] and people are not able to drink water here. It is said that [the Union Council members then] arrange tanks here."* (RH_F9)

In other cases, participants found that union councils did not meet their community needs (Sub-Purpose 4.2, see Figure 3.37 below). Several participants found that their union councils did not meet the needs of the most vulnerable, and instead gave preferential services to those with connections to union chairmen or those who were wealthy. Another participant explained how their union council charged for water tanks, even though they received those tanks for free.

Figure 3.37: Outcomes and Activities Leading to Increased Responsiveness of Government Service Providers (Sub-Purpose 4.2) and Community Demand for Social and Technical Services (Sub-Purpose 4.3) (RQ1)



SUB-PURPOSE 4.3: VULNERABLE COMMUNITIES RAISE DEMAND ON SOCIAL & TECHNICAL SERVICES

Communities' increased demand for services was the main sub-purpose (out of the hypothesized three) that led to increased social accountability and service provision (Purpose 4). **With the support of *Nobo Jatra* through the strengthening and revitalization of VDCs, participants described increased advocacy for their needs and engagement with sub-national governments.** The authors show the activities and outcomes that contributed to the increased demand for social and technical services in Figure 3.37 above.

OUTCOME 4.3.1 (PART 1 OF 2): FUNCTIONALITY OF VDCS AND COMMUNITY GROUPS

Most participants highlighted increased community member involvement in community groups,[37] which worked to address various issues identified within their communities. Members of one male focus group discussion observed that, following *Nobo Jatra* activities, community members were more interested in attending meetings because they were more aware of community issues and were interested in voicing their opinions.

Participants reported that *Nobo Jatra* helped revitalize or establish VDCs, which participants considered as a place where they could voice their issues (e.g., in need of government social safety net services) and the VDCs would support them. For example, community members listed a number of activities that VDCs supported communities in, including liaising with

[37] Community groups mentioned included village development committees, child marriage councils, disaster management committees, high school committees, mosque committees, and water management committees.

union parishads for social protection services, helping install filters, constructing bathrooms, paving roads, digging ponds, and constructing embankments.

OUTCOME 4.3.1 (PART 2 OF 2): FUNCTIONALITY OF VDCS AND COMMUNITY GROUPS

VDCs and community groups engaged sub-national level government bodies to represent and meet the needs of their villages. For example, a few participants observed chairmen from their VDCs engaging with Union parishads about their village needs. This finding is emphasized in the following quote, where a community leader noted that the demands of his VDC for the upazila council to allocate some of its budget towards slab latrines in his village were met.

> *"For example, [for] the plan of the VDC (Village Development Committee) …the budget has been allocated accordingly [for] 300 slab latrines in the health sector. [Initially] the chairman said "no, [300 slab latrines] would not be necessary. The slab latrine has already been given to the famil[ies]." We said "Yes, it's okay, but there are a lot of poor people out there who have a problem, you will allocate 100 slab latrines." He [gave] the slab latrines as we said."* (CL_M4)

The strengthened engagement of VDCs with sub-national governments may have been facilitated by *Nobo Jatra*. For example, one local implementer described how *Nobo Jatra* supported the capacity building of community groups and community leaders to continuously engage and negotiate with the sub-national governments in implementing the village development plans.

RESEARCH QUESTION 2 FINDINGS: TO WHAT EXTENT HAS *NOBO JATRA* DEVELOPED RESILIENCE CAPACITIES AND WHETHER THESE CAPACITIES CONTRIBUTED OR WILL LIKELY CONTRIBUTE TO SUSTAIN THE FOOD AND NUTRITION SECURITY OUTCOMES IN THE FACE OF SHOCKS? (QUANTITATIVE AND QUALITATIVE DATA)

3.2.1 SUMMARY OF RESEARCH QUESTION 2 FINDINGS AND KEY TAKEAWAYS

One of the goals of *Nobo Jatra* was to develop the resilience of both households and communities in program areas by providing knowledge, skills, and technologies to improve their abilities to absorb shocks and stresses, adapt to them, and transform to reduce the impact of shocks.

This section describes the main shocks and stresses that households in *Nobo Jatra* villages experienced over the past several years; the extent to which participants perceive that the project helped households, communities and local systems to cope with and recover from these shocks; and finally, how *Nobo Jatra* may have laid a foundation for greater resilience to future shocks and stresses. Findings from the pre-post quantitative evaluation provide evidence of how resilience capacities have changed in *Nobo Jatra* communities since project activities began. Evidence from the qualitative evaluation in "best case scenario" villages where project implementation occurred help to identify the program pathways that might have played the strongest roles in improving the resilience capacities of *Nobo Jatra* communities, and systems. Finally, the quantitative impact evaluation sheds light on how the resilience capacities of these communities compare to those of other, similar communities and helps to differentiate the effects of *Nobo Jatra* from broader differences.

KEY TAKEAWAYS

- The pre-post quantitative evaluation shows that, following *Nobo Jatra* implementation, households in Nobo Jatra villages perceived reduced exposure to shocks and reduced impact from shocks between baseline and endline. However, households also perceive less ability to recover from past and future shocks than at baseline.

- Qualitative evidence from *Nobo Jatra* communities contextualizes these findings. While households in Nobo Jatra villages report using a variety of mitigation approaches to reduce the harmful effects of recent shocks and attribute these practices to *Nobo Jatra*, the COVID-19 pandemic was such an extreme and unprecedented shock that households still reported using negative coping strategies and experiencing food insecurity.

- The pre-post quantitative analysis suggests that households in *Nobo Jatra* villages experienced improvements across all three resilience indices over time.

- The impact evaluation comparing *Nobo Jatra* communities to other, similar communities finds a statistically significant negative difference between *Nobo Jatra* villages and comparison villages on the composite resilience index.

- The impact evaluation also suggests that households in *Nobo Jatra* villages that experienced major shocks were better able to maintain their food consumption than households in comparison villages that also experienced major shocks. However, these protective benefits do not appear to have carried over to child stunting outcomes.

3.2.2 DETAILED FINDINGS OF RESEARCH QUESTION 2

MAIN SHOCKS AND STRESSES IN *NOBO JATRA* INTERVENTION AREAS

Bangladesh is a nation challenged by natural, economic, health-related, and political risk factors that, in combination, create a very vulnerable population. It contains several regions prone to extreme flooding and droughts and is highly susceptible to natural disasters. A World Bank report documented that in a given three to five-year period, as many as two-thirds of the country experience severe flooding, which leads to consistent damage to housing, infrastructure, and agriculture (World Bank, 2010). Conditions are further exacerbated by tidal floods, cyclones in low-lying areas, droughts, and climate change effects (BBS, 2015). In 2021, the Climate Risk Index ranked Bangladesh the 7th country most affected by climate change between 2000-2019 due to salinity, flooding, cyclone and erosion effects. These environmental challenges contribute to a delicate economy that suffers from frequent price fluctuations and unstable access to government aid/loans. Resulting unstable incomes can further disrupt access to reliable food sources and clean water needed to maintain the health of individuals and families (USAID, 2016). On top of all these challenges, Bangladesh is also a young democracy that is still maturing and does not have consistent trust between citizens and the government (Hossain 2022).

Bangladesh's long-term development depends in part on developing resilience to these climate-related and other shocks. USAID defines resilience as "the ability of people, households, communities, countries and systems to mitigate, adapt to and recover from

shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth" (USAID 2013). See Box RQ2.1 for more detail on the three broad types of resilience capacities.

Box RQ2.1: Resilience Capacities

Resilience capacities of people, households, communities and systems to withstand shocks are multidimensional and can encompass a range of abilities, including economic, social, technological, infrastructure, and institutional. Correspondingly, *Nobo Jatra* used a multi-sectoral approach. Building resilience capacities can strengthen people, households, communities, and systems, and can reduce their vulnerability to shocks and stresses in three main ways: by helping them *absorb*, *adapt*, and/or *transform* in the face of disruptions. These different categories of resilience capacities allow for the possibility that households and communities can be both vulnerable and resilient (FSIN 2014).

Absorptive capacity is the capacity of households or communities to bounce back after a shock, which involves anticipating, planning, coping and recovering from shocks (Oxfam 2017). This capacity would include households' assets, availability of informal safety nets, access to cash and savings, preparedness and mitigation plans, availability of humanitarian assistance, and the like. During shocks, households might use one or more of these capacities to absorb and bounce back from the shock.

Adaptive capacity is the ability of a household or community to make appropriate changes in order to better manage or adjust to a changing situation, such as climate change or increasing periods of dryness. This would include changes in management of land, soil and water, and enhanced and inclusive access to productive resources including credit, markets, livestock and other agricultural inputs, social networks, and livelihood sources. These resources enable households to diversify their sources of food and/or income so, for example, adverse weather or the failure of one crop or the loss of one type of income, one crop, or one customer would not seriously threaten their food security.

Transformative capacity is the capacity to make fundamental changes in the structures that cause or increase vulnerability and risk as well as how risk is shared within societies. Transformative capacity provides the enabling environment that allows households or communities to absorb or adapt to shocks and stresses in ways that do not have negative impacts on their wellbeing (Bene 2018). Transformative capacity includes communal natural resources, basic agriculture and livestock services, collective actions, availability of formal safety nets, networking with external people/institutions, and the like.

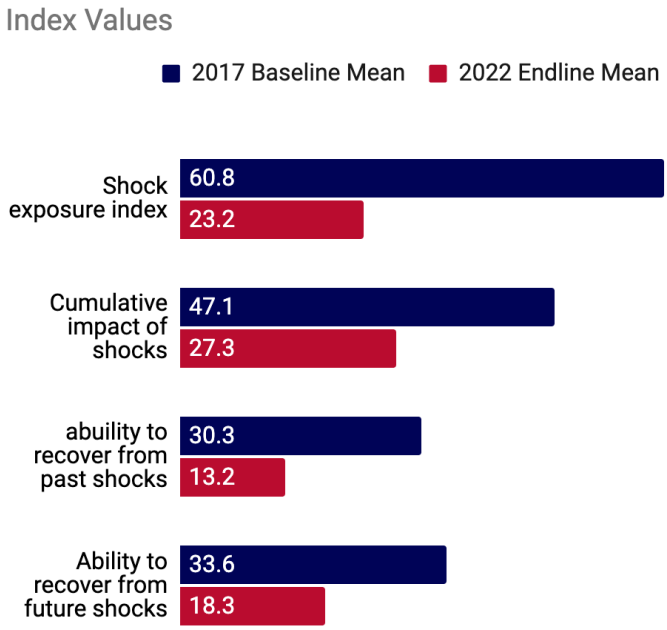
Both treatment and comparison households who participated in the endline survey reported that the top five shocks they faced during the 12 months prior to the survey, from late 2021 through early 2022, were flash floods, high food prices, serious illness, and increasing indebtedness. In practice, these shocks can be highly interrelated; participants in focus groups and interviews associated the shocks they experienced with second- and third-order effects, such as damage to homes, property, and infrastructure, crop and animal losses, reduced household food supplies, and increased costs of food purchases due to a sudden decrease in supply. Less frequently, community members also discussed water shortages, animal epidemics, and growing salinity associated with climate change as sources of stress.

Mixed Methods Analysis Using Pre-Post Analysis of Household Survey Data and Qualitative Data

The **pre-post analysis** compared measures of resilience for a sample of households in *Nobo Jatra* communities who participated in a household survey at baseline to a similar group of households from the same communities who participated in the endline survey in 2021. The difference between these measures can be understood as changes in resilience in these communities that may have been caused by *Nobo Jatra* interventions, by broader changes in Bangladesh during that period, or by a combination of the two; a pre-post design does not allow the research team to identify what caused any of the measured changes. Similarly, the perspectives of participants in the **qualitative study** in communities where *Nobo Jatra* implementation was particularly strong provides descriptions of the changes they have experienced since the project began and perspectives on how and why changes occurred. While participants might attribute changes to *Nobo Jatra*, this does not provide definitive causal evidence of its effects. Rather, it highlights possible pathways of change and insights on project implementation, acceptance, and engagement.

Respondents in the endline survey, conducted after 5 years of the Nobo Jatra program, perceived both reduced exposure to shocks compared to baseline participants and reduced negative effects of the shocks they did experience. However, households surveyed at endline perceived that their ability to recover from shocks they recently experienced and shocks they might experience in the future was lower than households surveyed at baseline (Figure 3.38). These results are somewhat contradictory, and unfortunately difficult to resolve with existing data. Qualitative evidence helps to partially address this puzzle. In best case scenario villages, although participants described many ways in which they believe *Nobo Jatra*-implemented activities helped to buffer households and communities from shocks associated with both flooding and the COVID-19 pandemic, they also described the latter in ways that indicate that this was an unprecedented, widespread, and multifaceted shock. It might be that by the time of the survey, the pandemic had depleted household resources and strained safety nets, reducing their confidence in their abilities to recover from current and future adverse events. Only a small number of especially resilient households who participated in qualitative interviews seemed able to weather the pandemic with minimal impacts on their food and nutrition security.

Figure 3.38: Pre-post comparison of self-reported shock exposure and perceived ability to recover from shocks (RQ2)



Sources: *Nobo Jatra* Baseline survey (2017); *Nobo Jatra* endline survey (2021)
***p<.001

To further understand households' resilience or lack thereof using the baseline and endline data, the research team developed indices corresponding to each type of resilience, as well as an overall index that combines all three indices into a single measure of resilience. There were slight changes in the survey and composition of the indices between baseline and endline that do not permit direct comparisons between most of the indices. The qualitative study identifies possible pathways through which the resilience capacities were built, points to pathways that were negatively affected by the pandemic, and where possible describes how capacities supported households' food and nutrition security during flooding and the pandemic.

3.2.2.1 Absorptive Capacities – integrated findings from pre-post and qual

Pre-post comparisons between the baseline and endline data indicate that absorptive capacities increased in *Nobo Jatra* communities. The quantitative absorptive capacity index combines measures of households' access to informal safety nets, personal social networks, household savings, access to remittances, number of assets owned, bonding social capital and preparedness and mitigation of shocks. Between baseline and endline, absorptive capacity increased from 19.8 at baseline to 26.9 at endline, a statistically significant difference. This may have been largely driven by access to savings. Other indicators such as shock mitigation and preparedness as well as access to safety nets and remittances, on the other hand, remained low. Results from the impact evaluation, however, fail to detect any differences between treatment and comparison communities for the absorptive capacity index (see below). Qualitative data from communities with comprehensive programming helps to contextualize these findings.

Our quantitative findings indicate that the majority (58.4%) of households in *Nobo Jatra* villages had access to savings at endline, which qualitative participants attributed to VSLAs, IGAs and cash transfers from *Nobo Jatra*. Many households (especially those considered resilient), reported using these savings to maintain their food and nutrition security during the COVID-19 lockdowns. In the words of a female resilient household member,

> "*The money [from the VSLA] ….was useful during that time…. I spent it on food so that I didn't have to go to anyone, I didn't have to borrow from anyone. …. Now I have capacity I did not have before joining Nobo Jatra."* (RH_F9)

Another resilient household member reported using their savings to rebuild a home after flooding. However, household savings were usually inadequate to fully support participants given the duration of the lockdowns, and VSLAs as a mechanism for savings and lending were vulnerable to the prohibition against social gatherings. VSLAs could not function as designed if members could not meet in a group, as all individuals are needed to open the box and oversee distribution of its contents. A few VSLA members reportedly worked around this challenge by dividing up the proceeds at the beginning of the lockdown, or by distributing money door-to-door rather than in a group setting, but most VSLAs stopped functioning.

Although the quantitative analysis showed that preparedness and mitigation of shocks among households in *Nobo Jatra* villages were low at endline, the qualitative analysis showed that these capacities were strengthened at the community level. Some respondents credited their improved disaster preparedness and mitigation measures with reduced loss of life and damage in their communities during recent cyclones. One female respondent described how the community banded together to implement disaster mitigation measures, in part because of the sensitization efforts of *Nobo Jatra,*

> "*…. because everyone was aware, the dam did not break. We went to the other side of the village and people solved the problem. We have children and women and men have gone there and built a dam, for which we are being protected…Otherwise we would not have been saved."* (FG_F9)

Despite the gains made because of *Nobo Jatra*, households had to resort to potentially harmful coping mechanisms during the COVID-19 lockdowns. Many households reported going into debt and selling their animals and other assets in order to meet basic needs, which may have contributed to the lower levels of asset ownership in *Nobo Jatra* communities found by the quantitative analysis. In addition, because so many households were selling assets at once, the prices they received from the sales were well below what they might have otherwise been, increasing the overall losses. Other households reported rationing food either because they could not afford to purchase more or because they were unable to access adequate food during lockdown-related market closures.

3.2.2.2 ADAPTIVE CAPACITIES – INTEGRATED FINDINGS FROM PRE-POST AND QUAL

While the adaptive capacity index cannot be compared between baseline and endline due to changes to the survey at endline, the adaptive capacity index contains indicators that can be compared between baseline and endline. These include households' ability to anticipate and adapt to changing circumstances, including the education of the household head, adoption of improved agricultural practices, asset ownership, and access to financial services. Although households at endline were more likely to have an adult with primary or higher education, they were less likely to have access to financial services and overall own a few less assets than they were at baseline. With balance tests showing the similarity of treatment and comparison villages, results from the impact evaluation are inconsistent with this finding, as no differences between treatment and comparison communities can be detected at endline for the adaptive capacity index (see below).

Among households engaged in agriculture, more respondents at endline than baseline reported using improved agriculture practices that can contribute to sustainable crop, livestock and natural resource management practices. Pre-post data show that 56.1 percent of households reported using three sustainable practices after *Nobo Jatra*, compared to 47 percent at baseline. This finding is in line with the findings from the qualitative research in households in communities where *Nobo Jatra* implementation was especially strong. Project participants who were interviewed for the qualitative evaluation frequently described how improved agriculture practices including vegetable cultivation in sacks made them less vulnerable to recent floods. Growing vegetables at home, and especially the practice of growing vegetables in sacks or buckets has made a limited amount of land a source of food and income, and one that is resistant to floods because plants can be moved to higher ground as floods approach. According to one resilient household member, *"In the rainy season, when water rises in the yard of the house, there is water everywhere, trees can't be planted. So if we put some soil in the sacks, then the plants can be kept." (RH_FX)*

Households engaged in agricultural activities reported an increase of agricultural credit since baseline, with 50.7 percent of farmers accessing such services at endline compared to 43 percent at baseline. Qualitative data from best case scenario communities agrees that households expanded use of financial services for purposes other than agriculture. *Nobo Jatra* launched and revitalized VSLAs, which served as the primary source of financing among female qualitative interview participants. Although a few described using VSLA savings as a source of financing for acquiring productive assets, including livestock, land, seeds, fertilizer, and other agricultural inputs, most community members who discussed VSLAs spoke of them as a safety net during difficult times. During the pandemic, especially resilient households were able to use VSLA savings and loans to invest in both physical assets and human capital, such as supplemental lessons for their out-of-school children, rather than merely subsisting on savings.

Although it is not possible to assess changes in livelihood diversification because of survey changes between baseline and endline, qualitative data suggests that increased diversification of livelihoods helped some households effectively adapt to the pandemic-related lockdowns. Several especially resilient households described being able to supplement their income and food supplies with agriculture and income-generating activities promoted by *Nobo Jatra*. Home production of vegetables and fish proved especially beneficial because unlike handicrafts and livestock cultivation, they were not vulnerable to market closures or market shocks because households were able to

consume the nutritious food they did not or could not sell. As one resilient household described, *"We didn't face such hardship in the last 2-3 years. But we didn't remain in empty stomach…. [If]I couldn't go to the market during the covid pandemic or I didn't have the money to buy, then, I catch fish from the fish enclosure or pick some vegetables and ate those."* However, the success of homestead production of vegetables also led to increased demand for seeds during the pandemic, which combined with reduced market access, led to shortages. This prevented some households from taking full advantage of this source of adaptive capacity.

Figure 3.39: Husband and Wife of a Resilient Household (RQ2)

3.2.2.3 TRANSFORMATIVE CAPACITIES – INTEGRATED FINDINGS FROM PRE-POST AND QUAL

The pre-post analysis of household survey data indicates that *Nobo Jatra* communities had increased access to agricultural services after the program, which may contribute to overall increased transformative capacities and resilience to future shocks. The transformative capacity index measures access to formal safety nets and agricultural services. Access to formal safety nets remained low and decreased from 5 to 1.9 percent while access to agricultural services increased from 13 percent to 26.6 percent over time. Qualitative evidence from best case scenario villages likewise provided limited evidence of access to formal safety nets; however, participants provided significant evidence of access to agricultural and other services and described how this has already begun to translate into improved outcomes during shocks. Findings from the impact evaluation, on the other hand, indicate that transformative index scores in treatment communities were lower than those in comparison communities (see below).

The qualitative study found early evidence that the increased availability of livestock services, specifically vaccinations, has reduced the risk of animal epidemics. However, the transformation of the system is still vulnerable because the sustainability of market-based approaches promoted by *Nobo Jatra* depend on households' continued trust in the effectiveness of vaccinations despite the emergence of new disease strains, which vaccinators felt will require continued support and training.

IMPACT EVALUATION ANALYSIS

The third evaluation method used was impact evaluation. In this section, the quantitative impact evaluation of resilience capacities between treatment and comparison villages assesses the program's impacts on households' resilience capacities and food security. The impact analysis can help to clarify our understanding of the cause of any measured differences by comparing the resilience capacities in the treatment villages to the similar comparison villages. Because these comparison communities were similarly affected by the same significant shocks as *Nobo Jatra* villages, some of the decreases in resilience found by the pre-post survey may be "canceled out" by trends that occurred outside *Nobo Jatra* villages.

Table 3.13 below shows the estimated impacts on the overall resilience index that combines the three sub-indices. The evaluation finds a statistically significant negative difference between the *Nobo Jatra* and comparison communities on the composite resilience capacity index.

Increased resilience capacities are associated with household well-being and food security being maintained in the face of shocks or stressors. Given this, the evaluation team looked at food security outcomes and **found some improvements in broader household food security that could be attributable to the *Nobo Jatra* program.** Table 3.13 shows *Nobo Jatra's* impacts on the household Food Consumption Score (FCS)[38] and Household Hunger Score (HHS)[39], with meaningful and statistically significant improvements. This could potentially mean that resilience methods were utilized to maintain food security and it therefore drew down households' reserves.

Table 3.13: Impacts on Households' Resilience Capacities and Food Security (RQ2)[40]

Causal Inference Approach: Comparison Group And …[41]	Regression Adjustment Base Covariates.	Regression Adjustment Full Covariates.	Coarsened Exact Matching Base Covariates.	Coarsened Exact Matching Full Covariates.
Treatment Effect on:				
Overall Resilience Index	-3.266***	-1.648***	-2.059**	-1.761**
Confidence interval	[-4.292, -2.239]	[-2.520, -0.775]	[-3.528, -0.589]	[-2.990, -0.533]
N	2091	2091	1530	1530
Household Food Consumption Score	0.048	0.138***	0.091*	0.117***
Confidence interval	[-0.010 ,0.105]	[0.092, 0.185]	[0.008, 0.174]	[0.049, 0.186]
N	2376	2376	1627	1627
Household Hunger Score	-0.013**	-0.014*	-0.01	-0.011
Confidence Interval	[-0.023, -0.004]	[-0.026, -0.002]	[-0.022, 0.002]	[-0.023, 0.002]
N	2376	2376	1614	1614

The analysis above includes controls for village means of household consumption, household poverty, and women's education levels, as well as the squares of all of these variables, and district and matched pair fixed effects. Standard errors are clustered at the village level.

[38] The Food Consumption Score (FCS) aggregates household-level food consumption data over the previous seven days and it is weighted according to nutritional value of the different food groups (INDDEX Project, 2018). The FCS indicator captures quality and diversity of food (Maxwell et al., 2013)

[39] The Household Hunger Scale (HHS) measures household hunger using a food deprivation scale and can be used cross-culturally). The HHS indicator focuses on food quantity (Terri et al. 2011).

[40] This figure reflects means which are adjusted for all of the covariates in the regressions for each outcome.

[41] This figure reflects means which are adjusted for all of the covariates in the regressions for each outcome.

The evaluation team took the analysis a step further and compared differences between household food security outcomes in *Nobo Jatra* and comparison communities that experienced major shocks (in which more than 25% of households reported experiencing the shock) to the differences between *Nobo Jatra* and comparison villages that did not experience major shocks.

The impact evaluation suggests that households in *Nobo Jatra* villages that experienced major shocks were better able to maintain their food consumption than comparison villages that also experienced major shocks. The statistically significant difference between *Nobo Jatra* and comparison communities was two times higher in shock-affected communities. The additional benefit of *Nobo Jatra* participation in villages experiencing shocks suggests that the program may have meaningfully built resilience along at least this specific dimension. This is consistent with the pre-post findings of participants' perception that they endured less negative effects of shocks after receiving *Nobo Jatra* assistance in comparison to before the program was implemented. However, when drawing these same types of comparisons for child stunting outcomes, there are no differences between groups regardless of the extent of shocks faced by the community (studies indicate that child stunting is a slow changing indicator and may take longer to manifest after shocks (USAID, 2021). See Annex C for findings related to child stunting indicators in the full sample).

Figure 3.40: Impacts on food consumption may vary based on villages' Exposure to Major Shocks (RQ2)

Comparison Group Adjustment	Base	Regression Adjustment	Coarsened Exact Matching
	(1)	(2)	(3)
Treatment Effects on Child Stunting in …			
… villages that did not experience major shock	0.029	0.028	-0.002
	(0.12)	(0.11)	(0.94)
… villages that experienced major shock	0.038	0.015	0.013
	(0.09)	(0.49)	(0.67)
Observations	2329	2329	1555
Treatment Effects on Household Food Consumption Score in …			
… villages that did not experience major shock	-0.005	0.038	0.09
	(0.92)	(0.38)	(0.06)
… villages that experienced major shock	0.141***	0.238***	0.183***
	(0.00)	0.00	0.00
Observations	2376	2376	1594

RESEARCH QUESTION 3 FINDINGS: IN EACH TECHNICAL SECTOR, WHAT ARE THE STRENGTHS OF AND CHALLENGES TO THE EFFICIENCY AND EFFECTIVENESS OF THE INTERVENTIONS' IMPLEMENTATION AND THEIR ACCEPTANCE TO THE TARGET COMMUNITIES?

3.3.1 SUMMARY OF RESEARCH QUESTION 3 FINDINGS AND KEY TAKEAWAYS

Nobo Jatra aimed to promote equitable food and nutrition security through a deeply multisectoral approach that explicitly targeted the poorest and most vulnerable households in the Khulna and Satkhira districts. This section integrates qualitative data and survey data to assess the extent to which this approach was implemented as planned. The survey measured program participation in various sectors, including programming that may have

been provided by World Vision and its partners or by other unrelated organizations working in the same areas. Although the pre-post analysis did not generate estimates of program participation at baseline that could be compared to present-day activities, the impact evaluation provides important evidence on the breadth of participation in various types of programming compared to other, similar communities. Additional analysis by different subgroups assesses the extent to which the program reached the most vulnerable community households. Evidence from the qualitative evaluation in best case scenario villages where program implementation was especially strong provide complementary evidence of the strength and inclusiveness of implementation, and indicate *how* these results may have been achieved.

KEY FINDINGS:

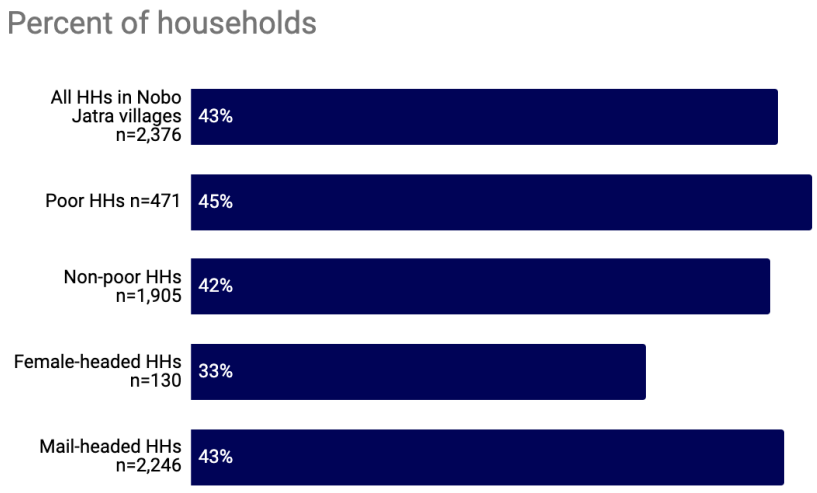
- 43 percent of surveyed households reported participating in *Nobo Jatra* activities, and the program significantly affected participation in programming across a wide number of sectors.
- *Nobo Jatra's* collaboration, coordination and integration of activities with local government; coordination with other implementers; and community ownership facilitated effective intervention implementation and acceptance in target communities.
- Implementation weaknesses included perceived inequitable distribution of cash and inputs as well as lack of implementation monitoring.

3.3.2 DETAILED FINDINGS OF RESEARCH QUESTION 3

IMPLEMENTATION STRENGTHS

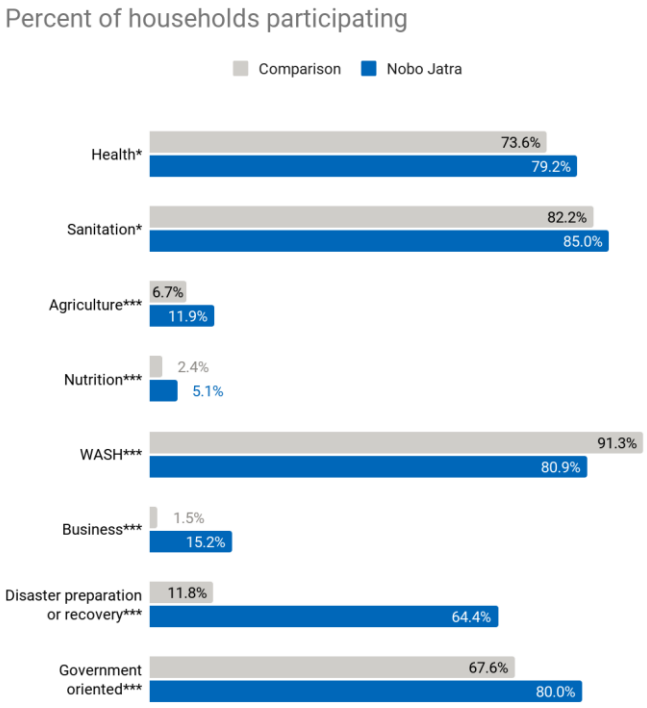
Approximately 43 percent of households in the *Nobo Jatra* treatment villages reported participating in at least one *Nobo Jatra* program activity (Figure 3.41). This rate was slightly higher among poor households (45%) than non-poor households (43%), although this difference was not statistically significant.

Figure 3.41: Participation in Nobo Jatra programming in target villages, overall and by poverty status and head of household gender (RQ3)



***Nobo Jatra* had significant positive impacts on participation in programming focused on health, sanitation, agriculture, nutrition, business, disaster preparation or recovery, and government-oriented programming** (Figure 3.42). The impact on participation in business-related programming was nearly twice as large for female-headed households as that for male-headed households (Figure 3.43).

Figure 3.42: Overall participation in programming by sector in Nobo Jatra and comparison communities (RQ3)



According to local implementers, *Nobo Jatra* coordinated with local governments throughout all phases of the intervention, which allowed for the effective implementation of *Nobo Jatra* activities. Before beginning any intervention, local implementers discussed the planned activities with union councils as a way to gain community support.

At the start of the intervention, *Nobo Jatra* worked with local governments to identify the specific needs of each community so that *Nobo Jatra* could target their activities accordingly, local implementers explained. For example, local governments relayed what water access issues each community was facing (e.g., water sources having high salinity, water stations needing repair, no water sources available) so that *Nobo Jatra* could provide the services needed. Similarly, *Nobo Jatra* worked together with local governments and community leaders to identify the wealth status of each household so *Nobo Jatra* could implement activities according to wealth status (e.g., ultra-poor households received cash transfers while poor households received inputs).

During the intervention, *Nobo Jatra* collaborated with the local government to ensure community needs were being met. For example, one implementer noted that *Nobo Jatra*

development activities and funding was shared between *Nobo Jatra* and union parishads, as described in the following quote.

> *"The union chairman said, "if [Nobo Jatra implementers] do the lighting, then [union-level government providers] will [construct] the link road." So, [Nobo Jatra] did [the lighting]. Again, [the union chairman] said, "if you [spend] one lakh takas in that cyclone center, I will spend 20 thousand takas and build the link road." Visit the center and see that [these] various developments have taken place. This has been done [by Nobo Jatra and union-level government providers]."* (IM_M1)

After the intervention, during phasing out of *Nobo Jatra* activities, some implementers described working with the local governments on sustainability planning for the project. For example, some local implementers worked with local health departments to support Multipurpose Health Volunteers in continuing ANC, PNC, GMP activities.

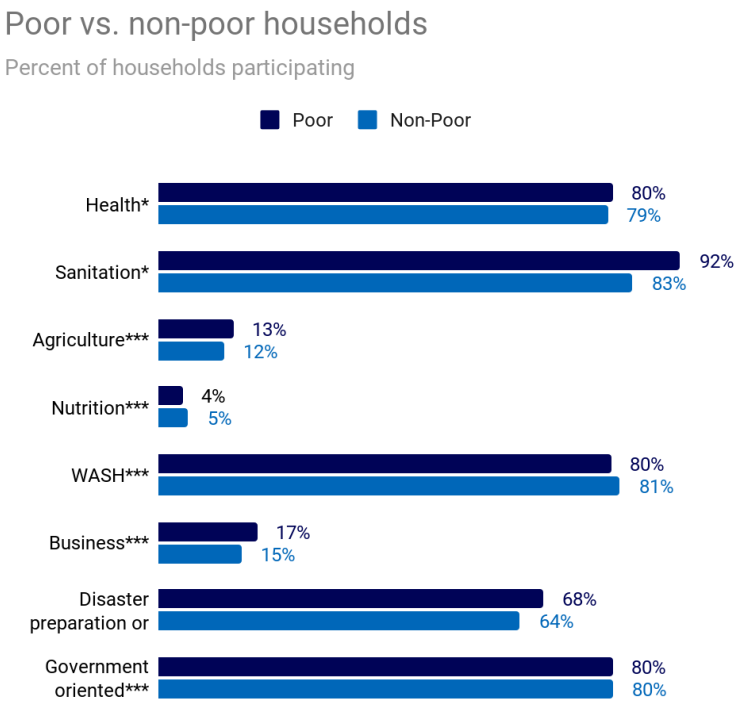
Other implementers explained that *Nobo Jatra's* collaboration among implementing partners led to the successful execution of activities across sectors. One local implementer even explained that all implementing partners, including World Vision, WFP, Winrock International, and local implementers regularly convened and coordinated with each other. Through coordination meetings, implementing partners drafted activity protocols, provided progress on activities, discussed feedback among partners (both of *Nobo Jatra* and its implementing partners), worked to address feedback, and designed plans to integrate and jointly implement activities. Another implementer explained the coordinated division of work between different implementers, allowing *Nobo Jatra* to successfully achieve the project outcomes.

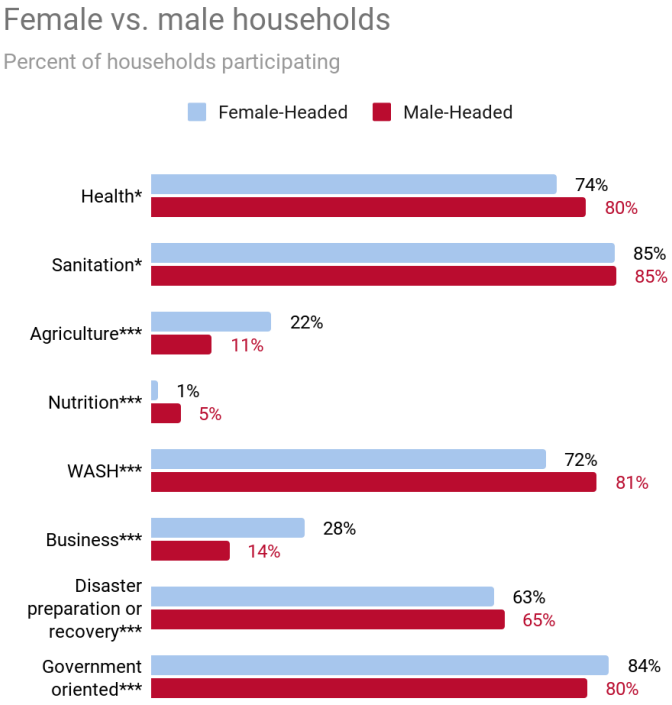
Some local implementers expressed that supporting community ownership of *Nobo Jatra* activities, particularly through VDCs and other committees, allowed for buy-in and sustainability planning. Because *Nobo Jatra* linked community groups with local governments, local implementers believe that communities now have the ownership and capacity to continue advocating with local governments to implement their development plans.

Implementation Weaknesses

As shown in Figure 3.42 above, *Nobo Jatra* communities had significantly lower participation in programming focused on WASH activities. This could be because large proportions of households in comparison areas (91 percent) also reported participating in WASH programming carried out by other organizations. We also examined the impacts of *Nobo Jatra* on participation in different sectors by household poverty and head of household gender. Figure 3.43 shows the difference in participation levels between households in *Nobo Jatra* communities and similar households in comparison communities for four different types of households: poor households, non-poor households, female-headed households and male-headed households. Larger impacts for poorer and more marginalized households may indicate successful targeting of programs or more equitable implementation. However, despite the program's efforts to target the poorest and most vulnerable households and integrate gender equity across the different purposes, there were few differential impacts by poverty level or head of household gender.

Figure 3.43: Nobo Jatra impacts on participation in programming by sector, poverty status and head of household gender (RQ3)





Evidence from the qualitative study may help to explain this finding; for the WASH and governance sectors, a few participants noted that activities were not being monitored, resulting in some activities not being implemented properly.

For example, a few participants highlighted that the distribution of water tanks was unfair; perceiving that *Nobo Jatra* distributed the tanks through union parishads, who distributed them to union parishad members and wealthy elites instead of those who needed them the most. However, it is important to note that *Nobo Jatra* followed predefined steps for participant's selection and distribution of water tanks, relying on lists developed by community groups and leaders and following wealth ranking. The project never distributed water tanks through union parishads. As there are many government programs and NGOs that distribute water tanks through union parishads, this could also be a recall issue among participants.

Additionally, for the livelihoods sector, the division of livelihood training into two groups, with one receiving a cash transfer and the other receiving only inputs was not well received by many community members. Many participants expressed that, because only one training group received cash, non-cash transfer participants were resentful and some no longer wanted to continue *Nobo Jatra* activities because they did not receive financial support. The criteria for selection were not always transparent or equitable according to participants. Local implementers likewise highlighted this division as an implementation weakness, but also noted that it was necessary because there were not enough project funds to distribute cash transfers to all participants.

RESEARCH QUESTION 4 FINDINGS: TO WHAT EXTENT HAS *NOBO JATRA* STRENGTHENED LOCAL LEVEL SYSTEMS AND CAPACITIES OF SERVICE AND INPUT PROVIDERS TO SUPPORT THE MARKET-BASED INPUT AND SERVICE PROVISIONING TO PREPARE FOR THE EXTENSION PHASE, AND BEYOND THE LIFE OF THE PROJECT?

3.4.1 SUMMARY OF RESEARCH QUESTION 4 FINDINGS AND KEY TAKEAWAYS

Nobo Jatra worked to strengthen local provisioning systems and provided various types of support to input and service providers in the WASH, agriculture, and health/nutrition sectors with the hopes that each type of provider would be prepared to support the market-based system after the project ends. In order for these systems to have long-term effects, they must be sustainable and adaptable to changing circumstances. Because of the difficulty in capturing the nuances of a complex market system within a household survey, this section relies on in-depth qualitative data from communities where implementation was especially strong, and integrates the perspectives of both community members and service providers to *Nobo Jatra* communities to describe and assess various dimensions of the local provisioning system, including households' willingness and ability to pay for services and inputs, and the providers' motivation, resources, capacities, and linkages.

KEY FINDINGS:

- Households were willing to pay for many types of services and inputs provided by the market-based input and service provisioning system. However, they sometimes struggle to afford the inputs and services.

- LSPs reported strong motivation to continue their work and demonstrated strong capacity to provide information and training to their customers. The information they provide supports continued and increased demand for their products and services.

- LSPs described financial capital and transportation as the main challenges limiting their capacity to provide market-based input provisioning.

3.4.2 Detailed Findings of Research Question 4

This section summarizes qualitative data on five key dimensions of the market systems:

- The willingness and ability of households to pay for local services and inputs
- The levels and sources of motivation of input and service providers to serve their communities and their customers
- LSPs' capacity, including the knowledge and skills needed to perform their work
- The resources LSPs have to continue to perform their work, including both financial resources and access to transportation needed to reach remote communities
- The linkages to other parts of the market system, including both supply- and demand-side linkages

Willingness and Ability to Pay

Households in communities where implementation was strongest were generally willing to pay for a variety of inputs and services supported by *Nobo Jatra*. Best-case scenario community members were willing to pay for WASH inputs and services such as clean water from reverse osmosis (RO) suppliers and nutrition and sanitation supplies from Gold Star Members (GSMs) because they reported understanding and experiencing the direct health benefits of doing so.[42] Women were especially willing to pay for Gold Star Members' goods, in large part for the convenience of home delivery for health, nutrition, and sanitation supplies, as well as more discreet access to culturally sensitive products like menstrual pads. Participants and service providers also reported community members' willingness to pay for seeds and agricultural inputs (including young fish for cultivation) where participants had already successfully converted previous purchases into income and profits through IGAs.

Prospects for future demand were mixed. In general, agriculture input providers and the communities they served were confident that demand for their products, including seeds and vaccinations, would persist among project participants and non-participants. However, there was some doubt among WASH entrepreneurs and implementing partners as to whether the same was true of sanitary latrines and clean water facilities as they wondered if the market would become saturated.

The ability to pay is a limiting factor for some households, despite *Nobo Jatra's* efforts to support VSLAs as a way to increase access to savings and loans. Some input and service providers attempted to overcome this constraint by offering credit and payment plans, with varying degrees of success. The quotes below provide examples of various LSPs' experiences with implementing payment plans with their customers. Some were successful but others were not. Some animal vaccinators described how community members reported difficulty paying for their services and frequently requested that they provide

[42] GSM is a social marketing company active in Bangladesh. GSM recruits women to become small-scale entrepreneurs who sell public health products and provide information to other women and adolescent girls in their communities (See https://www.smc-bd.org/gold-star-member-gsm- for more information)

vaccinations for free. Vaccinators sometimes acquiesced and provided no-cost services, despite the risks to their livelihoods and the sustainability of the services they provide.

> "*Selling products on credit is difficult. If they buy on credit, they don't pay on time. They take seed, grow the crop and even have that food, but have yet to pay back the money.*" Agricultural input provider (SP_M2)

> "*I actually sell on credit to those with whom the transaction is good or those who always buy from me but today do not have money….I give the seeds on credit and they pay later.*" Agricultural input provider (SP_M8)

> "*…Suppose a woman said, "I will pay slowly later." Maybe she's giving me 1500 Taka, maybe she has 800 Taka more to pay. That's how I write down the amount. Maybe, she gives 100 today, and will give 200 tomorrow. This is how we do simple calculations*." WASH business owner (SP_M13)

LSPs' Motivation, Capacities, Resources and Linkages

Motivation, resources, capacities, and linkages are elements that play important roles in the sustainability of initiatives. This section focuses on the LSPs serving communities where *Nobo Jatra* was well-implemented, and the prospects of their work during the extension phase and beyond the life of the project.

Motivation

Local service and input providers across different technical sectors all described high levels of motivation to continue providing their input and services after the end of the project. They described both intrinsic and extrinsic sources of motivation, with a focus on intrinsic motivation (possibly due to the questions facilitators asked).

The three main intrinsic motivators mentioned were pride in the quality of work, gratification from the respect and trust earned, and the benefits of self-employment.

- **Pride in the quality of work.** As an example of this driver, an especially motivated seller of seeds and agricultural inputs described testing different varieties of seeds at home before selling them so that he can vouch for them personally.
- **Gratification from earning the respect and trust of their communities.** An animal vaccinator exemplifies this motivation in describing his relationship with his customers. "*They get motivated through my work. They trust me because of my treatment. Even some farmers called me "Nobo Jatra Brother" or "Nobo Jatra Doctor," "the Nobo Jatra LSP*" (SP_M1)
- **The benefits of self-employment rather than working for others.** As a WASH entrepreneur explained, *"I worked for freedom. I didn't work under anyone… I did not work behind anyone. I didn't listen. I did not hear any boss. I did not apply for leave from the boss. I want an independent business, that's what I like"* (SP_M10).

The main extrinsic motivator mentioned was increased income. Most service providers did not express concerns over the long-term financial viability of their businesses; many reported that *Nobo Jatra's* contributions to local level systems and community awareness had strengthened their prospects.

CAPACITY

The main capacity that *Nobo Jatra* provided LSPs is the knowledge and experience to provide information and training about the services and inputs they offer, but the sustainability varies by type of LSP. Providers of agricultural inputs routinely educate communities on how to cultivate the seeds they purchase, including when and how to plant them and how to apply fertilizer. Providers of health and sanitation products through the "Gold Star Member" program provide information about good maternal and child health, sanitation, and nutrition practices, including topics that go beyond those related to the products that they sell. Vaccinators raise awareness of vaccines generally, and provide information and training on aspects of animal health and care. The exchange of information as well as services and inputs helps to build and sustain relationships between community members and service providers, supports continued and increased demand for their products and services, and thus helps them to continue the activities promoted by *Nobo Jatra*. Vaccinators in particular noted that without sustained training and capacity building, their capacity, and thus the strength of their relationships with customers, might decrease over time. According to one vaccinator,

> *"My main challenge is when a new version of disease comes. Then it becomes a problem to understand the diseases and how to give service. Also farmers fear disaster. I have to keep receiving training. Farmers are getting disinterested in rearing animals due to different types of disasters"* (SP_M1).

RESOURCES

Many LSPs, especially in the sanitation and agricultural sectors, describe financial capital as a main challenge limiting their capacity to provide market-based input provisioning. Because LSPs typically operate at a small scale, they do not have the resources to make large, up-front purchases (including bulk purchases that lower unit prices), or maintain large inventories. A vendor of seeds described how demand for seeds exceeds his ability to supply them: *"I can't afford huge amounts of seed to buy. For example, demand is about 30 taka, but I have only 10 taka. So today I buy for 10 taka and tomorrow again for another 10 taka"* (SP_M2). While some LSPs described how *Nobo Jatra* helped connect them to loans from banks and an association of service providers across different unions that were able to access bulk pricing together, these kinds of linkages were not widely reported and other service providers struggled to access financial resources that could help support and grow their businesses.

Figure 3.44: Local Animal Health Service Provider Vaccinates a Cow (RQ4)

Another key resource for LSPs that will be critical to sustaining the market-based system is their access to sector-appropriate transportation to carry inputs to households and communities, many of which are remote or difficult to reach. Bicycles are more affordable and especially useful for seed sellers, likely because their cargo is relatively lightweight; one seed seller described reaching a different market nearly every day in a week using their bicycle. However, sectors that require more and larger equipment face larger transportation-related constraints. Vaccinators commonly described a need for motorcycles to carry their equipment, while only one vaccinator described receiving a motorcycle from *Nobo Jatra*. Service providers are also constrained by the quality of the road network connecting different communities. A WASH business owner, who often requires vans to transport supplies to construct sanitary latrines, described poor-quality roads as a challenge to his business: *"The roads are a bit of a hassle for us here, and because of this our sales are lower. If the roads become developed then our sales will improve"* (SP_M6).

LINKAGES

LSPs across the different sectors described a wide variety of linkages that they use to grow and sustain their businesses, but the linkages and local systems directly supported by *Nobo Jatra* mattered most for vaccinators relative to other service providers. The main types of linkages included: (1) "supply-side" linkages that provided them with physical inputs as well as information and training; (2) "demand-side" linkages that connected them with potential customers; and (3) other, largely horizontal linkages amongst service providers, as well as connections with local government and "last mile" delivery services. Some of these linkages were explicitly connected with and supported by *Nobo Jatra*, others preceded *Nobo Jatra* due to some LSPs' long-standing presence in the community; and others appeared to have developed after *Nobo Jatra*, but were primarily a result of the individual initiative of especially motivated LSPs. Table 3.14 lists the key linkages discussed by service providers and other respondents, and color-codes them according to the extent to which respondents attributed the linkage to *Nobo Jatra*.

Table 3.14: LSP Linkages by Sector and Strength of Attribution (RQ4)

LSP Type	Vaccinators	Agricultural Input Providers	Businesses	Gold Star Members
Supply Side Linkages	***Strong attribution*** ● Livestock office ● Veterinary hospital	*Partial attribution* ● Agricultural input wholesalers	*No Explicit Attribution* ● WASH wholesalers	***Strong attribution*** ● GSM suppliers
Demand Side Linkages	***Strong attribution*** ● Ward-level committees	*No Explicit Attribution* ● Local markets	***Strong attribution*** ● "WASH fairs" *No Explicit Attribution* ● DPASO office	***Strong attribution*** ● GMP centers *No Explicit Attribution* ● Schools
Horizontal / Other Linkages	*Partial attribution* ● Vaccinator associations	***Strong attribution*** ● Local voice and action committees	***Strong attribution*** ● LSP association *No Explicit Attribution* ● Delivery services	*No linkages discussed*

The vaccinators had the strongest linkages formed through *Nobo Jatra*, possibly because *Nobo Jatra* was central to launching their services, and because of the highly technical nature of their inputs. On the supply side, they worked with the government livestock office and veterinary hospitals to obtain vaccine inputs, as well as with ward-level committees that raised awareness of their services.

In contrast, WASH businesses' linkages were more weakly associated with *Nobo Jatra*. Most WASH entrepreneurs had already been serving their communities before *Nobo Jatra* began, and had already established their own supply chains.

GSM and agricultural input provider linkages are more mixed. On one hand, these LSPs operate less capital-intensive industries, so light-touch efforts by *Nobo Jatra*, such as linking would-be LSPs with wholesalers, were able to help launch new businesses without significant additional investments. On the other hand, seed vendors especially described operating more competitive markets, and so made efforts to form their own linkages on the supply and/or demand side in order to maintain a competitive advantage.

RESEARCH QUESTION 5 FINDINGS: HAVE THERE BEEN UNINTENDED CONSEQUENCES (EITHER POSITIVE OR NEGATIVE) FROM THE PROGRAMMING?

Development activities sometimes have unintended consequences. Positive, but unanticipated consequences can occur when interventions spill over within and across communities, or when interventions change behavior in ways that were not anticipated by a theory of change. Negative unintended consequences can occur when activities unintentionally incentivize harmful behaviors, or when they cause broader environmental changes. Since these outcomes are, by definition, unanticipated, this section relies primarily on qualitative evidence collected in communities where implementation was especially concentrated and thus, where unintended consequences may have been more likely and more strongly linked to the intervention.

KEY FINDINGS:

- Because of the multi-sectoral nature of *Nobo Jatra's* interventions, there were very few positive or negative consequences of *Nobo Jatra's* activities not already anticipated by the theory of change.

3.5.1 DETAILED FINDINGS OF RESEARCH QUESTION 5

POSITIVE UNINTENDED CONSEQUENCES

There was limited evidence of positive unintended consequences in ways that exceeded the project's aims. There were some reports that, while the project primarily intended to reduce the prevalence of disease through improved WASH facilities and practices, the project's activities may have also helped to reduce problems and diseases caused by mosquitoes and other insects. Additionally, at least one respondent indicated a perception that improved nutrition reduced intra-household conflict. Finally, as discussed in section 4 above, there were some unintended pathways toward the project's purposes and goals; increased food production led to improved food security and gender equitable practices, while increased and more equitable income also strengthened gender equitable practices.

NEGATIVE UNINTENDED CONSEQUENCES

There was some evidence that *Nobo Jatra's* interventions led to unintended effects on localized markets. Some reported that increased supply for handicrafts from income-generating activities reduced the prices they received, and others reported that increased demand from households for seeds caused shortages and higher unit costs (especially during the COVID-19 lockdown).

4. Conclusions

Overall Conclusions

The *Nobo Jatra* program engaged more than 40% of surveyed households within villages where the program took place, with similar rates of engagement among both poor and non-poor households. In the treatment areas, households had higher rates of participation in development projects than households in comparison areas across an array of topics, including business training, disaster preparedness, health, nutrition, sanitation, and agriculture. This evaluation looks at change over time in treatment villages, and also compares the state of the treatment villages at endline to other, similar villages to tease out what has changed, how and why these differences occurred, and whether *Nobo Jatra* can be credited for the differences .

The main goal of the program was to improve gender-equitable food security, nutrition, and resilience of vulnerable people within Khulna and Satkhira districts in Bangladesh. One pathway *Nobo Jatra* focused on was improved nutritional status of children under five years of age, pregnant and lactating women and adolescent girls. The research team found a decrease in the number of stunted, wasted, and underweight under five children in the pre-post evaluation. However, the team did not observe differences in child stunting or underweight status between the treatment and comparison sites; improvements in these conditions in the *Nobo Jatra* program areas appear to result in similar conditions in non-program areas, suggesting broader forces may account for these improvements. The impact evaluation does observe differences for the treatment areas in young children receiving a minimally acceptable diet, as well as in households' overall food consumption and hunger scores, when compared with similar villages at endline. These effects do not extend to wider dietary diversity among mothers, nor to the rates of exclusive breastfeeding. Households from qualitative interviews where there were improvements in dietary diversity and exclusive breastfeeding reported that increased knowledge and awareness, cash transfers, and homestead food production were key to these improvements. Unexpectedly, rates of child diarrhea are higher in *Nobo Jatra* program areas than in comparable villages.

Nobo Jatra's theory of change hypothesized that increased practice of gender equitable norms would lead to improved nutritional status of children under five years of age, pregnant and lactating women and adolescent girls. Perhaps the *Nobo Jatra* program's biggest impacts are on women's autonomy. There were large increases in the pre-post data in the number of women who's husbands help with household tasks and large decreases in women who need to seek permission to visit certain locales. The impact evaluation supports these positive impacts by showing that the program appears to have resulted in superior levels on several dimensions of women's autonomy compared to comparison villages. This includes later ages at marriage and first pregnancy and lower percentages of young women who need to seek permission to visit certain locales.

The qualitative evaluation shows that improvements around food security and nutrition in villages where *Nobo Jatra* implementation was strongest and communities were well-engaged highlight the potentially effective interventions that led to the achievement of these outcomes. In these best-case scenario villages, the research team found that *Nobo Jatra*'s multi-sectoral approach resulted in food security, nutrition, and women's empowerment gains. Activities that targeted women's livelihood diversification seemed to have widespread and interrelated impacts, contributing to household incomes, access to nutritious and

diverse foods, and women's empowerment. Activities that targeted knowledge and awareness improvement, while also addressing household financial and resource constraints, such as through cash transfers or input provision, led to practice changes among best-case scenario project participants. Given that the impact evaluation showed limited effects in certain WASH and IYCF behaviors even when information and programming was provided, addressing both individual (e.g., knowledge and attitudes) as well as environmental (e.g., resources) constraints that are context-specific may be needed for future programs aiming to change behaviors to be successful (McKee, 2014).

Nobo Jatra also focused on improved social accountability and national policy engagement of service provision for vulnerable men and women. According to the qualitative findings, *Nobo Jatra's* investments in local, market-based service provisioning systems increased access to agricultural inputs, sanitation supplies and infrastructure, and livestock vaccinations. In communities where implementation was strongest, demand for those inputs coupled with supply-side linkages and strong motivation on the parts of service providers have contributed to sustained local market systems. However, the longer-term sustainability of these systems will critically depend on continued willingness and ability of households to pay for LSPs' products on one hand and the access of service providers to the financial capital, transportation, and capacity building that they need to maintain and grow their businesses on the other.

Nobo Jatra also focused on the strengthened gender equitable ability of people, households, communities and systems to mitigate, adapt to and recover from natural shocks and stresses. The research team found that, when faced with village-wide shocks, households in*Nobo Jatra* program villages were better able to maintain their food consumption than households in comparison villages experiencing similar shocks. However, the team also found few improvements in general resilience capacities as assessed by direct survey measures; if anything, households' overall resilience indices appear to have worsened. In communities where *Nobo Jatra* implementation was strongest, increased access to savings, loans, cash transfers, and livelihood diversification was perceived to have direct and palpable benefits for vulnerable households during recent floods and the shocks caused by COVID-19 pandemic-related lockdowns.

Finally, *Nobo Jatra* focused on increased equitable household income. The research team found only modest improvements in poverty - a proxy for income, based on three pre-post indicators. However, the authors found that in villages where *Nobo Jatra* implementation was strongest, women reported diversifying their income streams through crafts, tailoring and rearing livestock. The research team also found evidence of expanded production of vegetables, which was reported to improve food and nutrition security, if not income. Access to markets remained a challenge for producers, especially women. On the other hand, women had increased access to savings and financial services over time, often through VSLAs. Despite this, the percent of women who earned cash decreased over time.

The authors found few instances of unintended consequences, either negative or positive from the project, although the quantitative analysis finding of higher rates of diarrhea in treatment than comparison villages is one. Evidence from the World Bank (2019) shows that, compared to the richest wealth quintile, the risk of WASH-related infections is three times greater for the poorest wealth quintile because of a higher fecal pathogen exposure and infection susceptibility. This suggests that the higher diarrhea rates in treatment villages may be tied to their lower average wealth status compared to the comparison villages. As

mentioned in sub-purpose 1.1: reduced prevalence of disease that impacts nutrition, the evaluation is unable to break these results down by sub-region due to the statistical power.

Taken together, the research team found that the *Nobo Jatra* program had many promising elements, even if they translated into a more limited and mixed set of impacts on the well-being, autonomy, and resilience of households in these villages.

IMPLICATIONS OF FINDINGS AND RECOMMENDATIONS

Based on the findings of this evaluation, the research team recommends the following for practitioners, implementation researchers, and policymakers working in food security, nutrition, and resilience.

1. **A continued focus on childhood malnutrition is essential.** Childhood stunting is an important measurement of children's well-being as well as an indicator to measure social inequalities (Onis and Branca 2016). Children who face malnutrition can have long term growth and development issues which can impact their economic productivity and their physical and mental wellbeing later in life (Shrestha et al. 2022). Investments in child health radiate out over time and across generations in a multitude of ways (Miguel 2023). More research is needed to understand why children under five years of age in treatment villages are more likely to have diarrhea (especially girls) despite being more likely to have an improved diet and whether this is the only barrier to further increases in child stunting and underweight status in these areas. Building on the increased exclusive breastfeeding of children under 6 months of age seen over time in the treatment villages, especially among girl children, is an area that could have immediate implications on wasting and stunting, long-term effects on cognition and immune responses, and long-term effects on gender equity.
2. The research team measured slightly higher stunting rates in treatment areas for children with mothers who have more than 6 years of school, for children in households above the poverty line, and for children from households with more than 5 members, compared to comparison villages. Future programs might **consider increased targeting** of or tailored messaging to these households (e.g., higher education, higher income, and larger household size). Other sub-groups might have experienced lowered stunting rates offset by increases in these sub-groups.
3. **Success in the transformation of gender norms should be built upon.** Gender equity was an integrated and essential focus in the *Nobo Jatra* program. The program demonstrated success improving women's autonomy, especially for young women, reducing the percentage who need to seek permission to visit certain locales and increasing the ages of marriage and first pregnancy. Several unexpected pathways appear to have supported increasing gender equitable norms, such as increased income among women and increased diversification of livelihoods. While links between these norm shifts and improved nutritional status were not observed, these shifts are important in their own right. Future programs should build upon and expand upon the successes of these women's empowerment interventions, by conducting additional formative research to understand how these interventions can be improved to affect nutrition outcomes in addition to gender norms.
4. More **support** is needed for **households** if they are to remain resilient in the face of future shocks. While households in treatment communities were better able to

handle large shocks, perhaps through increased disaster preparedness and response among households and communities, their resources have been depleted, and they perceived a reduced ability to recover from shocks over time. This could be due to the unprecedented COVID-19 pandemic. Increased access to savings, loans, and livelihood diversification was perceived to have positive benefits for vulnerable households during recent shocks in best case scenario villages. These are interventions that could be further studied and expanded. Although cash transfers from the program also supported households' ability to recover from shocks, further programming to strengthen local government responses to disasters and disbursement of social protection programs may be a more sustainable pathway to household resiliency.

5. One of the most striking improvements has been in women's empowerment; however, this has not translated into much better diets or lower numbers of underweight women in treatment areas when compared to the comparison group. While women report having better access to medical care, their diet has not been reported to be much improved and a similar percent of women remain underweight. Future projects should **increase or modify women's dietary interventions** to result in greater improvements across women's health indicators.
6. **More support** is needed for **vulnerable groups including female farmers and households with only an adult woman.** These are two groups within the treatment areas that showed less improvement across several pre-post indicators than their male counterparts or households with both an adult man and an adult woman.
7. **Additional research and support** is needed on interventions to improve availability and access to clean water, particularly to address accessibility, affordability and seasonal and climate-related issues in the Southwest region of Bangladesh. Although the program sought to address these issues, program participants reported that these issues persisted after the program. Future programming efforts can consider rapid experimentation or randomization to more deeply examine what aspects of the programming could be improved for long-term success, and what other context-specific interventions can have an impact.
8. Some input and service providers may require **sector-specific support** to address technical, financial, and market-based constraints to their long-term sustainability. Some solutions have already proven successful, and should be expanded. For example, agriculture-specific financial products could support local agricultural input service providers, as access to credit and finance was reported as a major barrier. Some LSPs described how *Nobo Jatra* helped connect them to loans from banks and an association of service providers across different unions that was able to access bulk pricing. Others did not have access to these linkages and struggled with limited capital to support and grow their businesses. Expanding these solutions and identifying others could be the elements that allow the LSP system to become sustainable.
9. **A focus on increasing income should continue**. Increasing household income and cash earnings for women proved difficult. However, other improvements in income had positive, even if unexpected results. In villages where *Nobo Jatra* implementation was strongest, women reported positive impacts on autonomy when their income streams were diversified. Expanded production of vegetables improved

food and nutrition security, if not income. Women's increased access to savings and financial services, often through VSLAs, provided needed resources and perhaps flexibility in dealing with constraints even if not increasing their income.

10. Limited improvements in natural resource management were seen following the project, despite this being a widespread issue in Southwest Bangladesh. Future implementers should therefore focus on **strengthening the management of natural resources**, potentially through village development committees, which have proven successful in organizing communities towards collective development goals during the *Nobo Jatra* project.
11. Future programming should consider **nutrition and WASH social behavior change communication** interventions that **concurrently address household financial and resource constraints**, such as through linkages with public and private local service providers, villages savings and loans groups, or financial institutions. This dual approach appeared to contribute to nutrition and WASH practice changes among project participants in best-case scenario villages, while less success was observed in the impact evaluation when only information and programming was provided.
12. *Nobo Jatra* had strong implementation that led to healthy engagement in the program. One area of improvement for future programs would be **increasing transparency and communication** about decisions around cash transfers and input provision to different households. Some program participants reported that they felt it was unfair that some participants received cash transfers while others only received inputs, with no explanation as to why implementation occurred this way.
13. This study utilized three evaluation strategies (pre/post, impact evaluation and qualitative methods) to provide a rich depiction of the effect of the *Nobo Jatra* program on the communities where it was implemented. In particular, the research team used **innovative data sources and methods** to construct a counterfactual, when one was not identified at the start of the activity. Such a retrospective impact evaluation does not allow for typical balance tests on a large set of baseline variables, which can demonstrate if the treatment and comparison groups are statistically comparable.[43] Future studies of similar food security interventions could build on our evaluation strategy by **planning for an impact evaluation from the start.** Implementers can work with evaluators to identify a comparison group at the start of an activity, through random assignment or quasi-experimental methods. We encourage implementing partners to take this step when designing future programming.

[43] Future studies could also explore more robust balance tests, using the full secondary dataset. For example, this study tested for balance using the main matching variable which was available in the 2014 DHS dataset (stunting), but future studies can conduct balance tests using additional DHS variables, such as income or consumption. This was beyond the scope of this evaluation but could be useful in the future when an impact evaluation cannot be planned from the start.

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