



SELF-HELP GROUP LAND LEASING FINAL REPORT

OUTCOMES AND LESSONS LEARNED

INTEGRATED LAND AND RESOURCE GOVERNANCE TASK
ORDER UNDER THE STRENGTHENING TENURE AND
RESOURCE RIGHTS II (STARR II) IDIQ

Contract Number: 7200AA18D00003/7200AA18F00015
COR: Sarah Lowery
USAID Office of Land and Urban
Contractor Name: Tetra Tech
Author(s): Landesa

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About the Women's Global Development and Prosperity (W-GDP) Initiative

In February 2019, the White House established the Women's Global Development and Prosperity (W-GDP) Initiative, the first whole-of-government approach to women's economic empowerment. W-GDP seeks to reach 50 million women in the developing world by 2025 by focusing on three pillars – Women Prospering in the Workforce, Women Succeeding as Entrepreneurs and Women Enabled in the Economy. W-GDP leverages a new innovative fund, scaling private-public partnerships which address the three pillars. In its first year alone, W-GDP programs reached 12 million women across the globe.

Cover Photo: Subho Chandimata member gathering harvested potatoes. Landesa

Tetra Tech Contact(s): Megan Huth, Project Manager
159 Bank Street, Suite 300
Burlington, VT 05402
Tel: (802) 495-0282
Fax: (802) 658-4247
Email: megan.huth@tetrattech.com

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SELF-HELP GROUP LAND LEASING FINAL REPORT: OUTCOMES AND LESSONS LEARNED

INTEGRATED LAND AND RESOURCE GOVERNANCE TASK ORDER UNDER THE STRENGTHENING TENURE AND RESOURCE RIGHTS II (STARR II) IDIQ

Submission Date: 28 May 2020
Submitted By: Melissa Hall, Deputy Chief of Party
Tetra Tech
159 Bank Street, Burlington VT 05401, USA
Tel: (802) 495-0282
Fax: (802) 658-4247

Contract Number: 7200AA18D00003/7200AA18F00015
COR Name: Sarah Lowery
USAID Office of Land and Urban
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Author(s): Landesa

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LIST OF ACRONYMS

COVID-19	Coronavirus Disease 2019
DTW	Deep Tube Well
ICDS	Integrated Child Development Services
ILRG	Integrated Land and Resource Governance
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
PACS	Primary Agriculture Cooperative Society
POP	PepsiCo's Package of Practices
SHG	Self-Help Group
SRLM	State Rural Livelihood Mission
USAID	United States Agency for International Development
W-GDP	Women's Global Development and Prosperity
WRMS	Weather Risk Management Services

EXECUTIVE SUMMARY

During the 2019 – 2020 potato season, the Integrated Land and Resource Governance (ILRG) program supported two women’s self-help groups (SHGs) to lease land and produce commercial potatoes as part of PepsiCo’s supply chain in West Bengal, India. ILRG undertook this novel initiative as part of an innovative partnership between the United States Agency for International Development (USAID) and PepsiCo in India, with funding from the Women’s Global Development and Prosperity (W-GDP) Fund at USAID. The partnership aims to demonstrate the business case that empowering women makes good economic and social sense, leading to adoption of sustainable farming practices, improved yields and income for farming families, and increased profitability for companies. The project uses approaches to reach, benefit, and empower women in the potato supply chain, strengthening women’s land tenure security, creating improved employment and entrepreneurial opportunities for women, and promoting increased social acceptance of women’s role as farmers. This project, implemented under the ILRG program, is led by Tetra Tech in collaboration with Landesa.

This report details the outcomes and lessons learned from piloting SHG land leasing groups with the two SHGs – Subho Chandimata and Eid Mubarak – selected to participate in group leasing in the first year of the USAID-PepsiCo partnership.

The project supported SHG leasing groups for several reasons. First, supporting SHG leasing groups helps to increase women’s participation in potato farming and the proportion of potatoes sourced from women-managed farms. Second, SHG leasing groups demonstrate women’s capacity and ability to manage all aspects of PepsiCo potato farming operations, which can help to break down social and economic barriers inhibiting women’s full participation in the potato supply chain. Third, women benefit from gaining knowledge and skills from their increased involvement in potato farming and participation in PepsiCo training, which helps to increase their personal agency and income. Fourth, SHG leasing groups provide an opportunity for women to test and adopt innovative and sustainable farming practices, which could in turn influence women’s families and the community at large to adopt similar practices and improve women’s standing in their households and communities. Fifth, the fact that SHGs are federated as a statewide network may provide a strong platform for replicating this work in other districts. Overall, piloting land leasing with SHGs empowered the women involved, helped to raise awareness of and sensitivity to gender issues within PepsiCo staff, and provided a scalable example of a means to increase women’s participation within the potato supply chain.

Despite some unfavorable weather conditions and blight infection that affected yields, both groups successfully cultivated PepsiCo potatoes and made a small profit. While the women were somewhat disappointed in the financial outcome, they also recognized that they fared similarly or better than other PepsiCo farmers this potato season. Despite a somewhat discouraging financial result (see Table I), women stated that they were proud of the knowledge, experience, and skills they gained over the course of the season. Both groups tentatively plan to cultivate PepsiCo potatoes again next year, when they hope this year’s lessons and experiences can help them achieve greater financial success.

TABLE I. PRODUCTION AND FINANCIAL OUTCOMES

GROUP	LAND AREA	PRODUCTION	GROSS YIELD	TOTAL INCOME	TOTAL EXPENDITURES	TOTAL PROFIT
Subho Chandimata	1.06 acres	206 50kg bags	~23.8 metric tons/ha	INR 99,754 (USD 1,327)	INR 64,880 (USD 863)	INR 34,874 (USD 464)

Eid Mubarak	1 acre	237 50kg bags (plus 14 bags of smaller sized potatoes)	~30.88 metric tons/ha	INR 103,815 (USD 1,381)	INR 89,530 (USD 1,191)	INR 14,285 (USD 190)
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Briefly, lessons learned this season include:

- SHGs provide a valuable foundation for group farming and leasing because of their pre-existing group dynamics, their existing access to credit, the foundation of training in record keeping and decision making that they already have through SHG training, and the network of support that the government and non-governmental organizations provide to them.
- SHG members chose to lease and farm as groups; the project should continue to encourage them to make arrangements that suit their needs.
- Fixed-cost, cash-based land leases provide greater financial certainty than leases based on the market price of local potatoes.
- Crop insurance, piloted through a private company by PepsiCo this season, provided financial security for both groups, even if ultimately unneeded.
- Gender sensitivity and support for women farmers by PepsiCo staff is important. The aggregators and agronomists involved reflected that working with their respective SHGs required more time than working with other farmers in their supplier base, but they considered this time spent to be a worthwhile investment in a new initiative.
- Meticulous care in selecting suitable land to lease is important for group success.
- Group members must have farming experience, although they will also need consistent support and agronomy training throughout their first season.
- There is significant demand for group leasing and farming from a diverse range of SHGs.
- Flexibility in labor arrangements allows a wider range of women to commit to farming.
- Intensive oversight was necessary this first year from PepsiCo and ILRG project staff. The project aims to reduce this dependence by empowering the groups through scalable training and experience sharing amongst themselves.

I.0 INTRODUCTION

The United States Agency for International Development (USAID) and PepsiCo are partnering to promote women's economic empowerment in the potato supply chain in West Bengal, India. The partnership aims to demonstrate the business case that empowering women makes good social and economic sense, leading to the adoption of sustainable farming practices, improved yields and income for farming families, and increased profitability for companies. The project uses multiple approaches to reach, benefit, and empower women in the potato supply chain, strengthening women's land tenure security, creating improved livelihood and entrepreneurial opportunities for women, and promoting increased social acceptance of women's role as farmers. This project is implemented under the Integrated Land and Resource Governance (ILRG) task order, led by Tetra Tech in collaboration with Landesa, with funding from the Women's Global Development and Prosperity (W-GDP) Fund at USAID.

This report details the outcomes and lessons learned from piloting self-help group (SHG) land leasing groups in West Bengal. During the 2019 – 2020 potato season, ILRG program provided support to two women's self-help groups (SHGs) to lease land and produce commercial potatoes as part of PepsiCo's supply chain in West Bengal, India. This report first provides background information on both groups and an overview of the selection process (see Section 3), then details outcomes from the groups' experiences leasing land and growing PepsiCo potatoes (see Section 4), followed by lessons learned for future years (see Section 5).

2.0 BACKGROUND

2.1 SELECTION CRITERIA & PROCESS

ILRG selected Subho Chandimata and Eid Mubarak SHGs from two intensive PepsiCo potato-growing areas to participate in group leasing for the first year of the activity. Both groups' capacity to participate in group leasing and farming was evaluated based on robust selection criteria (see text box below for an overview; for more detail on selection criteria, see Annex 1).

The selection process entailed a series of consultations and meetings with PepsiCo area managers, agronomists, and aggregators, as well as a review of 12 SHGs located in potato-growing areas in June and July 2019. ILRG staff first met with PepsiCo area managers, agronomists, and aggregators to review the selection criteria and ensure that SHGs were screened to meet PepsiCo expectations and needs. During these meetings, the ILRG team and PepsiCo staff also identified areas where SHGs were likely to have a significant proportion of members from PepsiCo potato-growing families, and therefore have requisite potato-growing experience.

The ILRG team then met with 12 SHGs in these identified areas to determine the extent to which each SHG met proposed selection criteria. For those SHGs that met a majority of the selection criteria, ILRG arranged follow-up meetings to further determine whether they were interested and well-suited to participate in group leasing and PepsiCo potato farming. PepsiCo area managers, agronomists, and aggregators were invited to all meetings with SHGs to interact with members and ask questions, ensuring that they ultimately supported the selection of SHGs and did not identify any red flags that would disqualify them from participating in the project.

Box 1. What Are SHGs?

SHGs (also known as Swanivar Dal in West Bengal) are community-based groups with 10 – 20 women members, usually from similar social and economic backgrounds. These women come together voluntarily to save small sums of money on a regular basis. They pool their resources to become financially stable, taking loans from their collective savings in times of need and returning to the group based on terms and conditions determined collectively. In due course they establish linkages with banks by opening their group account and accessing collateral-free loans. These SHGs also offer women a platform to discuss their issues and take collective action to address their concerns. In India, several government institutions as well as non-government organizations support collectivization of women as SHGs, which are often federated at the village, region, and state levels. These networks have served as a strong vehicle for women's own agency as well as broader rural development.

Box 2. Selection Criteria

- The SHG should be well-established, have cohesive group dynamics, and strong group decision-making skills;
- The SHG should have the financial capacity to invest in potato farming and assume risks;
- SHG members should be interested in farming and understand the time and resource commitments required;
- SHG members should have farming experience, ideally potato farming experience;
- The respective PepsiCo aggregator should support selection of the SHG and be committed to working with the group;
- Community members and leaders should be receptive to the concept of women group leasing and farming;
- PepsiCo aggregators and area managers in the area should strongly support the concept of women group leasing and farming;
- SHG members' households should support their involvement in group leasing and farming; and
- The SHG should be aware of suitable and available land to lease.

2.2 OVERVIEW OF SHG LEASING GROUPS

2.2.1 SUBHO CHANDIMATA

Subho Chandimata SHG is in Balitha Village, Lego Gram Panchayat, Kotulpur Block, Bankura District and was established in 2005 with the support of a primary agriculture cooperative society (PACS) and a local woman, Manju Mahanto.¹ Manju Mahanto is a landowner and PepsiCo potato farmer who organizes and manages farming on both her land and her husband's land, as he has historically worked in Kolkata. She has been producing PepsiCo potatoes since 2006, and although she has never attended PepsiCo trainings, she learned how to produce potatoes from fellow farmers and the local PepsiCo aggregator in her area.



Subho Chandimata members
LANDESA

Subho Chandimata was established to form a group of women who could work together to pursue income-generating opportunities. Since Subho Chandimata's establishment, it has been comprised of the same 15 members, including Manju Mahanto. The average age of Subho Chandimata SHG members is 51.4 years. Twelve of the 15 members are married, while three are widows. Furthermore, 13 of the 15 members belong to a Scheduled Caste, considered to be under-privileged in the caste hierarchy, while two belong to the general caste.²

"In this village women support women in agriculture. When there is poverty and men are unable to provide for the family, women are more included to participate in agriculture. Initially men tried to stop women from participating in agriculture. They felt that women should learn to live within the incomes that men could earn. However, seeing women work in the field empowered and inspired others. Now women in the village know how to operate machines in the field themselves. Women also work at night in the field and have been involved in operating threshers, planters, and other agricultural implements. But supporting one another is essential to let women participate in agriculture."

- Manju Mahanto, Subho Chandimata founding member in an interview during the 2019 assessment

Overall, Subho Chandimata SHG was well-positioned and qualified to participate in group leasing and potato cultivation for several reasons. First, the group demonstrated strong cohesion and a commitment to working together, as indicated by the fact that it has been comprised of the same 15 members since its formation 14 years ago. All members are also from a similar socioeconomic background. Second, the group is well-functioning and well-organized. For example, the group holds regular monthly meetings with all members, makes decisions and selects leadership through democratic processes, and has considerable savings and a sound financial history of loan repayment. Third, all members have potato

¹ In February 2019, Landesa interviewed Manju Mahanto as part of an assessment of women's access to land in PepsiCo's West Bengal potato supply chain.

² For detailed information on each member, see Annex 2.

farming experience and are members of PepsiCo potato-growing families. As a result, members demonstrated an understanding of the time, resources, and skills required to produce potatoes, and they were aware of areas where they would need assistance (e.g., leasing land, plowing, and delegating group farming roles and responsibilities). Fourth, members' families and the larger community appeared to be open to the idea of leasing land as a group and producing potatoes. Fifth, the PepsiCo aggregator, agronomist, and area manager all supported the idea that women's groups could lease land and produce potatoes, and they agreed to provide all support necessary to ensure the group's success. And sixth, the group was very interested and excited to pursue an opportunity to work together in new ways. In fact, members noted that group leasing and potato cultivation could provide an opportunity to fulfill their dream of working together for economic benefit. The group had always had a desire to work collectively; however, they explained that they had not previously seen or been inspired with the right group activity.

Member Participation. Ten of the 15 members agreed to participate in the land leasing activity. Some Subho Chandimata members did not participate because their husbands deemed it too financially risky and worried about how the household would cope with any resulting loss.

Of Subho Chandimata's 15 members, 11 initially joined the group potato farming activity. However, one member dropped out near the beginning of the season due to poor health. Ten members remained committed and fully engaged throughout the season. At times, tension arose within Subho Chandimata over the non-participation of 5 members in land leasing. This non-participation especially troubled Manju Mahanto who felt that these members lost an important opportunity because their husbands discouraged them from joining.

2.2.2 EID MUBARAK

Eid Mubarak SHG is located in Moloypur Village, Moloypur-II Gram Panchayat, Arambagh Block, Hooghly District, and was established in 2010 through their own initiative and with support from government programs, including the West Bengal State Rural Livelihood Mission (SRLM). The SHG was established to help members increase income-generating options. Since its establishment, it has been comprised of the same 10 members.³



Eid Mubarak members
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The average age of members is 34.7 years. All members are married and Muslim.⁴

The group has experience working together to overcome challenges and social norms, including Muslim traditions and customs that limit women's mobility outside the household. Furthermore, Eid Mubarak's all-Muslim membership was noteworthy, as learnings from their participation in land leasing could be scaled to increase women's participation in this activity among Muslim minority groups.

³ When Eid Mubarak SHG was first established, one member was a man; however, his wife replaced him.

⁴ For detailed information on each member, see Annex 3.

Overall, Eid Mubarak SHG met the selection criteria and was well-positioned and qualified to participate in group leasing and PepsiCo potato cultivation. First, the group has included the same 10 members for

“Even if anyone from our group needs a paltry sum of Rs. 10, she has to ask for it from her husband. Individual share of group borrowing goes to our husband for family necessities like farming, small businesses, or small repair work at home. We are excited that with group farming the money earned will be solely ours, so we can spend that as we intend.”

- Anwara Begum, Eid Mubarak member in interview during the selection process

the past nine years, and all members are also from the same socioeconomic and religious background (Muslim). Second, it is well-organized and has several educated members who keep organized meeting minutes and financial records. Third, most members have direct farming experience, and half of the members also have potato farming experience and are members of PepsiCo potato-growing families. Fourth, a majority of members’ families and the community at large appeared to be

open to group land leasing and potato production. Seven members’ families provided permission, and four of these members’ husbands also provided encouragement. Fifth, the PepsiCo aggregator, agronomist, and area manager also supported the group’s participation. Finally, the group was interested and excited to lease land and produce potatoes as a group. Specifically, the group believed that they had the potential to make a good profit through PepsiCo potato production.

Member Participation. Overall, seven members of Eid Mubarak agreed to participate in group leasing and PepsiCo potato cultivation. In Eid Mubarak, financial risk was less of a concern than for Subho Chandimata, but two members did not participate due to social constraints on women undertaking field-based farming activities and one did not participate due to a prolonged illness. The seven members who participated remained fully committed over the course of the pilot activity. The three non-participating members decided to only observe for this season. Participating members were comfortable with this arrangement, and the ILRG team did not observe any tension within the group regarding this decision.

“Women are more protective to their families. They are very sincere, careful, and meticulous. If they come out and work as farmers in the supply chain, that would definitely be good for a family and society as well.”

“There is no bar from the company. If they come, we would automatically include them. Women’s work participation in farming is not less than male farmers. They work shoulder to shoulder with male farmers. They work on seed preparation, planting, cooking and carrying food in the fields, irrigation, harvesting, heaping, and so on.”

“Sometimes, women are more adept in potato farming than men. They know very well how long of a gap needs to be maintained while planting seeds; water level needs to be maintained while watering the field; and so on.”

- Shyamal Pal, PepsiCo Aggregator, in an interview during the 2019 assessment

2.3 CHECK-IN MEETINGS WITH SHG LEASING GROUPS

The ILRG team met separately with both land leasing groups at least every other week from late September 2019 until the harvest in mid-March 2020. Between meetings, ILRG was also in regular contact with the groups by phone. During each meeting, the ILRG team reviewed a checklist of topics, which included major decisions, expenses, field activities, any concerns, and the support of households and communities. The groups’ respective aggregators were also present for these meetings, which provided an opportunity to share major activities and troubleshoot group concerns.

In addition to these regular check-in meetings, the ILRG team met with the groups to provide training in partnership with PepsiCo agronomists. Details of these training sessions are provided in Section 4.11 below.

For both groups, all members participating in land leasing joined the ILRG check-in meetings whenever possible. Occasionally the ILRG team met with just a few members if the visit did not coincide with a regular SHG meeting. As part of many meetings, ILRG also visited the groups' fields.

The reasons that some meetings could not be attended by all members varied. For Subho Chandimata, there was a death in the village that resulted in several smaller meetings during the pre-season period because some members observed a mourning period. Also at times throughout the season, other activities occupied some members, such as preparing mid-day school meals or participating in Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) paid government labor activities. As with Subho Chandimata, Eid Mubarak's members were also sometimes absent due to other responsibilities or illness.

3.0 OUTCOMES

3.1 ACCESS TO LAND

TABLE 2. OVERVIEW OF LAND AREA AND LEASE TERMS

SHG	AREA	LANDLORDS AND PLOTS	LEASE TERMS
Subho Chandimata	1.06 acres	Landlord 1: 0.66 acre (3 plots) Landlord 2: 0.40 acre (4 plots)	Fixed payment of INR 10,800 (USD 144) paid post-harvest
Eid Mubarak	1 acre	Landlord 1: 0.82 acre (2 plots) Landlord 2: 0.18 acre (1 plot)	Fixed payment of 60 50kg packages of local potatoes (price determined based on market rate) delivered at harvest

3.1.1 LAND

With the help of their respective aggregators, both groups identified several plots of land to lease that were conveniently located and suitable for potato cultivation. Each group ended up leasing and cultivating roughly one acre of land.

Subho Chandimata leased 0.66 acre of land from one landowner and 0.40 acre from another. Each of these parcels were divided into several plots, three out of seven of which were low lying, thus increasing the chances for waterlogging during the season. This became a point of stress later in the season as described below in the section on harvesting. The two parcels were about 500 meters apart and located along the roadside, allowing for easy access throughout the season. Both parcels were also within the coverage area of deep tube wells (DTWs).

After evaluating several options, Eid Mubarak eventually decided to lease three plots of land from two landowners. They leased two plots from one landowner: one that was 0.33 acre, and another that was 0.49 acre. The group selected these plots because of their relatively good quality and their convenient location near the village. They also leased a small 0.18 acre plot from another landlord out of a desire to bring their total cultivated area up to one acre.

3.1.2 LANDLORDS

All of the landlords involved regularly lease out all or a portion of their land for the potato season, and in some cases, for other cropping seasons as well.

Subho Chandimata's landlords are both occupied with other work and do not have time to cultivate their land. The owner of the 0.66 acre parcel has leased that parcel out for the potato season for several years. When asked by the aggregator about leasing it to Subho Chandimata for this potato season, he said that he appreciated this unique initiative by a women's group and would be happy to lease land to them. The owner of the 0.40 acre parcel is a busy potato trader who also does not have time to cultivate the leased parcel. Aside from leasing it out, his other alternative is to cultivate it using hired labor. He views leasing the land to the SHG as a better option as it requires less oversight from him.

Subho Chandimata made special arrangements with each landlord to harvest the standing crop (rice) themselves prior to the start of the potato season. They sought out this arrangement both as an additional source of income and as a means to ensure that rice would be harvested in a timely manner and the land would be properly prepared for the potato season (e.g., sufficiently dried out and cleared of crop residues). For the rice harvesting, the group earned INR 2,100 (USD 28) from the 0.66 acre plot

and INR 1,600 (USD 21) from the 0.40 acre plot. The group divided these earnings equally among participating members at the start of the potato season.

Eid Mubarak's two landlords also regularly lease out their land. The owner of the 0.82 acre parcel is preoccupied with sand mining and transportation businesses. The owner of the 0.18 acre parcel is an octogenarian widow, who also happens to be the mother of the aggregator. The aggregator himself cultivated this parcel during the last potato season. Eid Mubarak did not arrange to harvest standing crops with either of their landlords.



Subho Chandimata members harvesting paddy for extra income
LANDESA

3.1.3 LEASE DOCUMENTATION

All four landlords agreed to sign white paper leases with the SHGs. As “white paper” agreements, they are not documented on formal “stamp paper” or registered with any authority. The agreements are written and signed by both parties.

Based on ILRG's 2019 assessment on women and land tenure in West Bengal, white paper leases are highly unusual. Instead, leases are generally verbal. This is due to legal restrictions on leasing in West Bengal. In this case, after multiple discussions with the ILRG team, landlords became comfortable signing white paper agreements because they were leasing to groups of women as part of an organized project, and the process was overseen by a trusted local community member, the aggregator.

The groups had an open discussion among themselves and determined their own conditions before negotiating with the landowners. All lease terms and conditions were reviewed and verified by relevant stakeholders (including PepsiCo) and were signed during the week of November 11, 2019. The ILRG team and PepsiCo aggregators were present during these signings. Both groups recorded detailed terms and conditions of the agreements in their SHG resolution books.

3.1.4 LEASE TERMS

The two groups agreed to different lease terms based on common practice in their locality. Subho Chandimata agreed to fixed rate, cash-based leases with both landlords. The total lease payment was INR 10,800, (USD 144) which is just over INR 10,000 (USD 133) per acre. The lease amount was paid post-harvest. The lease amount was determined in consultation with the aggregator who is familiar with costs in the area.

Eid Mubarak agreed to pay a fixed rate of 60 50kg bags of the local Jyoti variety of potato per acre of land to be delivered at harvest. This “pay with potato” lease is the standard method for setting land lease terms in this locality for the post-paddy production season. The owner of the 0.88 acre parcel of land insisted on following standard local lease practices and their second landlord followed suit. Because the group did not wish to grow Jyoti potatoes themselves, they planned to purchase 60 bags of local Jyoti variety potatoes from other farmers and deliver them proportionately to both landlords at the end of the season.

As the potato season progressed it became clear that the lease payment would be unfavorable to the Eid Mubarak women. Poor crop conditions (unseasonable rain and blight) drove up the cost of Jyoti potatoes and thus also the cost of meeting their lease term. Over the course of the season, the price of Jyoti potatoes ranged from INR 475 to 650 (USD 6.32 to 8.65) per 50kg bag. At harvest, the price of Jyoti potatoes was INR 500 (USD 6.65) per 50kg bag. The group spent a total of INR 30,000 (USD 399) for 60 bags. This was significantly more than the group had planned at the time of leasing, as they originally budgeted between INR 8,000 to 10,000 (USD 106 to 133) to purchase Jyoti potatoes.

The “pay with potato” lease, which fluctuated with the price of local potatoes, proved to be a continual source of concern for the Eid Mubarak women farmers who decided mid-way through the season that in the future they would only agree to cash-based, fixed rate leases.

Aggregator Rafikul Islam noted that every five years or so the market price of local potatoes spikes upward. As has happened in the past, he anticipates that the local market price will likely fall to average levels next year.

3.2 ACCESS TO CREDIT

Both groups had sufficient available formal credit as this was part of the criteria for their initial selection. Many potato cultivation expenses do not require payment until the end of the season. For example, PepsiCo farmers receive seed potatoes on credit from aggregators, land rental payments are not due until harvest, and some tractor and irrigation payments are also not expected until harvest. Some payments, however, must be made during the season itself, such as payments for fertilizer and labor. The two women’s farming groups took different approaches to financing expenses during the season.

Subho Chandmata initially planned to pay for expenses using credit available to the group through a PACS. Prior to the start of the potato season, however, the PACS informed the women that their timely loan repayment entitled them to a reduced interest rate on sums already borrowed. The PACS provided this reduced rate in the form of an INR 22,000 (USD 293) refund. The aggregator suggested that the group could use this refund to cover fertilizer costs and to pay for any emergency external labor payments. The group used INR 12,000 (USD 160) out of the available refund to pay upfront potato cultivation expenses.



Top and 2nd from top: Subho Chandmata “white paper” lease signings. 3rd from top and bottom: Eid Mubarak lease signings

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This freed up the PACS loan to be used for other expenses and investments. For many, the divided loan amount was used to finance their own households' farming activities, as all participating Subho Chandimata SHG members also belong to PepsiCo farming families.

Eid Mubarak also altered its borrowing plan early in the season. The group initially planned to use INR 30,000 (USD 399) in bank credit to pay upfront costs. In November, however, one land leasing group member approached the group and requested an INR 200,000 (USD 2,661) loan to purchase land in her own name for her household's own use for paddy cultivation. The group knew that near the end of December it would be entitled to receive a loan of INR 260,000 (USD 3,459). The member requesting the loan offered to pay for the group's upfront fertilizer and labor expenses in the form of a short-term loan, interest-free loan – an amount of roughly INR 30,000 (USD 399) – if in return they would permit her to use INR 200,000 (USD 2,661) of the group's forthcoming loan. All agreed to this arrangement and it was documented in the group's resolution book.

The group thus accessed a bank loan of INR 260,000 (USD 3,459). Of this, they disbursed INR 230,000 (USD 3,060) to the member who had requested the loan to repay the INR 30,000 (USD 399) short-term loan and for her to purchase land. Of the remaining INR 30,000 (USD 399), one member used INR 5,000 (USD 67) to support her own family's potato cultivation, another used INR 5,000 (USD 67) to support her husband's cycle repair shop, and another used INR 20,000 (USD 266) to support her family's potato cultivation and other household needs.

3.3 ACCESS TO INSURANCE

During the 2019 assessment, many farmers stated that their biggest worry was crop failure. The inability of tenant farmers to access crop insurance was particularly troubling. The two women's farming groups shared this concern.

Some members of Subho Chandimata were especially worried about the risk of crop damage due to pest attack or inclement weather. Other members were less worried and stated that they were rather confident that they could obtain a successful harvest.

PepsiCo, understanding this issue, decided to trial insurance coverage for a small number of farmers through private insurance company Weather Risk Management Services (WRMS). WRMS agreed to charge INR 1,500 (USD 20) per acre for coverage. The insurance covers crop loss both in the event of pest attack or inclement weather. The underlying condition of this coverage is strict compliance with prescribed PepsiCo potato cultivation norms.

The amount of insurance coverage is calculated based on actual yield deviation from the average yield. Compensation is calculated based on how much the average expected yield is, minus the actual yield. For example, if the expected yield per acre were 10 metric tons, and a farmer's actual production was eight metric tons, lost yield would be estimated at 20 percent. The total possible payout for 100 percent crop failure for PepsiCo potatoes is INR 25,000 (USD 333). If lost yield were 20 percent, the farmer would be paid 20 percent of INR 25,000 (USD 333), which is INR 5,000 (USD 67). PepsiCo also incentivized any additional production over estimated production. In the case of overproduction, INR 1,000 (USD 13) of the insurance premium would be refunded to the farmer.

WRMS has its own criteria and method for setting expected yield per acre, which was not disclosed to the farmers or aggregators. One of the aggregators discovered informally that the expected per acre yield was set at 170 bags (50 kg each).

The aggregators of both groups paid the insurance premium of INR 1,500 (USD 20) on behalf of the groups, which the groups repaid at the time of harvest. Representatives of WRMS then visited the group's plots to geo-tag the land for identification. PepsiCo agronomists were responsible for confirming

that covered farmers cultivated in conformity with PepsiCo's prescribed standard package of practices (POP).

Members of both groups were happy and satisfied that this insurance was made available to them. Production of both groups was considered above the standard average production set per acre. Consequently, each group was refunded INR 1,000 (USD 13) from the premium amount paid by PepsiCo as an incentive.

3.4 INPUTS AND SERVICES

3.4.1 SEEDS

Both SHG groups procured seeds with the help of PepsiCo aggregators, who provided bags of seed on credit at a cost of INR 1,500 (USD 20) per 50kg bag. At the start of the season, the buyback price was set at INR 415 and INR 445 (USD 5.52 to 5.92) per 50kg bag of ATL and FC3 potato varieties,⁵ respectively.

Both groups were given the option to plant two varieties of PepsiCo seeds: FC3 and ATL. Subho Chandimata decided to grow only the FC3 variety, while Eid Mubarak decided to grow both the FC3 and ATL varieties. Most of Eid Mubarak's land was planted with ATL (0.82 acre), while some was planted with FC3 (0.18 acre). Subho Chandimata procured 16 bags of seeds, while Eid Mubarak procured 15 bags.

Both the buyback price and production rate are higher for FC3 compared to ATL. The buyback price for FC3 is higher because of its lower water content. However, FC3 takes longer to grow: 90 days for ATL and 95 to 110 days for FC3. The cost of production is also higher for FC3, and FC3 is more weather sensitive and susceptible to late blight attack.

Eid Mubarak opted for a combination of both varieties as a diversification strategy. Their initial plan was to plant a 50/50 land share of FC3 and ATL. However, because of late planting and limited availability of good quality FC3 seed, they planted 0.18 acre with FC3 and planted the rest of their land with ATL.

Both groups experienced issues regarding seed quality and contamination. For example, two of the 16 bags procured by Subho Chandimata and two and a half of the 15 bags procured by Eid Mubarak were unsuitable for planting. This issue was shared with the ILRG team who notified the PepsiCo area manager. Because the seeds were still within the warranty period, all seeds were replaced and both groups were assured that they would not incur additional costs for the replacement seeds. The aggregators were notified and responded quickly with replacement seeds. The aggregators also explained that the overall quality of the seeds this year was inferior compared to last year, and that PepsiCo management was aware of this and shared such information with the aggregators.

PepsiCo also notified both groups that they should not use the chemical provided to decontaminate the seeds. Consequently, both groups had to source local chemicals with help from the aggregators and in consultation with PepsiCo agronomists.

Subho Chandimata shared that in the future, to improve seed quality, they will collect and keep the seed in a controlled environment for eight to 10 days before planting because this helps to maintain seed health and promote germination. Eid Mubarak, however, was able to collect and store seed before planting.

⁵ Both varieties are provided by PepsiCo. ATL is the Atlanta variety and matures in 90 days. FC3 matures in 100 days.

Subho Chandimata planted between 8 – 10 December and Eid Mubarak planted between 7 – 10 December. Planting was late compared to typical years. Ideally the planting is completed between the third and fourth week of November. The delay in planting was due to heavy rainfall, which caused waterlogging in rice fields where the rice crop had yet to be harvested, delaying the paddy harvest. Potato seed planting was further delayed because time was needed to allow fields to dry.



Subho Chandimata members preparing their fields
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3.4.2 PLOWING

Both groups hired local men with tractors for land preparation with the help of PepsiCo aggregators. The tractor providers confirmed that services could be provided to the groups on a timely basis. The tractor provider hired by Subho Chandimata also committed to taking special care for deep plowing because the land in their area required it due to excess phosphate.

The cost of tractor services was estimated on an hourly basis and was paid after harvesting. The tractor provider for Subho Chandimata estimated that the cost would be approximately INR 2,500 (USD 33)⁶ while the provider for Eid Mubarak estimated that the cost would be approximately INR 3,000 (USD 40). After harvest, the total cost of tractor services was confirmed to be INR 3,940 (USD 52)⁷ for Subho Chandimata and INR 5,000 (USD 67) for Eid Mubarak.

3.4.3 IRRIGATION

Both groups were able to secure access to irrigation services throughout the season. Subho Chandimata's two land parcels fell under the coverage area of two different DTW irrigation sources. The group consulted with both DTW owners and both agreed to offer irrigation services at last year's rate, approximately INR 1,200 (USD 16) per 0.4 acre. The aggregator for Eid Mubarak happened to be the Secretary of the local River Lift Irrigation Management Committee, and therefore he charged the group the government rate for irrigation, which was INR 590 (USD 7.85) for the season.

3.4.4 FERTILIZER AND PESTICIDES

Both groups were required to purchase fertilizer and pesticides to ensure crop health. Subho Chandimata purchased fertilizer and pesticide from a local vendor at a cost of INR 11,760 (USD 157). The fertilizer and pesticides were then stored with the vendor until needed. During the season, the group applied nine rounds of pesticide and three rounds of fertilizer; two group members with appropriate skills did the application. On average, each round of fertilizer costs INR 800 (USD 10.64). The aggregator noted that the group needed to spend approximately INR 2,500 (USD 33) more than expected for fertilizer and pesticide because they needed to apply pesticide more frequently.

⁶ INR 1,200 (USD 16) per hour.

⁷ At a rate of INR 20 (USD 0.27) per minute for 197 minutes.

Eid Mubarak also purchased fertilizer and pesticide from a local vender at a cost of INR 14,880 (USD 198). The aggregator also noted that the group needed to spend approximately INR 1,000 (USD 13) more than expected for fertilizer and pesticide because they needed to apply pesticide more frequently. For the FC3 variety grown on the 0.18 acre plot, the group also needed to use zinc and sulfur as organic fertilizer and to provide micro-nutrients. The group applied seven rounds of pesticide and three rounds of fertilizer and hired labor to complete the application.

3.5 LABOR



Eid Mubarak members preparing their fields
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Both SHGs decided to farm potatoes collectively, although they differed in terms of how they divided up labor among group members and whether they hired outside labor for certain activities.

Subho Chandimata prioritized carrying out as many farming activities as possible without the help of outside labor. All members felt confident with this approach because they are all from farming families, have a strong understanding of the labor required, and have extensive field experience.

Other than hiring a tractor to help prepare the field, Subho Chandimata group members carried out all main farming activities by themselves. For certain tasks, all 10 members

participated. These tasks included cutting, preparing, and planting seeds; constructing bunds; digging irrigation channels; weeding; furrowing; and harvesting. For other tasks, only some members participated based on prior experience, availability, and health. For example, at one point during the season, one member fell ill and was unable to participate in certain activities. She offered the labor of her son instead and the group was fine with it. The son of this member was seen contributing labor during planting and harvesting as well. At other points in the season, certain members were not available to participate because of household chores.

To account for these situations, Subho Chandimata agreed that any member who needed to be absent was required to provide replacement labor by sending someone from her family or by working during off-hours. All members agreed with this approach and appeared cooperative regarding these matters. However, at one point in the season, three to four members complained that they were devoting more time in the field than others to irrigate and manage pests. To help address this issue, the ILRG team suggested that the group maintain a more detailed account of labor and compensate for excess labor.

Unlike Subho Chandimata, Eid Mubarak decided to carry out some farming activities as a group, but to also hire labor for certain skilled and especially time-sensitive activities. Women working independently in the field, even as a collective, was something very new to group members, and there was some unease during the initial days of farming. One member also did not plan to work as often in the field as other members, although she did participate in some activities (e.g., planting, harvesting, seed cutting, etc.). To make up for this, she provided record keeping services for the group. The group decided that this member would still get an equal share of profits from growing potatoes and was satisfied with the arrangement.

Eid Mubarak carried out several tasks themselves, including preparing and planting seeds and harvesting. Throughout the season, however, they hired labor to help with several skilled and time-sensitive tasks. These tasks included plowing, digging irrigation channels, creating furrows, carrying seeds to the field, weeding, and applying pesticides and top dressing. In total, the group spent INR 11,710 (USD 156) on hired labor.

Similar to Subho Chandimata, Eid Mubarak was also flexible in instances when members were not able to fully participate in certain tasks. For example, one member was unable to work in the field as much as others, so she spent more time preparing seeds. Furthermore, when one member was unable to help one day, she sent her husband in her place. The group also decided to carry out certain activities, such as irrigation and soil fertility management, in pairs on a rotating basis. This also helped them to monitor their fields because at one point they noticed women from nearby villages stealing potatoes from the edge of fields. Once they were able to better monitor the fields, the theft stopped.

3.6 PLANT GROWTH

Both groups carefully followed the advice and instructions from agronomists and aggregators to ensure proper germination and continued plant growth and health throughout the season. Throughout the season the groups were very aware of changes in weather that might affect plant health.

Unseasonable rain did occur throughout the season, which led to an outbreak of blight in the area of Subho Chandimata. During one field inspection in mid-February 2020, it was noted that nearly 80 percent of potato fields in the area were infected. The degree of infection and resulting damage ranged from 10 to 100 percent, as confirmed by SHG member Manju Mahanto and aggregator Shyamal Pal.

Subho Chandimata identified an incidence of late blight in a few plants. The group got in touch with the aggregator immediately and consulted with the PepsiCo agronomist. The aggregator suggested application of two fungicides (dimethomorph and mancozeb) which was believed to have arrested further propagation of this disease. The wisdom of the aggregator was invaluable in this situation. Subho Chandimata lost approximately 10 percent of their potato crop, while the aggregator estimated that the district overall lost 20 percent. The plant health in Subho Chandimata's fields remained better than adjacent plots throughout the season.

The aggregator noted the following possible reasons for the late blight infection: (1) the soil at planting time contained excess moisture; (2) unseasonable rainfall; and (3) prolonged spells of morning and evening fog. He also stated that this disease could be limited with proper seed preparation prior to planting. The aggregator stated that since Subho Chandimata had treated their seeds properly, their fields were less infected than adjacent fields.

Hooghly, where Eid Mubarak is based, suffered far less blight than Bankura. Eid Mubarak's plants were consistently found to be growing well. Although the threat of unseasonable rain was a consistent source of stress for the group, waterlogging of their fields was limited. The group was also diligent about following guidance on the application of fungicide and followed all prescribed practices. Their plant health was observed to be better than that of other nearby PepsiCo farmers' fields.

3.7 PURCHASE AGREEMENTS

3.7.1 OVERVIEW OF SUPPLY AGREEMENTS

Both leasing groups entered into verbal agreements with PepsiCo through their respective aggregators to grow recommended varieties of PepsiCo potatoes. Common principles and rules are attached to these agreements, which are applicable to all PepsiCo farmers, and include the following: farmers are allowed to farm ATL and FC3 varieties of potatoes; farmers must follow the standard POP to cultivate

PepsiCo potatoes; farmers must procure seeds from the company through their respective aggregators; farmers receive seeds and chemical kits from their respective aggregators on credit, which will be deducted from the final payment after harvest; and the company will purchase produce of a standard size and quality at a pre-declared buyback price from the farmers. As per general custom, farmers arrange their own access to land (either through ownership or lease), as well as tractor, irrigation, fertilizer, and pesticide services.

3.7.2 MID-SEASON CHANGES TO PEPSICO AND AGGREGATOR PURCHASE AGREEMENTS

Because of lower production this season due to the blight infection and the high price of local potato varieties, PepsiCo raised the buy-back price by INR 60 (USD 0.80) per quintal. This means that the buy-back price for FC3 and ATL became INR 890 (USD 12) and INR 830 (USD 11), respectively (or INR 445 (USD 5.90) and INR 415 (USD 5.52) per 50kg bag).

This year, some aggregators – including Shyamal Pal, who services Subho Chandimata – also decided to buy back the entire PepsiCo production of farmers irrespective of size. Shyamal Pal explained that he made this decision because the price of local variety was high, and farmers might be tempted to sell PepsiCo varieties in the open market. Therefore, keeping this possibility in mind and to motivate the farmers, he and some other aggregators made the decision to purchase all potatoes.

The aggregator for Eid Mubarak decided to accept a slightly wider size range than usual (five percent relaxation), but he did not purchase all potatoes as blight infection in his district was less extensive.

3.8 HARVEST

TABLE 3. PRODUCTION

GROUP	LAND AREA	PRODUCTION	GROSS YIELD
Subho Chandimata	1.06 acres	206 50kg bags	Approx. 23.8 metric tons per hectare
Eid Mubarak	1 acre	237 50kg bags (plus 14 smaller bags)	Approx. 30.88 metric tons per hectare

3.8.1 SUBHO CHANDIMATA

Overall, Subho Chandimata's production was good. From the group's 1.06 acres of land, they produced 206 50kg bags for a gross yield of approximately 23.8 metric tons per hectare. This amount was slightly lower than the group's goal of 230 50kg bags. The group anticipated that some portion of their potatoes would be rotten due to long exposure in muddy soil; however, the quality of produce was good, and no rotten potatoes were found.

The aggregator also agreed that the group could provide labor for sorting and packaging. Normally the aggregator hires other labor for this, but allowing the group members to do this would allow them to earn additional income. The group earned INR 18 (USD 0.24) per bag for this work, for INR 3,384 (USD 45) total.

Throughout the harvest, Subho Chandimata experienced a few challenges. First, due to heavy rainfall, the group faced a difficult decision whether to harvest the potatoes on the most low-lying plot early to ensure the potatoes would not rot. The decision proved to be difficult as the opinion of the aggregator, who thought the potatoes should be left to mature longer and was less concerned about the potential for rot, contradicted the assessment of the situation made by group member Manju Mahanto, who was very concerned about the risk of losing the potatoes in the low-lying plot to rot. This resulted in tension

between the aggregator and the group when the group decided to harvest potatoes from the most water-affected plot against the advice of the aggregator. The ILRG team stepped in to mediate and encourage dialogue. The aggregator listened to the group, understood their fears regarding the potatoes on the low-lying plot, and then collected the earlier harvested potatoes and sent them immediately to the supply chain. Fortunately, the weather situation improved, and the group decided to continue harvesting the other plots after the passage of several more days.



Subho Chandimata group members with their potato harvest
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Second, the group experienced delays in accessing certain equipment (plow, weighing machine), which required them to spend two nights in the field protecting their potatoes. The women set up a makeshift tent to spend the night near the potatoes to protect them from theft. Members that spent the night took measures for self-protection such as mosquito repellent, torches, lanterns, and sticks. The aggregator also offered to stay the second night, but group members declined his offer.

Third, because of the intense time commitment and delays, at one point, their family members began to show signs of resentment. The women thus decided to take a break from harvesting their SHG plots to allow them to spend more time harvesting potatoes on their own respective family farms.

The group reasoned that their production was lower than expected for the following reasons: (1) unfavorable weather; (2) relatively poor quality of seeds compared to previous years; (3) late sowing and early harvesting (90 days instead of 110 for FC3); and (4) blight infection. They believe that if the harvest were later, production would have been higher; however, there was a risk of damage due to unfavorable weather and possibly reduced potato quality (blistering) due to rising temperatures.

3.8.2 EID MUBARAK

Overall, Eid Mubarak's production was excellent. The group secured around 237 bags in total: 45 bags of FC3 and 192 bags of ATL. Additionally they harvested 14 bags of smaller potatoes, which the aggregator agreed to buy at a lower price. This represents a gross yield of approximately 30.88 metric tons per hectare.

Eid Mubarak's area also experienced unseasonable rain, but with the guidance of their aggregator they waited until March 9 to begin harvesting. This group started harvesting on the Holi festival because they do not celebrate it, and the holiday meant school was closed so none of them would need to prepare the midday school meal.

Similar to Subho Chandimata, the potatoes could not be collected the same day they were harvested. The aggregator and all other farmers in adjacent fields spent time in the field until late in the night

protecting the potatoes from theft. As a result, Eid Mubarak members did not need to stay in the field overnight.

Although Eid Mubarak's production was excellent, they were disappointed with their profit. The group's profit was lower than expected because of high production costs (mainly labor costs) and the high price of the local variety of potato. The group also anticipated that they would have been able to produce even more had the weather been more favorable and there was less incidence of disease.

3.9 FINANCIAL OUTCOME AND STAKEHOLDER REFLECTIONS

TABLE 4. EXPENSES, INCOMES, AND PROFIT

SUBHO CHANDIMATA			
EXPENDITURES		INCOME	
DESCRIPTION	AMOUNT INR (USD)	DESCRIPTION	AMOUNT INR (USD)
Seed procurement (total)	22,500 (\$299)	Potato payment	91,670 (\$1220)
Insurance premium	1,500 (\$20)	Insurance reimbursement	1,000 (\$13)
Chemicals, fertilizer, pesticides	19,500 (\$260)	Rice harvest, and sorting and packaging potatoes	7,084 (\$94)
Tractor and tractor operator	3,940 (\$52)		
Non-tractor plowing	3,230 (\$43)		
Transport cost (seed and fertilizer)	280 (\$3.73)		
Irrigation	3,130 (\$42)		
Land lease	10,800 (\$144)		
TOTAL EXPENDITURE	64,880 (\$863)	TOTAL INCOME	99,754 (\$1,327)
TOTAL PROFIT: INR 34,874 (USD 464)			

EID MUBARAK			
EXPENDITURES		INCOME	
DESCRIPTION	AMOUNT INR (USD)	DESCRIPTION	AMOUNT INR (USD)
Seed procurement (total)	20,650 (\$275)	Potato payment	102,815 (\$1,368)
Insurance premium	1,500 (\$20)	Insurance reimbursement	1,000 (\$13)
Chemicals, fertilizer, pesticides	18,780 (\$250)		

Outside labor	11,710 (\$156)		
Tractor and tractor operator	5,000 (\$67)		
Irrigation	590 (\$7.85)		
Interest to bank	1,300 (\$17)		
Land lease	30,000 (\$399)		
TOTAL EXPENDITURE	89,530 (\$1,191)	TOTAL INCOME	103,815 (\$ 1,381)
TOTAL PROFIT: INR 14,285 (USD 190)			

While India went into lockdown for coronavirus disease 2019 (COVID-19) immediately after the groups harvested, ILRG spoke to the SHGs and key stakeholders over the phone to gather information on profits and to elicit everyone's final feelings about the land leasing experience.

3.9.1 SUBHO CHANDIMATA

3.9.1.1 GROUP PROFIT AND CONCLUDING THOUGHTS

At the end of the season, after deducting all expenses and dues, Subho Chandimata earned a profit of INR 34,874 (USD 464). The group decided to divide the profit among the participating SHG members equally with each receiving INR 3,487 (USD 46.38). This amount includes the amount the group earned from the aggregator by harvesting the paddy from the fields prior to potato cultivation and for sorting and packing their potatoes (INR 7,084 (USD 94)).

In light of the unfavorable weather throughout the season and the incidence of late blight infection, group members felt that their production could be considered average or perhaps just above average. Overall group members are satisfied with the season's outcome. The majority expressed happiness after receiving the profit share. Some members expressed that had the weather been favorable, they could have secured more production and resultant profit. Some members mentioned their mixed reaction in terms of profit earned:

"We expected more profit. If there was no incidence of damage of potato, we would have met our expectation." – Chandana

"The amount of labor we invested erases the result in terms of profit earned. But we are more successful than male farmers. We are proud of this. Some other farmers have incurred substantial loss. They could not manage properly." – Anjali

"Our return is good compared to other male farmers. We never worked together as a group but, we have been successful in our first effort. We have been able to manage it collectively, that is more important than the amount of profit." - Rupa

"Profit is not much. If I work as daily wage laborer, I can earn this amount in less than six days. But, still I am satisfied because we could achieve something by collective effort." – Aloka

“Potato cultivation is not a new thing to us. But we never did it independently. Now we have learnt so many things on farming, its do’s and don’ts, when to do, what to do, and why to do” – Aloka

“Now we feel more confident to manage farming. Apart from farming, we can also deal with landowners, vendor, tractor operator, and so on” – Rupa

“The kind of knowledge and experience we have gained that is invaluable. Next year we’ll be able to manage independently, in group or individually. We are feeling more powerful now.” – Chandana

When asked individually about their intention to participate in group leasing next year, they all responded positively. Some members very firmly responded that they would join next year and expressed their learning, satisfaction, and enjoyment of working together.

Some other members showed willingness but at the same time voiced concerns about factors such as the availability of suitable land and whether all 15 SHG members could join. While land is locally available to lease, competition between potential lessees could potentially make securing good quality land a challenge.

While the women’s profit may appear low, their own quotes point to the important gains in technical skill, confidence, and business relationships that developed from this first year of farming. This is further detailed in Box 3 below.

3.9.1.2 THOUGHTS FROM HOUSEHOLD MEMBERS

Group members shared the following positive impressions from their family members:

“‘You people have proved your ability which male folk could not do. Even making profit of INR 500 [USD 6.65] by women group who never worked together and did cultivation for PepsiCo independently, is a big matter.’ – That was the reaction from my son.” - Aloka

“‘Whatever be the profit, you people have been able to cultivate potatoes for PepsiCo, that is a grand success’ – it was the reaction from my husband.” – Chandana

3.9.1.3 CONCLUDING THOUGHTS OF AGGREGATOR AND AGRONOMIST

Aggregator Shyamal Pal acknowledged that this was a new experience for both the group and for himself. He felt that if the weather had been more favorable they would have earned a better profit. He had hoped they would produce 230 bags. He said that while we live in a male-dominated society, this group came forward to work together and received respect from the PepsiCo community.

Overall, his view is that very few farmers (10 percent) were big producers this year, which he defined as producing 250 to 260 bags per acre. Most secured around 200 bags per acre (24.7 metric ton per hectare) and some secured only 50 to 80 bags because they did not follow proper cultivation instructions. He said that the best farmers do well because they cultivate their own land which they know as well as their palm, have the best quality land, plant earlier, and use the best inputs.

He said he would be quite willing to work with additional groups next year and did not find supporting this group to be burdensome.

Agronomist Srikanta Patra noted the following when asked to reflect on his experience:

“I did not face any challenge while working with this group. The group was very sincere. They followed all instructions religiously and worked in the field together. For any new experiment we invest some more time. I just allocated some more time for providing training, visiting fields

for monitoring the progress and guide them [from] time to time. I do not consider it as an additional burden. It comes under my job responsibility. I enjoyed guiding them and am satisfied with their performance.

“Providing support to a greater number of groups would not be an issue. But, I think, identification of suitable group is very important. All groups may not be interested or may not be able to manage it properly. Those who have experience of working in the field, they can better manage the farming.”

3.9.2 EID MUBARAK

3.9.2.1 GROUP PROFIT AND CONCLUDING THOUGHTS

At the end of the season, after deducting all expenses, Eid Mubarak earned a net profit of INR 14,285 (USD 190). The group decided to divide the profit among the participating SHG members equally such that each member received INR 2,040 (USD 27). As the profit was not high and there was urgent family need for money (they cannot explore other income-generating options due to COVID-19), the group decided to divide the profit among the members equally rather than invest it as a group in another venture.

Overall, the group felt positive about their experience cultivating PepsiCo potatoes. When asked, they concentrated on their successful entrepreneurship and the growth in farming skills, rather than their relatively small monetary profit.⁸ They shared:

“As we have earned less profit, it does not make me feel good. Otherwise, we have enjoyed working together, moving out of four walls and learning something new. Finally, we could make some profit, which could have been more. We hear this year several farmers in the locality have also faced similar fate of low yield. This was beyond our control. Weather god did not favor us this year. Despite this, our production was good. We have not incurred loss yet. Maybe, we’ll be able to earn better next year.” – Samima

“We have been able to manage lessor’s payment, credit interest from our business. We were afraid whether we’ll be able to repay the lessors, or we will have to pay from our household savings. There was tension among us on spiraling price of Jyoti. However, we did it finally. Production was good. Only the high price of Jyoti has taken away substantial part of our profits.” – Anwara

“We expected more profit. But we learnt that nobody can guarantee good profit every year. Many other farmers could not make much profit as well. Allah did not favor us this year. Maybe, we’ll gain more in the next year.” – Samsurnehar

“It happens in potato cultivation. Sometimes you’ll make good profit, sometimes not. Even sometimes, you may incur bad loss. At least, we’ve made some profit this year.” – Mafija

Some of the statements made by the members show the confidence from within.

“Cutting tubers, treatment of seeds, etc. not new for us. Now we can identify good quality seeds, we can plant seeds better, manage watering very well. It gives us confidence that we’ll be able to manage farming better next year.” – Mafija

⁸ The market price of Jyoti potatoes was especially high this year, making their lease cost higher than anticipated. Their aggregator noted, “Once in five years the local variety price goes spiraling but the following years obviously see the prices coming down to normal levels.”

“We knew almost nothing except cutting seeds. Now we have learnt everything about farming. Additionally, we have learnt dealing with people like tractor operator, landowner, and so on. Samima can keep accounting well. If we work in a group, we’re confident to manage in a better way next year.” – Anwara

When asked, five of the members expressed interest in farming PepsiCo potatoes again next year and two members were neutral.

“We have learnt everything about cultivation this year. Next year, we’ll bring engagement of hired labor to the minimum. It will help to earn more profit. We’ll think of using machine whenever necessary if it helps in cost reduction.” – Anwara

“We’ll cultivate Jyoti potato in 16-18 decimals of land to meet the need of lessor. It will keep us less concerned about highly volatile procurement price of Jyoti.” – Samima

3.9.2.2 THOUGHTS FROM HOUSEHOLD MEMBERS

Some household members were dissatisfied with the group’s profit. For example, Mafijul, the husband of Julekha, was initially very supportive of the idea but has become dissatisfied since learning of the group’s low profit, especially because he feels that he earned less profit from his own land because of the time he committed to helping the group. He has expressed unwillingness to allow Julekha to continue for the next year.

Others were neutral or supportive:

“People usually say so many things when they see something new. We should not be worried about that. My husband has full support. He encouraged me to continue for the next year.” – Samsurnehar

“My husband was asking jokingly whether I could earn profit to purchase a Sari. But still, he is supportive.” -Mafija

Box 3. Was Farming “Worth it” for the Women of Subho Chandimata and Eid Mubarak?

While the women’s first year profit may appear meager, their own personal reflections point to the valuable knowledge and skills, new business perspective, cultural capital, and collective spirit and recognition all gained from this initial experience. These gains in the first year will lead to continued or new business opportunities for these women – and other women in their communities– in future years.

For example, based on their developing business relationship with the local aggregator, members of Subho Chandimata earned additional income by grading and sorting PepsiCo potatoes. Similarly, based on their new relationships with landlords, both groups considered extending their leases to cultivate groundnut or sesame. Unfortunately, this year COVID-19 lockdowns, which fell immediately after the potato harvest, meant that neither group pursued this opportunity. However, they considered the possibility, which highlights the opportunities that come with new business relationships for women.

Additionally, it is worth noting that:

- The vagaries of weather and market prices hit women SHG farmers and other farmers alike, yet these newcomers coped well. They performed similarly or slightly better than other farmers.
- A day laborer today will likely similarly lack agency and economic prospects, but an independent farming SHG has growing agency and prospects.
- The women gained confidence and entry into business spaces that will continue to serve them well as they continue to pursue economic opportunities.
- The women highly valued the collective nature of their effort, which created a new space for women to be valued and to gain an independent means of economic empowerment.

3.9.2.3 CONCLUDING THOUGHTS OF AGGREGATOR AND AGRONOMIST

Aggregator Rafikul Islam stated that, considering the weather, the group's production should be considered good. The group's profit was undercut because of the high price of local potatoes which drove up the price of their lease. He said he would be willing and happy to work with additional groups next year and noted that the task of providing support will be easier in coming years. He offered that he could support 8-10 groups.

Agronomist Ujjwal Ghosh noted:

"I did not face any challenge in working with this group. I facilitated training jointly with Tetra Tech, had meetings with group, and visited their fields with Landesa. It was a very good experience for me. For any new thing, we need to give time. I did not face trouble to manage time."

Box 4. Reflections as Relayed by PepsiCo Field Staff

ILRG interviewed two PepsiCo area managers about their reflections on learnings from Year 1. They provided the following reflections:

- This was a unique experience that allowed PepsiCo staff to learn deeply about women's status in rural society and women's participation in agriculture.
- The intensive steps taken this season are building blocks towards creating long-term social impact for women to become financially stable and self-reliant. In future years, less intensive involvement would be needed.
- Seeing an SHG leasing group actively involved in cultivation is a source of motivation and good example for other SHGs to take up the practice.
- Women's contribution in agriculture is significant; but they are constrained by lack of access to knowledge and modern techniques in potato farming. They gained knowledge and applied it first-hand through this initiative. This translation of knowledge into practice equips them to continue to carry out cultivation in the long run.
- Women's groups have access to formal credit which could be used by member's spouse for PepsiCo farming and thus lessen the financial burden on vendors in respect of seed and chemicals procurement.
- The women's enhanced access to information and their ability to make decisions in agriculture will contribute to eliminate existing social bias.

Additional feedback from PepsiCo agronomists and aggregators who worked with the groups is provided in sub-section 3.9 and 3.10.

3.10 STAKEHOLDER RELATIONS

In addition to the women farmers themselves, other stakeholders also played key roles. These stakeholders include aggregators, PepsiCo agronomists, the ILRG team, and the SHG members' households and communities.

3.10.1 AGGREGATORS

Aggregators serve as a bridge between PepsiCo and farmers. Aggregators tend to be farmers themselves and key people from the community who are skilled at mobilizing farmers. Aggregators make investments on behalf of farmers to procure seeds and chemical kits. They also provide additional support, which varies from aggregator to aggregator. This additional support includes but is not limited to supplying fertilizers from local business people on credit, facilitating credit linkage, arranging tractors, and arranging irrigation services. The aggregators also closely monitor, supervise, and guide farming practices, coordinate with PepsiCo agronomists and other staff to ensure extension advice is delivered,

mitigate risk factors, check progress, and report to the company. The roles and responsibilities of aggregators multiply during harvesting. For example, they ensure the timely distribution of potato sacks; provide weighing machines; arrange for transportation; deploy laborers for collection; and sort, package, and transport potatoes. Overall, aggregators played a critical role supporting the SHG leasing pilot.

Subho Chandimata's aggregator (Shyamal Pal) was considered a key resource by the group. The aggregator was a true supporter of the initiative and a firm believer in women's economic empowerment. In the past, he worked with two widows whose late husbands were PepsiCo farmers. The aggregator noted that women acting as farmers in this capacity is a new experience for everyone, but also that women have always been involved in farming. The aggregator gave the group ongoing support and helped all through the season, including during the period of stress due to unseasonable rain and during difficult decision making about the timing of harvest. Even after the harvest, the aggregator helped the group complete all accounting, update records, and hand over all payments due to service providers like the tractor operator, irrigation suppliers, and landlords.

Eid Mubarak's aggregator (Rafikul Islam) was also extremely supportive of the group throughout the season, starting from facilitating dialogue between the landlords and group members. The aggregator's belief and confidence in women's ability was helpful in increasing women's confidence as farmers. When asked about Muslim women farming, he said that he was initially doubtful, but now he sees Muslim women in his area doing more. He is now assured that they can farm. He also says that there is no special challenge in working with Muslim women and that the women participating have the consent of their households. He further explained that if the group was successful, it would be a good example for other women who may be inspired to take up group farming. This could also allow more men to migrate for work, since they can depend on women to farm.

3.10.2 PEPSICO AGRONOMISTS

PepsiCo agronomists work at the grassroots level to manage potato production and ensure extension advice to the farmers. They work closely and intensely with aggregators throughout the potato season and provide regular technical support and guidance. Their responsibilities include a wide range of activities like planning the farming schedule, acreage to be covered, and quantity of seed to be booked; managing a database of farmers; organizing farmer training; ensuring supplies to aggregators; monitoring farms; assessing progress; and supplying produce to the company. They also facilitated trainings for both leasing groups and provided technical guidance related to agronomy throughout the growing season.

Three PepsiCo agronomists worked with the SHG leasing groups and were consistently supportive and worked in close collaboration with the aggregators to ensure the groups' success. They also clearly demonstrated a commitment to training SHG leasing members.

3.10.3 ILRG TEAM

The ILRG team worked closely with both SHG communities to identify, motivate, and engage the leasing groups; facilitate land leasing; coordinate with stakeholders to ensure timely supply of inputs and services; facilitate group dynamics; promote leadership; and help strengthen women's skills to manage farming, while documenting the learning process. Mutual trust was built between the SHGs and the ILRG support team throughout the season. Both groups were visited on a bi-weekly basis, although ILRG was sometimes in daily contact at critical and difficult moments during the season.

ILRG agronomists provided technical support to SHG leasing members through trainings and site visits. They also organized trainings, which were supported by PepsiCo agronomists; visited fields regularly to monitor progress; and ensured timely technical support to both groups. Both SHGs expressed their

appreciation for the agronomic support provided by ILRG agronomists and explained that the trainings they provided were helpful.

3.10.4 HOUSEHOLD SUPPORT

Prior to both groups deciding to participate in the project, it was essential for them to secure buy-in and support from their respective households and communities. All participating members of Subho Chandimata and Eid Mubarak were able to confirm that their husbands and other family members supported their participation in group leasing and farming. In fact, husbands of some members encouraged their wives to participate.

However, several members (five from Subho Chandimata and three from Eid Mubarak) were unable to participate in group leasing and farming because they were either unable to obtain household support or were in poor health. The reason for the lack of support differed between families. For example, one member's family from Subho Chandimata expressed concern about crop loss due to pests, while members' families from Eid Mubarak seemed more concerned about social barriers regarding women working in fields.

3.10.5 COMMUNITY RESPONSE

Overall, both groups' communities expressed support and interest in the groups' participation in group leasing and farming. This is also evidenced by the cooperation of various community stakeholders in the groups' endeavors, including aggregators, landowners, tractor owners, DTW owners, and others.

Nonetheless, some community members questioned whether SHGs could manage and profit from farming. For example, Eid Mubarak shared that one male villager said, "you women cannot do this, this is something not within your reach and ability." The women remained silent and said that they would respond after the harvest. On another occasion, another male villager said playfully to a group when it was returning from the field, "Look, big farmers are coming." One of the group members replied with a smile and said, "Call us women farmers, not only farmers."

Despite this, both groups remained confident that barring poor weather or a natural calamity, they would be able to manage farming and make a profit. In fact, both groups viewed the gossip and criticism as motivation and stated that it helped to keep them committed.

3.11 TRAINING AND AGRONOMIC SUPPORT

Agronomic support was provided to both leasing groups through trainings and extension advice, and through meetings and on-field demonstrations. This support was jointly provided by PepsiCo and ILRG agronomists, who organized and facilitated training sessions in the communities. Training sessions were organized throughout the season in five phases and included topics such as seed quality, cutting, treatment, planting, field preparation, irrigation management, pest management and disease control, personal safety, health and hygiene, sustainable farming practices, and harvesting. Pictorial presentations, role play, and other methods were used to make training sessions participatory. Apart from facilitating training sessions, the agronomists regularly visited fields to monitor progress and provide extension advice.

The PepsiCo/ILRG training schedule was as follows:

- Phase I – Land preparation, seed cutting, seed treatment, and plantation;
- Phase II – Soil health and nutrient management;

- Phase III – Pest and disease management;
- Phase IV – Safe storage, use, and disposal of agro-chemicals, including use of personal protective equipment;
- Phase V – Harvesting, sorting, grading, and storage; and
- Phase VI – Record keeping and analysis (pending due to COVID-19 lockdown).

Both groups appreciated the trainings provided by the ILRG team and PepsiCo and noted that they were particularly happy that the trainings were “women-only.”

In addition to these project trainings, Eid Mubarak also participated separately in a three-day training program on micro-investment planning arranged by the SHG Federation (which acts as part of SRLM). Five out of 10 members from the group participated on the first day along with members from other groups. Upon hearing about this training, the ILRG team encouraged SHG members to participate in the next two days. After receiving this suggestion, nine members from Eid Mubarak SHG participated in the training for two days. This training helped them learn about accessing credit, developing business plans, and managing their funds.

3.12 SHG FUTURE PLANS

3.12.1 SUBHO CHANDIMATA

During the season, the group discussed the possibility of asking their landlords to continue to lease the land after the potato season for groundnut cultivation. The group had preliminary discussions with both landlords regarding this possibility. Both landowners planned to cultivate sesame after harvesting potato, so the group intended to agree to pay the amount the lessors were likely to earn from sesame cultivation as payment.

As of the end of February, the group was still interested in cultivating groundnut after harvesting potato but had not negotiated with landlords. However, due to COVID-19, the group could not assemble immediately after harvesting to decide about leasing land for the next season. Consequently, the landlords leased out their land to other farmers, and the group missed their opportunity. The group arrived at a consensus to divide profits among themselves. This also helped them to manage the lack of income during this period due to COVID-19.

As of now, the group wants to continue group leasing and farming of PepsiCo potatoes next season.

3.12.2 EID MUBARAK

In October, when the group negotiated the land lease, they also asked about a lease continuation into the next season to cultivate sesame. At the time the landowner agreed to consider the option favorably if approached just before the potato harvest. After hearing about similar plans from the Subho Chandimata SHG, the group was further inspired to cultivate sesame or groundnut and began negotiations with their landlord.

Due to the COVID-19 situation, however, the group has not been able to reach final agreement with the landlord, and it is likely that this plan will not be possible due to lockdown restrictions.

Nonetheless, most group members are interested in continuing to cultivate PepsiCo potatoes next season. They are also interested in helping women from SHGs in neighboring communities join the PepsiCo supply chain.

4.0 LESSONS LEARNED

4.1 SHGS PROVIDE A VALUABLE FOUNDATION FOR GROUP FARMING AND LEASING

Working with established SHG members provided a valuable foundation for group leasing and farming throughout Year I of the project for several reasons.

First, SHGs tend to have strong group dynamics and cohesion because of their years of experience working together and their similar socioeconomic backgrounds. For example, Subho Chandimata and Eid Mubarak were established in 2005 and 2010, respectively, and there have been no changes in membership since then. The members of Subho Chandimata are a mix of Scheduled Caste and general caste, while Eid Mubarak members are all Muslim. When the groups were approached with the opportunity to grow potatoes, both groups were able to make an informed decision to participate, which entailed discussing their respective farming and business management skills, commitment to the endeavor, support of their respective families and the wider community, and access to finance and other support that might be needed. Because both groups have a long history of working together, they were comfortable discussing these important, and at times sensitive, topics. For example, a few members from both groups decided not to participate in the first year of potato farming for a variety of reasons (mainly due to a lack of support from their families), which was understood and accepted by other group members. Furthermore, both groups were able to navigate challenges that arose throughout the potato season (e.g., labor division and absences, poor weather, harvesting, etc.) because of the mutual trust they have cultivated throughout years of working together.

Second, an objective of SHGs is to help women access credit and generate income. As a result, SHGs have connections to banks, lines of credit, and savings. In the case of Subho Chandimata and Eid Mubarak, both groups had a proven track record of taking out and repaying loans on time and had enough credit available to cover upfront costs required to grow potatoes. If the project were to work with non-SHGs (whether pre-existing or formed by the project), it is unlikely that such groups would have the same kind of access to finance; they might require additional time and support to access financing.

Third, all SHGs have received some level of training from the SHG Federation or various government departments on topics relevant for managing farming activities. Such topics include but are not limited to financial literacy and record keeping (e.g., financial information, meeting minutes, etc.).

Fourth, because SHGs have strong networks throughout West Bengal and the rest of India and are supported by the government, they offer a viable path for scaling group leasing and farming within and beyond PepsiCo's potato supply chain. For example, by carefully informing the state government of successes and lessons learned from piloting women's group leasing and farming in PepsiCo's potato supply chain with the government, it is possible that the government will decide to support scaling this model to other groups and commodities. This overture must be handled carefully, but there are good prospects of success. With government support, the project could impact many thousands more rural women and achieve sustainability and scale well beyond the duration of the USAID-PepsiCo partnership.

4.2 SHG MEMBERS CHOSE TO LEASE AND FARM AS GROUPS; THE PROJECT SHOULD CONTINUE TO ENCOURAGE THEM TO MAKE ARRANGEMENTS THAT SUIT THEIR NEEDS

The women farmers involved in the project preferred to lease land and farm as a group. This has also been the documented preference of other women in projects studied in Kerala and Telangana, as well as

in interviews with spontaneously formed, non-PepsiCo leasing groups in West Bengal.⁹ Leasing and farming as a group was attractive to women for economic, as well as personal and social, reasons.

By leasing land as a group, women were better able to pool resources to secure sufficient land to lease and purchase necessary inputs. As an economic unit, women were better positioned to negotiate with landowners and seek support from agronomists and aggregators. Landowners were also more willing to lease to a group of women because as a group it is understood that they would not be able to assert permanent *bargadar* (sharecropper) rights under current West Bengal law. Whether losing land to lessees is an actual risk in present day West Bengal is less important than the perception by landlords that it is an ongoing risk. This perception was documented during the initial project assessment and was also mentioned during negotiations over this year's leases.

SHG members, like women in other projects studied in India, chose to farm leased land as a single economic unit rather than splitting it up into individual, per woman, parcels. One reason is because it is easier to cultivate a single crop when treating the land as a single unit. In addition, certain farm tasks, such as planting and harvesting, were easier for women to carry out in groups by pooling labor during busy periods. By working together, they were also better able to rely on a diverse set of skills and negotiate better for a range of services (e.g., tractor, irrigation, etc.).

In addition to these economic reasons, socially it is more acceptable for women to farm as a group due to reasons of safety and social acceptance. For example, when checking the fields both groups did so in pairs to lessen their own concerns and the concerns of their household members about safety. At the time of harvest, safety was also at the forefront of women's minds as the timing of harvest and pick-up meant that their potato production needed to be protected overnight. Members of Subho Chandimata spent two nights sleeping in makeshift tents next to their harvested potatoes. Eid Mubarak faced a similar problem but were able to call on their aggregator and male farmers from the village to keep guard of their potatoes overnight and did not need to do so themselves.

Also, because women are not traditionally viewed as farmers, a group of women farming together is more socially acceptable than a single woman challenging norms and taking up farming. Furthermore, as a group, women have stronger collective agency to support and stand up for each other when others in the village gossip about new roles women are taking up or question their competence. Both groups mentioned that village gossip about the "women farmers" was an issue, but that as a group they were confident to continue working hard as farmers and supported each other in persisting with farming despite gossip.

Box 5. As Women Gain Experience, They May Choose to Shift to Individual or Small Group Cultivation

While these groups were far more comfortable attempting leasing and commercial farming as groups, Subho Chandimata's founder, Manju, indicated that, as the women gain experience, they may be more open to individual or smaller group farming. Manju said that managing group farming activities and dividing and accounting for labor required a great deal of the time of some group members. According to her, managing farms at individual or household level might be easier. She said, "We had to sacrifice our role at the household especially related to potato cultivation this year. We'll be more cautious about responsibility sharing. We may even think of leasing more land next year and primary responsibility may be assigned to an individual or two to three members each to take care of some specific plots as per their convenience. That will give us more return and individualized motivation." The overall takeaway is that it is important to grant women the flexibility to decide which farming arrangements work best for them. As they gain experience and confidence, they may opt for slightly more individualized farming models. Women know best what works for them, their households, and their communities.

⁹ See Landesa. (2019). *Full report on women's group leasing models*. Washington, DC: USAID Integrated Land and Resource Governance Task Order under the Strengthening Tenure and Resource Rights II (STARR II) IDIQ.

4.3 FIXED COST, CASH-BASED LEASES PROVIDE GREATER CERTAINTY THAN LOCAL LEASE TERMS BASED ON THE MARKET PRICE OF LOCAL POTATOES

Both groups negotiated lease terms in accordance with local practice. For Subho Chandimata this meant a fixed-cost, cash-based lease of INR 10,800 (USD 144) for their total leased area of 1.06 acres. For Eid Mubarak this meant a lease to be paid in the local variety of potatoes: 60 50kg bags, or 3,000 kgs, per acre.

Eid Mubarak agreed at the start of the season to purchase and deliver local variety potatoes as payment to landlords. The price of local potatoes this season, however, was extremely high. It ranged from INR 475 to 1180 (USD 6.32 to 15) per 50kg bag over the course of the season. This drove the cost of their lease sharply up. Watching the price of local potatoes closely, the group purchased and stored the necessary potatoes at a price of INR 500 (USD 6.65) per 50kg bag. Their total lease price was therefore INR 30,000 (USD 399).

Eid Mubarak found the uncertainty of their lease cost to be stressful and decided that in future years it would only agree to fixed rate, cash-based lease terms. While in some years a lower local potato market price could result in lower rent amounts, the uncertainty was difficult for them to manage, and they now strongly prefer fixed costs. At the end of the season, the women and PepsiCo staff believed their lower-than-expected profit was in part because of the high cost of their lease and their heavier reliance on paid labor. In future years, the project will share such learnings with participating SHGs and will develop a model “white paper” lease agreement to share with SHGs and landlords as a resource during the contracting process.

4.4 CROP INSURANCE PROVIDED NEEDED FINANCIAL SECURITY FOR BOTH GROUPS

As informal lessees, neither leasing group was able to obtain crop insurance through lending institutions. The Government of West Bengal was also unable to provide crop insurance because the local panchayat and agriculture development offices cannot recognize groups of cultivators as “farmers” for the purpose of crop insurance under current policies. Despite these barriers, both groups consistently expressed the fact that crop insurance would provide them needed financial security for the season and that they were willing to pay for such a service. Consequently, PepsiCo decided to pilot crop insurance for a small number of farmers through a private insurance company in the districts where the two groups are located. Because both groups’ production was above the standard average production set per acre, they did not end up needing to rely on the crop insurance and were reimbursed part of the premium amount paid. However, both groups expressed satisfaction that the insurance was made available to them and that it provided them financial security in case their production was lower than average.

4.5 GENDER SENSITIVITY AND SUPPORT FOR WOMEN FARMERS BY KEY PEPSICO STAFF IS IMPORTANT

The commitment of local PepsiCo staff was critical for the groups’ success. PepsiCo’s local aggregators and agronomists were the key people on the ground who supported the leasing groups, and they were important for the groups’ success. The aggregators distribute seeds and collect potatoes after harvesting, but they also play important roles helping to identify land and coordinate agronomic support, inputs, and advice. Aggregators were especially important in helping the groups address sudden, critical farming issues, such as unseasonable rain and blight. Furthermore, aggregators are members of the groups’ communities, which helped groups obtain and maintain family and community support.

As such, these key support providers are most effective if they are gender-sensitized and amenable to the idea of women as farmers. Both groups’ respective aggregators and agronomists were

enthusiastically supportive of the women's farming efforts. Without such support, the project would simply not be possible.

For example, Subho Chandimata's aggregator had previously worked with women farmers, mainly widows whose late husbands were PepsiCo farmers, and during the 2019 project assessment he was clear in his support for women's economic empowerment and farming abilities. His understanding that women can be farmers meant that he enthusiastically provided Subho Chandimata with ongoing support throughout the season including during the period of extreme stress due to unseasonable rain and when making a difficult decision about timing their harvest. Eid Mubarak's aggregator was also supportive. When asked about Muslim women farming, he agreed that there was initially doubt, but now he sees Muslim women in his area doing more and is assured that they can be farmers. He started the season by stating that if this group could be successful, it would be a good example for other women who may be inspired to take up group farming.

Overall, this debut season required extra effort on the part of PepsiCo staff in order to ensure that these two groups were well-supported. The aggregators and agronomists involved reflected that working with their respective SHGs required more time than working with other farmers in their supplier base, but considered this time spent to be an investment in a new initiative and that less time would be required per group in future years.

Box 6. Trusted Support Eases Crisis

During a crisis situation – such as the unseasonable heavy rain near the time of harvest – the project provided critical support to facilitate the groups' crisis-related decision-making and discussions with stakeholders, such as their aggregator. For example, the harvest period was stressful and relations between Subho Chandimata and the aggregator were strained. Project support from ILRG (which had established strong relationships with both the group and the aggregator) to mediate these discussions helped ease tensions. It also helped the group improve their long-term decision-making and crisis management skills.

4.6 METICULOUS CARE IN SELECTING SUITABLE LAND TO LEASE IS IMPORTANT FOR SUCCESS

Both SHGs considered several pieces of land before choosing plots to lease. They both received support from their respective aggregators to connect them to landlords and help them determine the suitability of specific parcels. Quality, size, and location of land were the key considerations for land selection. Land had to be suitable for potatoes, which ideally means not low-lying as this can lead to waterlogging during wet periods. For example, several of Subho Chandimata's plots were low lying, which caused them stress. Land should also have access to suitable irrigation. Subho Chandimata's land used DTW irrigation, and Eid Mubarak used river irrigation. Both groups wanted to cultivate roughly one acre of land in total, which in both villages meant that several plots of land from different landlords needed to be cobbled together. It was important that these plots be adjacent or relatively close to one another. Finally, both SHGs, but especially Eid Mubarak, strongly preferred to lease land conveniently located close to the village for reasons of both safety and convenience.

Based on this lesson learned, the SHG selection criteria will be updated to ensure that available land is not only identified, but that the quality of land is more thoroughly assessed.

4.7 IT IS IMPORTANT FOR GROUP MEMBERS TO HAVE FARMING EXPERIENCE, ALTHOUGH THEY WILL ALSO NEED CONSISTENT AGRONOMY TRAINING AND SUPPORT THROUGHOUT THE POTATO SEASON

It is important to note that not all SHGs are well suited for group leasing and farming. In the case of Subho Chandimata and Eid Mubarak, both groups were particularly well suited to participate in the project because most members had PepsiCo potato-growing experience. This ensured that both groups were aware of the realities and risks associated with potato farming, such as weather uncertainty, time

and resource commitments, and the labor and skills required. Furthermore, the groups' prior experience meant they knew the uncertainties that are integral to crop cultivation and what factors were important to ensure their success, such as strong group cohesion and leadership, the ability to remain flexible and united when confronted by changes or unexpected circumstances throughout the season, and when to reach out for support.

Despite both groups' experience, it was still valuable for them to receive separate training on PepsiCo's POP, as none of the members had previously received or attended formal agronomy training. Such trainings helped to enhance their knowledge in potato farming and build their confidence as farmers. Furthermore, the PepsiCo and ILRG teams provided tailored and on-demand support – in land leasing, agronomy, managing business relationships, etc. – for both groups throughout the season, which both groups valued.

4.8 THERE IS SIGNIFICANT DEMAND FOR GROUP LEASING AND FARMING FROM A DIVERSE RANGE OF SHGS

The first year of piloting SHG leasing and farming groups demonstrated that a wide range of women are interested in PepsiCo potato farming, as group members included Schedule Caste, general caste, and Muslim women. Despite the SHG members belonging to different social groups, all were interested in pursuing this opportunity. It is important to note that one factor that may contribute to this shared interest is the fact that both groups' members are from lower socioeconomic groups, and therefore, the women and their families and communities tend to be more open to economic opportunities, even if such opportunities require women to learn new skills, take on new roles, and challenge social norms and customs.

Although the project was only able to support two groups during the first year, it plans to expand the number of groups in future years and has already identified several groups that are interested and qualified to participate. Since the two pilot groups began farming, additional groups have expressed interest in participating. Once the project is able to share more broadly successes and learnings of the two groups, it is anticipated that even more groups will express interest.

4.9 FLEXIBILITY IN LABOR ARRANGEMENTS ALLOWS A WIDER RANGE OF WOMEN TO COMMIT TO FARMING

While women can engage in the full range of farming activities – though plowing does remain male dominated – social norms and time constraints may limit their ability to supply all the labor necessary throughout the season. The two groups took different approaches to supplying labor, approaches that differed due to social constraints within their own communities.

Subho Chandimata performed nearly all the farm labor themselves. Aside from hiring tractor services, they carried out all other labor activities including: cutting, preparing, and planting seeds; constructing bunds; digging irrigation channels; weeding; furrowing; and harvesting. They applied necessary chemical inputs themselves – a job often thought unsuitable for women. They contracted to provide additional paid services to earn additional funds to contribute to the farm effort. First, by contracting with their landlords to harvest the standing crop (rice) prior to the start of the potato season; and second, by contracting with their aggregator to grade and sort harvested potatoes – a task usually completed by the aggregator's hired labor.

Eid Mubarak, in contrast, hired more labor throughout the season. They hired tractor service and paid laborers to dig irrigation channels, furrows, carry seeds to the field, weed, and apply pesticides and top dressing. This was partly due to their relative inexperience with field work compared to Subho Chandimata, but also due to social restrictions within their community that encouraged them to hire

labor for work that is considered “heavy” or atypical for women to carry out. Overall, both groups made decisions about labor that suited their own circumstances, though Eid Mubarak may choose to hire less labor next year so as to reduce expenses.

4.10 NEXT STEPS

Based on the largely positive outcomes of Year 1, ILRG plans to expand the number of SHG leasing groups being supported to up to an additional 10 groups in Year 2 in Bankura, Burdwan, and Hooghly districts. The total number of groups selected for Year 2 will be based on demand from SHGs, PepsiCo staff capacity to support such groups, seed availability, and project budget availability.

The project will continue to prioritize SHGs in Year 2 group leasing for the reasons highlighted throughout this report and will use the lessons learned during this potato season to further improve this activity.

The project aims to reduce the dependence on PepsiCo and ILRG project staff by empowering the groups through scalable training and experience sharing amongst themselves. Work toward scalability will be an important component of Year 2.

ANNEX I: SHG LEASING GROUP SELECTION CRITERIA

This was the criteria used to select the Year I leasing groups. It is undergoing review and will be updated to take into account lessons learned from Year I.

TABLE 5. SHG CRITERIA

CRITERION	WHY IT MAY BE IMPORTANT	WHAT WE SHOULD AIM FOR
SHG with well established, cohesive group dynamics and strong group decision-making skills	Opting into Pepsi potato cultivation, negotiating a lease, dividing up farming responsibilities, and income/financial risk will likely be a new and potentially challenging undertaking. A strong group, with tested group dynamics, will be best suited to meet the challenge.	<ul style="list-style-type: none"> • SHG that has been in existence for at least three years. • SHG holds regular, well-attended meetings and follows relevant regulations, as confirmed by checking the register of meeting minutes. • Strong “team dynamic,” which might be best observed during the intake interviews themselves.
Financial capacity to make necessary investments and take on risks	While seeds will be advanced, previous farmer interviews indicate that other inputs will need to be acquired by the farming group. The SHG should have the financial capacity and willingness to take on these costs. Being responsible for these costs will also help ensure group buy-in.	<ul style="list-style-type: none"> • Multi-year positive record on savings, lending and repayment. • Group-stated willingness to make financial investments in the project. • Sufficient group credit available to finance the potato season. • Confirmation that the group fully understands the potential financial risks. • Group maintains good accounting practices.
SHG group interest in farming and sufficient available time during potato season	SHG enthusiasm for the project will be a key component of their success. Even those groups excited by the project still need to be sure that they have the time available during potato season for necessary agricultural activities.	<ul style="list-style-type: none"> • Group-stated enthusiasm for potato farming. • Demonstrated group understanding of time commitments necessary. • Members are willing to participate in trainings by PepsiCo.
Farming experience by SHG group members	Farming PepsiCo potatoes is a task best undertaken by farmers with potato growing experience, or at least a great deal of other agricultural experience paired with an interest in learning potato cultivation.	<ul style="list-style-type: none"> • Most of the members of the SHG have prior hands-on potato farming experience, either as family members or agricultural laborers.

		<ul style="list-style-type: none"> • Alternatively, most of the SHG members have hands-on agricultural experience on other crops and a general understanding of potato cultivation. • SHG members demonstrate that they can foresee potato cultivation issues and have an idea of how they will address them (issues such as securing plowing and irrigation services). • Members express a willingness to work in the fields. This will likely limit groups to those composed largely of Scheduled Caste women. • Group should understand the intricacies of collective farming (e.g. what tasks they prefer to carry out collectively vs. individually).
Aggregators support SHG selection	Aggregators' support of selected SHGs is critical, as they will be working together during the potato season.	<ul style="list-style-type: none"> • Aggregators' support of SHG selection and clear enthusiasm for working with the group.

TABLE 6. COMMUNITY CRITERIA

CRITERION	WHY IT MAY BE IMPORTANT	WHAT WE SHOULD AIM FOR
Community members and leaders are receptive to the concept of women's group leasing and farming	If the community at-large and its leadership do not support women group farming, the project may face insurmountable obstacles before it begins, such as the unavailability of land to lease or irrigation services.	<ul style="list-style-type: none"> • Aggregators are well-connected community members. If the aggregator states his or her support for the group and project, this is likely sufficient evidence of community support. • Agreement from the SHG members that they believe the greater community will support their efforts.
PepsiCo aggregators and agronomists in the area strongly support women's group leasing and farming	Aggregators must supply seeds and purchase harvest from SHG leasing groups, while the agronomists must provide necessary support.	<ul style="list-style-type: none"> • PepsiCo aggregators and agronomists express support for SHG leasing groups.
SHG members' households support their involvement in the project	Members of SHG women's households must understand the time and financial commitments required and express support for their female family member's involvement.	<ul style="list-style-type: none"> • Expressed understanding of the project requirements and positive attitude about the project as gathered from household interviews and as reported by the women themselves.
Suitable local land available to lease in the potato season	This is an obvious baseline requirement for project success.	<ul style="list-style-type: none"> • Aggregator agrees that suitable land is available for lease in the locality.

ANNEX 2: SHG MEMBERS

TABLE 7. SUBHO CHANDIMATA SHG MEMBERS

NAME	AGE	MARITAL STATUS	CASTE	EDUCATION	OCCUPATION/ SPECIAL SKILL	MAJOR HH INCOME STREAM	FAMILY LAND OWNERSHIP/ LEASING/ OTHER ACCESS	FARMING EXP.	PEPSICO FARMING EXP.	INTEREST IN SELF-CULTIVATION
Candana Roy	51	Married	SC	Literate	Agricultural labor	Agricultural labor	Farms on 0.24 acre (as owner from sharecropper)	Yes	Yes	Yes
Aloka Bag	52	Widow	SC	Literate	Agricultural labor	Agricultural labor	Farms on 0.16 acre as sharecropper	Yes	Yes	Yes
Manju Mahanto	54	Married	General	VIII (equiv. US 8 th grade)	Managing farm	Cultivation	Farms on 1.25 acre (purchased)	Yes	Yes	Yes
Rina Roy	53	Married	General	VIII (equiv. US 8 th grade)	Household work	Cultivation	Farms on 0.5 acre (inheritance)	Yes	Yes	Yes
Bela Roy	55	Married	SC	Literate	Integrated Child Development Services (ICDS) worker	Agricultural labor	N/A	Yes	Yes	Yes
Menoka Roy	30	Married	SC	Literate	Agricultural labor	Agricultural labor	Landless	Yes	Yes	Yes
Krishna Bag	51	Widow	SC	Literate	ICDS worker	Agricultural labor	Landless	Yes	Yes	Yes
Piru Bag	58	Married	SC	Literate	Agricultural labor	Agricultural labor	Farms on 0.24 acre as sharecropper	Yes	Yes	Yes
Anjali Sing	56	Married	SC	Literate	Agricultural labor	Agricultural labor	Farms on 0.4 acre (including gov't-granted and purchased)	Yes	Yes	Yes
Chandana Sing	52	Widow	SC	Literate	Agricultural labor	Agricultural labor	Farms on 0.16 acre (gov't granted)	Yes	Yes	Yes

NAME	AGE	MARITAL STATUS	CASTE	EDUCATION	OCCUPATION/ SPECIAL SKILL	MAJOR HH INCOME STREAM	FAMILY LAND OWNERSHIP/ LEASING/ OTHER ACCESS	FARMING EXP.	PEPSICO FARMING EXP.	INTEREST IN SELF- CULTIVATION
Laxmi Roy	56	Married	SC	Literate	Agricultural labor	Agricultural labor	Farms on 0.5 acre (as owner from sharecropper)	Yes	Yes	Yes
Saraswati Roy	52	Married	SC	Literate	Agricultural labor	Agricultural labor	Farms on 0.24 acre (as owner from sharecropper)	Yes	Yes	Yes
Chhaya Roy	51	Married	SC	Literate	Agricultural labor	Agricultural labor	Farms on 0.04 acre (purchased)	Yes	Yes	Yes
Rupa Roy	45	Married	SC	Literate	Agricultural labor	Agricultural labor	Farms on 0.01 acre (purchased)	Yes	Yes	Yes
Parul Roy	55	Married	SC	Literate	Agricultural labor	Agricultural labor	Landless	Yes	Yes	Yes

TABLE 8. EID MUBARAK SHG MEMBERS

NAME	AGE	MARITAL STATUS	CASTE	EDUCATION	OCCUPATION/ SPECIAL SKILL	MAJOR HH INCOME STREAM	FAMILY LAND OWNERSHIP/ LEASING/ OTHER ACCESS	FARMING EXP.	PEPSICO FARMING EXP.	INTEREST IN SELF- CULTIVATION
Anuara Begam	42	Married	Minority	VII (equiv. US 7 th grade)	Household works and farming	Embroidery worker	0.13 acre (inherited from mother-in-law)	Yes	Yes	Yes
Samma Begam	34	Married	Minority	Matriculated (high school graduate, 10 th grade)	Household works and farming	Aggregator/ business	1.75 acres (inherited from parent)	Yes (partly from home)	Yes	Yes
Julekha Begam	26	Married	Minority	VI (equiv. US 6 th grade)	Household works, farming, and livestock	Livestock and farming	0.33/2 acre (inherited)	Yes	Yes	Yes
Anuara Begam II	25	Married	Minority	VII (equiv. US 7 th grade)	Household works	Cycle repairing shop	0.66 acre (inherited; father sharecropper)	Yes (partly from home)	No	Yes
Samsurnehar Begam	40	Married	Minority	VI (equiv. US 6 th grade)	Household works, farming, and livestock	Sand supplier	0.23 acre (inherited)	Yes	No	Yes
Monija Begam	25	Married	Minority	Literate	Household works	Agricultural labor	Unrecorded sharecropper	Yes	Yes	Yes
Mofija Begam	30	Married	Minority	IX (equiv. US 9 th grade)	Household works and livestock	Sand supplier	0.66 acre sharecropper	Yes	No	Yes
Masuda Begam	45	Married	Minority	Literate	Household works and farming	Farming and tractor business	1 acre (inherited and purchased)	Yes	No	Yes
Asura Begam	42	Married	Minority	Literate	Household works	Bakery labor	0.15 acre (inherited)	Yes (partly from home)	No	Yes

NAME	AGE	MARITAL STATUS	CASTE	EDUCATION	OCCUPATION/ SPECIAL SKILL	MAJOR HH INCOME STREAM	FAMILY LAND OWNERSHIP/ LEASING/ OTHER ACCESS	FARMING EXP.	PEPSICO FARMING EXP.	INTEREST IN SELF- CULTIVATION
Sultana Begam	38	Married	Minority	Literate	Household works and grocery shop	Grocery shop	0.33 acre	Yes	Yes	Yes

U.S. Agency for International Development

1300 Pennsylvania Avenue, NW

Washington, DC 20523

Tel: (202) 712-0000

Fax: (202) 216-3524

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