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Lesson Learning Report: SSS

EEP/Shiree

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EXECUTIVE SUMMARY

Under the umbrella of Innovation Fund Round Three of EEP/shiree, a project *'Four Ideas For Poverty Alleviation and Climate Adaptation'* was launched in June 2011 and managed by Shidhulai Swanirvar Sangstha (SSS) to lift 800 most vulnerable households living in the flood prone areas of Pabna district out of extreme poverty. The main innovation aims to provide all-year round income through income generating activities (IGAs) such as three-tier vertical floating farming (3TF), two-tier vertical farming (2TF), flood resistance sugarcane varieties, garlic and mustard oil seeds production, SuryaHurricane solar lantern and Nakshi kantha embroidery. These are supported by climate change resilience awareness training and market development initiatives. A lesson learning process was undertaken to capture the key learning from the project utilising the Organization for Economic Cooperation and Development (OECD) benchmarks.

Overall Impact

The project was able to graduate 94%of beneficiaries from extreme poverty based on the endline survey conducted in May 2014 (64 households' sample). At the end of the project, households had a mean average of 14,627 BDT savings and 36,839 BDT of assets with more than 70% of beneficiaries owning livestock and poultry. Women's empowerment was a significant achievement of the project, with the majority surveyed having 'major' or 'main' influence on decision making in their households in all categories asked. 92% of women reported having a 'main' influence on how to use their time for work, 97% feel confident about the future and 91% are comfortable speaking and participating in community groups. The project targeted 97% of their lead beneficiaries as women and 32%are female-headed households. Despite this evidence of social empowerment in women, there was a visible difference between the mean value of assets of male-headed household and female-headed households with 43,701 BDT and 25,403 BDT respectively. As detailed below, the project needed to make a significant change to the original innovation "Four ideas" in the second year with the support from Shiree to deliver the extreme poor in Pabna flood-prone region out of extreme poverty. The impact of this project on migration is not known.

Lessons Learned

Appropriateness

The project was too engrossed in the initial technical design and has not considered two of the most important factors, the local context and the beneficiaries' interest, both at design and implementation stages. The project innovation was of limited appropriateness within the local context for a variety of reasons, such as water hyacinth was not easily accessible in the area and water was not available all-year round, which were both critical components of the 3TF; the project also ignored important social aspects such as women's mobility which made them unable to leave their home for a long period of time while management of the 3TF requires intensive labour.

Beneficiaries were not being consulted using household micro plans on the type of climate-adaptive IGAs they prefer, no economic analysis of the IGAs was presented to the households

and no consideration made to take into account the existing local IGAs and particularly the importance of dairy cattle and animals in the area.

The endline survey shows that the main occupation of the lead beneficiaries is housewife (34%), livestock and poultry (19%), day labour (23%) and handicraft (11%) and only 12.5% of households' head main occupation is farmer on land/waterbody. 66% of households surveyed have 3 or more sources of income. These findings indicate that majority of households have reinvested their profit proceeds from the project to pursue IGAs or employment more suitable and sustainable while diversifying their sources of income.

Effectiveness

The innovation was significantly changed from the original design in the second and third year with the support from Shiree to maximise the impact of the intervention to the extreme poor. The *vertical* tier-farming innovation was found to be overly complex. This was later replaced with river cage fish farming, flood resilient crops and rearing of more ducks. The innovation now also relies more on farmers having access to land. The project was able to facilitate households' fair access to land only to an extent as the endline survey shows that 53% was still share cropping, despite farmers reluctance to have crops as payment. More positively, majority of households (91%) now have access to land, with 43% of households have a mean value average of 31.33 decimals of land.

The project has been particularly effective in increasing women's empowerment through economic empowerment and improved awareness. The women interviewed in the Focus Group Discussions (FGDs) have gained respect within the community, they are aware of family planning "two children are enough", and 95% of the households interviewed at the endline survey would not marry of their daughters to save money on dowry when faced with an income constraint. Although there is no comparative baseline available, Shiree baseline report based on 17 partner NGOs showed that one third of all women reported not feeling confident talking to men outside their family (while 91% of women are now comfortable speaking and participating in community groups at endline) and half of all women at baseline said they did not feel confident moving outside their village (while 83% are confident at endline). There were however mixed findings on women's access and mobility to go to the market, with some women facing social gender constraints, such as lack of bargaining power and the social stigma that "people will speak badly of us". Further research is required to see whether improving women's access to market within the local context can enhance women's bargaining power, and if so, this will need to be taken into account in future projects.

Efficiency

The project team struggled in the first year to efficiently manage the project, which is seen in the delays in delivery of inputs distribution, poor management of records as flagged by the external auditors and inadequate supervision given by the project manager. The project management put too much emphasis on the unnecessary costly engineering design, losing the focus on lifting the extreme poor out of poverty. One of the value for money indicators - the direct delivery cost per beneficiary is at 64% of total expenditure. This is higher than the average innovation fund round 3 projects at 56%; however, in this case, this increase is due to the significant innovation changes and reflects the inefficient use of money to achieve the same objective.

The provision of unconditional cash support of 1,200 BDT per household to some extent was found to be not efficiently spent as there was a high rate of misuse; beneficiaries preferred in kind instead of cash fearing that their husbands would spend the cash. On the other hand, the use of technology, such as the SuryaHurricane low-cost solar lantern was an innovative idea which is cost-effective, allowing women and children to study or work at night and is a better alternative than the kerosene for health and the environment. Although the project team recommend distribution of these lanterns to all households for future projects, there was no research undertaken to support the hypothesis of benefits and cost-effectiveness.

Sustainability

The market development initiative through the establishment of Farmers Association in Flood-prone Areas (FAiFAs) is not sustainable as it was found that collective management of assets was not an effective mechanism within the local context. There were also ownership issues with the group-owned sugarcane crashers and vans, and consequently, did not result in additional business opportunities. The collection centres (CCs) and collection management committee (CCMC) also suffered in implementation due to the lack of linkage between buyers and farmers facilitated by the project. The project also did not capitalize their existing relationship with the local governments to advocate for the rights of the extreme poor, including increasing access to government safety nets and services. CMS 2 showed that majority (78%) of those eligible for government safety nets have not received any government safety nets support.

The project has been successful in providing awareness to the households on the importance of savings for resilience to cope with expected or unexpected expenditures beyond the project period, with CMS 2 showing 97% of the households have savings, and 89% of households have an average of BDT 14,626 savings (endline survey). Beneficiaries interviewed in the FGDs were planning to reinvest in productive assets and they believe that no additional training is required as they can now comfortably manage their IGAs. However, a more integrated market approach and a well thought hand over plan to the government would have reduced the risk of beneficiaries falling back into extreme poverty.

Recommendations for future project design and implementation:

1. Community consultation and consideration of local context is required from design to implementation stages. For example (but not limited to): women's mobility, existing IGAs in the area, feasibility of technology implementation, and applicability of collective management of assets within the local context.
2. Continued focus on women as lead beneficiaries to improve women's economic and social empowerment.
3. Market development strategy needs to be planned early on from the start of the project.
4. Management commitment is required as management plays a critical role in the success of the project.
5. Linkage with government services and support is required to sustainably lift the extreme poor out of poverty.
6. Further research is required in the area of: preference for individual over collective IGAs, women's access to market, effectiveness of unconditional cash support, perceived and actual benefits of low-cost solar lantern and research on market development for the extreme poor, all of which have potential implications for future projects.

INTRODUCTION

Econonomic Empowerment of the Poorest (EEP)

The Economic Empowerment of the Poorest (EEP) Project is a partnership between UKAID from the Department for International Development and the Government of Bangladesh that aims to take one million people out of extreme poverty by 2015. During 2013 Swiss Development Cooperation (SDC) joined the project as a co-founder and the duration has been extended slightly to March 2016. The programme has adopted the name *Shiree* meaning steps in Bangla, reflecting the approach towards helping people to progress out of poverty. There are two *Shiree* challenge funds, the Scale Fund and the Innovation Fund. Both are distributed to NGO implementing partners via a competitive process with selection made by an Independent Assessment Panel. The Scale Fund supports proven approaches to addressing extreme poverty while the Innovation Fund enables innovative approaches to be tested and enhanced in implementation. Scale Fund grants are typically of the order of £3million, covering around 10,000 direct beneficiary households each. Innovation Fund grants are also substantial, averaging £300,000 and up to 1,000 households. In May 2014, there were 26 active sub projects, 14 Scale Fund and 12 Innovation Fund working with approximately 250,000 households.

Inherent in the inclusion of an Innovation Fund in programme design is the objective that these projects will be closely and continuously monitored and evaluated with successes scaled up, either directly utilising available shiree resources, or indirectly for example through other funding routes or by influencing the design of other projects and programmes.

The shiree programme also has a mandate to research the dynamics of extreme poverty and of the effectiveness of interventions designed to address extreme poverty. The big objective of this work is to make a significant contribution towards the eradication of extreme poverty in Bangladesh by 2021.

Innovation Fund Round 3

The Innovation Fund is distributed via themed bidding rounds. Round Three focused on marginalised groups, a theme that was identified from Shiree's experience working with the extreme poor and evidence that marginalised groups make up a disproportionate number of the extreme poor. These groups include elderly people, the physically challenged, religious or ethnic minorities, who have been largely failed by state and non-state interventions. Thus Shiree encouraged NGOs in Round Three to develop proposals specifically designed to improve the lives of marginalised groups. 7 NGO projects were selected of which the total value of contracts was £1,893,069 with 7,160 beneficiaries.

The Lessons Learning Report

This is the Lesson Learning report for the Innovation Round Three implemented by Shidhulai Swanirvar Sangstha (SSS) in Pabna District. The reports have been produced for three main reasons: firstly to capture and to make available the significant learning from each individual project, secondly to provide an impact assessment that can inform decisions regarding the

potential replication or scale up of project activities, thirdly to provide a vehicle for a process of interaction, reflection and appreciative dialogue between the Shiree team, NGO project staff and beneficiaries, hence generating learning and helping the formulation of ideas that build on project experience even prior to the publication of the report. Each report follows a similar structure that reflects the key elements of this intensive and interactive process.

The Report Format and Limitation

The overall methodology is based on a participatory approach using both quantitative and qualitative data gathered to support findings from a carefully selected process as indicated below. The data collection was done through documents research and review, semi-structured interviews with the project team, site visits and observations, independent endline survey, and semi-structured focus group discussions (FGDs).

A similar process has been followed during the preparation of each report. **Chapter One** was drafted to summarise the narrative of the lessons learned from design and inception through to completion. The report also benchmarks performance using the OECD/DAC (1991) criteria. **Chapter Two** reports the output of an Impact Survey conducted according to a standard methodology for all Innovation Fund projects. This survey was undertaken by trained enumerators adopting a similar methodology to that used for the Scale Fund CMS 3 instrument.[1] The baseline census (CMS 1) is used for before and after intervention comparisons.

The report is subject to the following limitations:

1. SSS was asked to provide relevant documents to inform the report but has failed to provide information requested timely, which consequently limits the lessons learned captured in this report (including learning on *khasland* access, sugarcane management and impact of the project on migration). Report feedback from SSS was not received.
2. The methodology did not include interviews with key stakeholders such as government representatives, sugar cane specialist, manufacturers of SuryaHurricane "Surya Ma", and buyers therefore their views have not been reflected in the report.

[1] See: http://www.shiree.org/extreme-poverty-monitor/#.UGp4U03A-a8

CHAPTER ONE: PROJECT SUMMARY

Background

Bangladesh is one of the most flood-prone regions in the world as it is situated on three major river systems – the Ganges Delta, Brahmaputra (Jamuna) and Meghna. Regular floods affect 20% of the country increasing up to 68% in recent years, with the floods of 1988, 1998, 2000 and 2004 being particularly catastrophic (Department of Disaster Management, n.d.). The Pabna district (Rajshahi division) is a low lying area and is often affected by flooding during monsoon season, which is considered the lean season as the extreme poor often have little alternative sources of income except for minimal fishing. Many family heads migrate during this season. Many Households are still deprived of basic services like electricity, education, water and sanitation, and have limited access to road infrastructure

The **Four Ideas for Poverty Alleviation and Climate Adaptation** project is focused on improving the lives of the extreme poor affected in the flood-prone area of Pabna. The project will contribute to the British and Bangladeshi Governments' commitments to fulfil the UN Millennium Development Goals, and specifically to contribute to Shiree's Logical Framework Goal 1 (eradicate extreme poverty & hunger) by 2015.

The outcome of the project as stated in the Project Memorandum is to inspire, inform, and enable 800 poorest and most vulnerable households living in the flood prone areas to develop climate resilient assets, create employments and improve their quality of life and nutritional status; allowing the extreme poor to exit out of extreme poverty by 2014.

Main Innovation

The project innovation plans to address the problem by ensuring the extreme poor have access to all-year round income through the below technologies or "Four ideas":

1. **3TF: Three-tier vertical floating farming (floating garden along with chicken and fish raised in three-tiers).** This involves: a bamboo structure that will be built on water having two floors – the lower floor will be made of water hyacinth and bamboo truss where farmer will grow vegetables. Underneath this floating bed, the farmer will raise fish within an enclosure created by fishing net with bamboo poles. Poultry will be raised on the top floor that will have a roof. The water hyacinth will be replaced every four months and the old water hyacinth can be sold as organic fertilizers to farmers.
   2TF: Two-tier vertical farming (duck and fish rearing). This involves: a bamboo structure that will be built on water. Duck will be raised on it. The duck coop will have a shaded space and platform. Underneath this, the farmer will raise fish within an enclosure created by fishing net with bamboo poles.
2. **Flood resistance improved varieties of sugarcane which has been tested in the char lands and flood-prone areas**.
3. **Introduction of SuryaHurricane low-cost solar lantern.**
4. **Delivery of training and social awareness through floating training centre.**

This innovation aims to improve the economic and social status of the extreme poor, reduce the migration rates and provides better access to sufficient and nutritious foods. The project aims to build the capacity of the extreme poor in utilising these assets, and to improve their access to market through market development initiatives. Priority will also be given to women-headed households with at least 40% target. The project will also introduce SuryaHurricane, a low-cost solar lantern to 70 beneficiaries as many villages have no access to electricity and majority are using kerosene, which is of low quality, and is damaging for their health and the environment.

Project Activities, Outputs and Outcome

The project Outputs and Activities are as follows:

Project Outputs	**Project Activities**
Output 1: Tier farming undertaken at the household level (including delivery of inputs) by 800 Beneficiary Households (BHHs).	• The project will organize BHHs in groups of 4 members each (with one association head in total), known as the Farmer's Association in Flood-prone Areas (FAiFA). • 200 FAiFA will be assisted to build 3TF 100 units and 2TF 100 units. Package A (100 units): 3TF, sugarcane and potato; Package B (50 units): 2TF, sugarcane and onion; Package C (50 units): 2TF, sugarcane and garlic • Poultry feed for 6 months and fish feed support for 4 months will be provided. • Each BHH will receive 400 BDT for the first 3 months.
Output 2: BHHs successfully lease 100 acres of land with improved capacity to farm sugarcane varieties.	• Each FAiFA will provide 10,000 BDT to lease 50 decimal lands. • Each BHH will be assisted to lease .11 - .33 decimal khas lands from the land offices for a period of 5 years. • Facilitate meetings with Upazila Nirbahi Officers (UNO), Assistant Commissioner (AC) Lands, Union Parishad Chairmen and members, and local community leaders. • Facilitate access to lease land application and kashland application and follow up with land offices • On sugar cane management: 1. Training of field staff 2. Monitoring of sugarcane fields during plantation period by specialist 3. Maintain field records for analysis of financial returns 4. Monitoring of pests and diseases management by agriculture officers and field organizers 5. Introduce ratooning method to 100 BHHs to ensure 25% - 30% higher yield 6. Introduce in second year: Spaced Transplanting Technology (STP) to 50 BHHs for 50% - 80% higher yield
Output 3: 70 BHHs are trained in various IGAs with the introduction of	• Distribute 2 SuryaHurricane lanterns to each FAiFA. • Solar technician will provide training on SuryaHurricane manufacturing to 20 women, referred to as "Surya Ma"

SuryaHurricane to the community.	and they would also be responsible for after sale support. • Training for SuryaHurricane users, including providing a manual. • Solar technician will visit each village twice a month to ensure it is being installed and used correctly.
Output 4: Improved awareness on extreme poverty, climate change resilience, livelihoods, and social concerns.	• Floating training centre will arrange evening educational programs with 300 people expected each training session, and a total of 28,800 people reached. • Establish 3 market Collection Centres (CCs) • Facilitate the formation of 9-member Collection Centres Management Committee (CCMC) will be formed from the 4 FAiFA heads, 1 community leader, 1 UP member, 1 Upazila agriculture officer and 2 SSS staff members. • Construct sheds for CCs • Undertake local market analysis • Launch a separate page on SSS website with technical details and case studies • Document and show the best five case studies in the evening educational shows of training boats to encourage scale up and replication of this innovation

The idea of a 3TF, 2TF and sugar cane as climate resilience sources of income is not a new concept – this tier farming is also known as integrated farming systems, which is the farming of fish along with livestock and/or agricultural crops (TNAU Agritech Portal n.d.). This approach elsewhere has been proven to be successful in increasing production, improving efficiency of resources and increasing the income of the farmers; however, management of integrated fish farming can be complex (FAO n.d.) and the application of these technologies with the extreme poor is innovative and a source of potential learning.

Relevance

Is the project in line with national and local priorities and the overall goal and purpose of the project?

The project is relevant as it meets Government of Bangladesh (GoB)'s commitment to MDG target 1 and GoB's commitment (Budget Speech 2014-15) to eliminate extreme poverty by 2018 (Muhith, AMA 2014:33).

Appropriateness

Is the project design and implementation acceptable and feasible within the local context?

Non-Participatory model

The project design involves complex technologies including a *vertical* tier concept which was not feasible within the local context. The delivery of the project was fixed in the initial design implementation and to a large extent failed to consider an important factor: the farmer's interest, capability, and resources. The project lacked adequate participation and consultation with the farmers at design stage and prior to the distribution of the IGAs. In the first year, farmers were not being consulted using household micro plans or family development plans to communicate their interest and capabilities. The project team did not conduct economic analysis of the IGAs and consequently, the farmers were not informed about the economic benefits and costs involved in running a particular IGA or different IGA packages.

In July 2012, a Simultaneous Impact Learning and Process Audit (SILPA) review was conducted by an external consultant in liaison with Shiree. The purpose of the report was to highlight project progress to date, the challenges it has faced and to present recommendations for the remainder of the project period. The SILPA review team found that majority of beneficiaries' preferred to rear more ducks than vegetables and pond fish cultivation. A good community development approach takes into account consultation and participation from desig to implementation and evaluation phase to empower the farmers to take more ownership in search for a solution (Botes, L and Rensburg, D 2000:51), which this project did not consider.

The non-involvement of the farmers at the time of design in this project was also visible in the collapse of the group creation of Farmers' Association in Flood-prone Areas (FAiFAs). The project relied on the establishment of FAiFAs - each consisting of 4 beneficiaries – to lease lands and manage IGAs; however, the project team self-review in August 2012 found that the group system was not well accepted by the beneficiaries. First year evidence found that crops condition was better in the case of individual management and in many instances beneficiaries were reluctant to rear ducks in a group. Some beneficiaries divided the land among themselves for crops production and marked their ducklings with colour for identification and feed the ducks separately. There was also little evidence that showed that FAiFAs work in cohesion to market their products. Shiree experience in other projects also indicates that group/collectively managed assets often create conflict, mistrust and mismanagement. For example, learning from

Innovation Round Two, National Development Programme (NDP) project found that group approach to planting, managing and marketing crops did not work and created a lot of tension and mistrust (EEP/Shiree 2012:9). This is an area that requires further research to explore the issue of preference for individual over collective IGAs. The organization of FAiFAs, despite it being a novel idea was not demand driven and was imposed top-down, failing to listen to beneficiaries' voices at project design and implementation stages.

Neglecting social aspects and existing income activities in the local context

The innovation relied on vertical tier farming (3TF and 2TF) as a solution to lift the extreme poor in the flood-prone area of Pabna; however the project did not consider the existing sources of income and ignored important social aspects such as women's mobility. The existing income activities in the area involves dairy cattle rearing as Milk-Vita has chilling/buying centres, river-based fisheries, ducks, cattle fodder, rice cultivation and bamboo crafts (SILPA 2012). Pabna district is also famous for production of different types of fruits such as lychee, papaya, guava, jujube and mango where land is available (LGED n.d.). Evidence in the first year found that the women (97% of lead beneficiaries) were not able to leave their home for a long period of time to maintain the vertical tier farming system. As a result, management of the crops became neglected, hampering production.

Another example of the inapplicability of the innovation model in the Pabna region is the use of floating garden, which was one of the main components of the 3TF innovation. This is because vegetable cultivation can be easily grown in plain land (as opposed to a floating garden), water hyacinth was not conveniently accessible in the area and water is not available all year round. The cost involved in the management of water hyacinth is also high (Jimenez M,n.d.), the hyacinth bed size was not adequate to divide sizable production among the four group members, and it is labour intensive.

Majority of the beneficiaries interviewed in the Focus Group Discussions (FGD) are still engaged as daily labourer at the end of the project. The endline findings show that women's main occupation is housewife (34%) or livestock management (23%). A minority (12.5%) remains as farmer on land/waterbody, which reflects the importance of dairy cattle and animals in this area. None of the beneficiaries were engaged in the 3TF or 2TF at the end of the project. On the contrary, Nakshikantha, a type of embroidered quilt, which is popular in the greater area of Rajshahi has been taken into consideration as one of the IGAs offered in this project to provide alternative source of income for the rural extreme poor women particularly during the dry season (endline finding shows 11% of women are engaged in this activity); however, the needle, thread, and cloth support was only provided to 50 beneficiaries.

Effectiveness

Measures the extent to which the project achieve their intended outcomes

Beneficiary Information	2011	2012	2013	Cumulative	Target (according to log frame)
BHH selection completed	240	560	-	800	800
BHH profiles (CMS 1) completed	240	560	-	800	800
BHH who dropped out or migrated					
BHHs receiving asset transfer	240	560	800	800	800
BHHs receiving cash transfer	240	560	-	800	
BHHs receiving IGA/skill training/other capacity building	240	560	800	800	800
Total value of assets/cash distributed	3,607,668	11,282,843	1,862,479	16,752,990	

Table 1: CMS 6: Summary of SSS Interventions

IGAs distribution	Year 1	Year 2	Year 3
Sugarcane, potato, onion & garlic	240	360	296
Mustard, boro and aman rice	-	200	504
Floating fish enclosure	240	560	
Duck raising	120	560	
Chicken	120	-	
Homestead garden	-	560	
Needle, thread and cloth support	25	25	
SuryaHurricane	120	280	
Cash support (1,200 BDT)	240	560	

Table 2: IGAs distribution

Revision to the innovation

The project made significant changes to its original innovation particularly after the end of the first year with the support from Shiree to better contribute to the overall goal of extreme poverty reduction and hence fulfil the duty of care that the project has towards extreme poor participants. The innovation of tier farming without the need of land was replaced with river fish farming (in a floating fish enclosure) and rearing of ducks, which were both appropriate within the local context and were significantly more effective in enhancing project achievements. The project also moved from farming of fishes in tiny derelict ponds to farming

with the river line, following the principle of cage aquaculture with the use of nets rather than cages.

In the second year of operation, the project offered beneficiaries the option of:

Package A: sugarcane and garlic or

Package B: boro rice (1st year), aman rice (2nd year) and mustard

The beneficiaries were also able to manage their assets individually as opposed to in a group. At the end of the three-year project, project records showed that majority of the beneficiaries (504) were cultivating boro rice, aman rice and mustard and have moved away from cultivating sugarcane and garlic, particularly after the first year failure of sugarcane (see table 2). The shift in preference may also be influence due to the fact that sugarcane is a longer term investment (one year) as opposed to 4-5 months harvest in the case of rice cultivation.

Contributing factors of sugarcane failure include water logging caused by surrounding rice crops, unavailability of irrigation facilities near the land, poor selection of land which was not suitable for sugarcane farming and higher yield produced by boro rice, which has a flood-tolerant growing period (IRRI and IFAD 2004:11). The water resistant sugar cane, flood resilient rice crops, and the fish enclosure culture are innovative IGAs that are climate resilient and are appropriate within the local context to stimulate economic empowerment; intercrop for garlic cultivation was also able to increase income of the beneficiaries. Additionally, 560 second year beneficiaries were given a variety of vegetable seeds for homestead gardening, which was more manageable for the women than the previously far-from-home tier farming system. The project was able to encourage this practice as many beneficiaries were not used to grow homestead vegetables in the past.

The adaptation to locally acceptable IGAs, such as the move from tier farming to rice cultivation, however, also meant that the beneficiaries needed to have access to land for leasing and the innovation no longer provides a solution for landless people. The project facilitated the process of leasing land that is near the residential place of the beneficiaries, negotiated with land owners who demanded more money or wanted to have crops as payment and advocated the local elites and land owners. These were crucial to ensure beneficiaries have fair access to land. At the end of the project, the endline survey showed that 91% of the households now have access to land, 43% of households have on average 31.33 decimal of land (although 53% were still share cropping), and 39% of the households surveyed now have their own house in *kashland* (while previously there were none at baseline). This evidence reflects the project's effort and good result in obtaining access to land for the extreme poor.

This project has also been particularly effective in reaching women extreme poor as the target group, benefiting from SSS experience working with women and girls. One of the significant changes in beneficiaries' lives found through the FGDs was attributed to women's empowerment and improvement in their social wellbeing. The project was able to reach 97% women as the project's lead beneficiaries, with 32% female-headed household, despite falling short of the 40% target. This project highlights what is often forgotten, that women often provide much of the labour in agriculture cultivation (Natural Resources Management and Environment Department of FAO, n.d.). The women interviewed in the FGDs attributed

changes in their lives to both economic and social empowerment. The women now have increased involvement in household and community decision making, increased joint management and marketing of IGAs, increased mobility within and beyond the village, increased dignity and respect from the community and they are confident to raise issues with the Union Parishad (UP) Chairmen.

Child marriages have been reduced, with both Groups interviewed advised that none of their community members now marry their children below 18 years old. SSS reported that 10 child marriages were prevented during the project period. The endline findings were similar: 95% of the households interviewed would not marry off their daughters to save money on dowry when faced with an income constraint. Women were also aware of family planning "two children are enough", although dowry issue is still prevalent in the community. These significant impacts in the lives of the beneficiaries can be attributed to the women-oriented approach of the project and adequate training materials focusing on women's empowerment.

There were mixed findings on women's access and mobility to go the market. The gender norms in relation to women's mobility and access to market to sell their products are localised; some villages offering more freedom for women than others. One of the Groups interviewed relied heavily on their husbands/sons/relatives to go to the market due to social gender constraints, such as restricted mobility, lack of bargaining power and social stigma "people will speak badly of us"; however, most female household heads without older sons or male relatives have been going to the market, out of necessity, with no discriminations encountered. This is an area where additional research can be done to see whether improving women's access to market within the local context can enhance women's bargaining power, and if so, there should be a scope to improve women's access to market for future projects in the area and for policy advocacy to encourage women's entrepreneurship.

Training boat

The use of the training boat to deliver training sessions and evening educational program is efficient for its large outreach, however, the sustainability and the overall effectiveness of the approach is less convincing. The boats were procured using SSS funds and two boats were repaired within this project's fund. Each evening educational programs reached about 250-300 village members, with around 16,000 total audience during the 3 year period. The SSS project team believes that the training boat technology was a great success and is a good value for money as it allows the project team to reach remote beneficiaries' villages. In terms of its effectiveness, however, the project focused more on the well-equipped solar boat rather than the content of the technical training on the IGAs provided by the project, particularly in the first year (SILPA 2012). Another downside of using the technology is that knowledge is likely to leave as the boat leaves, whilst a more traditional training method using local community members (similar to a Community Pushti Kormi of shiree) is more empowering as it transfers the ownership of knowledge transfer to the community members, which increases the reach to a greater audience in the long term.

Efficiency

Measures how resources (funds, expertise and time) have been converted into outputs – value for money

Poor Management

The project team struggled in the first year to efficiently manage the project, which is seen in the delays in delivery of inputs distribution, poor management of records and inadequate supervision. The situation was turned around in the second and third year with feedback and continuous support from Shiree. The project was originally focused on the unnecessary costly engineering design of the tier farming design (such as the duck/poultry house design, fish rearing enclosure and solar equipped training boats (SILPA 2012)), and the delays in seeds distribution was partly due to the difficulty in accessing leased lands.

It was also observed from shiree team field visits that financial transactions between SSS and beneficiaries have been done properly but adequate records were not maintained, which resulted in frequently late submission of financial and other reports to Shiree throughout the project implementation. External audit in 2012 found that no record book or other documents were issued to the beneficiaries, no bank account was maintained for the beneficiaries' revolving fund and no written guideline was found in transferring assets to the beneficiaries, all of which increases the risk of assets misappropriation.

Beneficiaries were not aware of how much they have received from the project and what their returns on investment are. It was also found in 2013 Self-review that project team (field officers and managers) was unaware of the costs of different IGAs. The management consequently worked on shiree recommendations and actions followed, such as developing the IGA passbook for the second year 560 beneficiaries and asset registry was created to keep track of assets; most of which changes have been verified by the external auditors in 2013. The second year operation also focuses more on the training of duck-raising to reduce mortality rate, rather than the design of complex feeder and drinking trough. The learning here is that when a project focuses too much on the innovative design of the assets, high transaction costs can be incurred, project implementation can be delayed and the project loses its focus to lift the extreme poor out of poverty.

The SSS management received criticism from external SILPA review in terms of its attention and resources given to this project. SILPA 2012 review found that the project lacks a full time project manager, with 50% of his time allocated to other SSS projects, despite the salary being fully borne by this project. Adequate supervision was not provided to the field staffs, which was exacerbated by the distance between the project manager's office and the working area. These examples provide evidence on how important is the role of management in ensuring the effective delivery of the outputs and achieving the impact that the innovation intended; poor management meant that the 'innovation' has not been given the full justice or chance to succeed. In other words the success or failure of the innovation itself may be masked by the level of management and operational effectiveness and hence difficult to assess.

Unconditional Cash Support

The provision of cash support to beneficiaries, which was originally intended as the immediate assistance for short term intervention, had some challenges in its delivery. The cash support of 1,200 BDT per household was provided without condition and as a one-off payment, which led to a higher risk of misuse. Most beneficiaries preferred in kind instead of cash fearing that their husbands would spend the cash. In year 2, SSS assisted the households to utilise this cash amount by purchasing assets based on their choices, however, it was found that some livestock selected (such as duck, goat and sheep) died as proper vaccination and de-worming was not given. SSS also did not link the beneficiaries with the Upazila livestock department, as the project's main focus was on agriculture. Distribution of cash to beneficiaries without conditions posed a higher risk in terms of its efficiency in the role to support graduation out of the extreme poverty; it is also important to take into account the intra-households dynamic when considering unconditional cash distribution.

SuryaHurricane solar lantern

The project was able to utilise its access to an innovative technology, the low-cost solar lantern, SuryaHurricane, to provide access to electricity to 400 beneficiaries (50% of total), particularly targeting families with children. It was found that providing a solar panel was a cost-effective investment which can last for a period of time, providing families with high-quality light in the evening for children to study and women to do craftwork. It also reduces costs versus kerosene which is both damaging for health and environment. Additionally 20 rural women developed skills in the manufacturing of the SuryaHurricane lanterns. The project reported that there were additional 100 purchases made by the villagers at the price of 1,500 BDT for 10 Watt of energy. The use of solar panel to heat the young ducks in the house however failed to serve its intended purpose because the ducks provided to the members were old enough (SILPA 2012). The project team supported the distribution of solar panels for electricity; however, further research is required to support the claimed benefits and cost-effectiveness of the solar panel.

Value for money

A few efficiency indicators have been selected under EEP Value for Money guideline. These are as follows:

- Total cost per beneficiary: 39,592 BDT
- Direct delivery per beneficiary: 25,244 BDT (64% of total expenditure)
- Actual spend to forecast variance: 0.4%

The direct delivery cost per beneficiary at 64% of total expenditure is higher than the average innovation fund round 3 projects at 56%; however, this increase of spend of direct delivery is due to the significant changes made to the innovation. Due to these changes, late disbursement of direct delivery of 166,338 BDT was made in the last month of operation in May 2014.

Sustainability

Are the project benefits likely to continue after the end of the project?

Access to Market

The market approach taken by SSS to improve access to market had not been comprehensively considered at design stage and proved to be a piece-meal approach with little benefit sustainable beyond the project period. The establishment of the FAiFAs was based on a group approach to manage common assets; this has not worked well due to beneficiaries' reluctance to manage group assets. The sugarcane crushers and vans to create additional business opportunity for the beneficiaries was not sustainable because the crushers were kept at the branch offices for safety and it had ownership issue – with no particular groups owning the machine, the ownership remains with the project team.

The Collection Centres (CCs) and Collection Centre Management Committee (CCMC) also failed to improve linkages between the producers and the market actors. It was also unclear what outcome in terms of bettering market access came out of the meetings with the stakeholders. The CCs were reduced from 3 to 1 due to the remoteness and scattered locations of the households. The beneficiaries interviewed in the FGDs also found marginal benefits of the establishment of the CC; it was under-utilised and most beneficiaries sold majority of their products in their nearest *hats* or *bazaars* (local markets). One of the major reasons found is that there is no collective selling done at the CC – except in the *hat* in which the CC is based - with no linkage to particular buyers. In some cases, individuals will need to go to the different markets to sell, which means they no longer have the collective bargaining power. These evidences point to the unlikely sustainability of the CC beyond the project period as it serves little benefit to the beneficiaries. CC can potentially work when beneficiaries are not too scattered within a village and the benefits more than outweigh the cost of selling. A more comprehensive and inclusive market approach is required at design and implementation stage to open market access as the extreme poor transitioned to economically active producers.

Government of Bangladesh

Despite SSS existing relationship with the local Upazila officers and Bangladesh Sugarcane Research Institute scientists, which was helpful in the implementation of the project, SSS has not been actively advocating the rights of the extreme poor nor has it facilitated an increase in access to government services. The project argued that obtaining government safety nets support for beneficiaries was not within the realm of the project scope.

The relationship with Upazila officers started as SSS initiated its operation in Pabna district in 2002 with its floating school boats, which has won SSS many international awards. However, this has not been put to advantage to gain traction with the government. CMS 2 showed that majority (78%) of those eligible for government safety nets have not received any support and during the dry season, the water level goes down more than 100 feet and the tube well often do not work well. Given the strong relationship with local government representatives, the project team could have taken a more active role to advocate for the rights of the extreme poor during the project period for a longer and more sustainable impact.

Improved resilience through savings

The project team has favourably influenced the savings practice of beneficiaries through training sessions and monitoring at individual level. Savings can increase households' resilience to cope with expected and unexpected major expenditures beyond the project period. CMS 2 showed that by April 2014, 97%of households have individual savings, group or both; with majority (82%) owning individual cash savings, while no one has savings at baseline. This finding is in line with the endline survey, which found that 89% of households surveyed have some amount of savings, with an average of BDT 14,627 per household. Beneficiaries interviewed in the FGDs were aware of the importance of having savings as a preventative mechanism for shocks. They are now more confident that in the case of natural disaster, they would be able to manage their food storage from their cash savings. They are planning to reinvest in productive assets and they believe that no additional training is required as they can now comfortably manage their IGAs. It is however, important to note that while most of these households may have just marginally escaped extreme poverty; a more integrated market approach and a well thought hand over plan to the government would have reduced the risk of falling back into extreme poverty, maintaining the benefits beyond the project period.

Impact

Measure changes in human development brought by the project, indirectly or directly, intended or unintended

There have been significant changes seen in the lives of the beneficiaries from baseline, with 94% graduated from extreme poverty based on Shiree Multidimensional Index for Innovation Funds (see Annex 2), indicating an improvement in income, expenditure, assets, savings, food security and food diversity. Beneficiaries interviewed in the FGDs attributed changes in their lives to their ability to provide for children education, improved food diversity, ability to consume 3 meals a day from their own cultivation, owning savings, and increased empowerment. The endline survey showed that more than 90% of women have the confidence to raise issues with local government representatives and have major influence in their households' decision making, particularly in their ability to use their time for work. Beneficiaries have a positive overall future outlook and they are confident they will have full stomach in the future and will be able to spend expenditures for children education. These are very visible and life-changing impact to the lives of the extreme poor, indicating the success of the project intervention despite the many challenges at the initial implementation stage.

Economic empowerment and increased awareness on the importance of health, nutrition and hygiene has led to indirect benefits in the lives of the beneficiaries. The project has visible positive impact on education, sanitation and health, which is required for a sustainable impact in graduating the extreme poor. In relation to health, CMS 2 showed that more than 70% of the beneficiaries score their health at 7 (out of 10) and above; none of the beneficiaries now defecate in the open; 99% have access to shallow tube well. Endline survey also showed that 100% of the beneficiaries have upgraded their roof to tin roofs and majority (75%) has upgraded their walls from grass/jute stick/leaves/plastics to tin walls, which are better for their health, allowing them to be more resilient against frequent natural calamities. The investment in education, water and sanitation and health would increase the prospect to remain outside of extreme poverty.

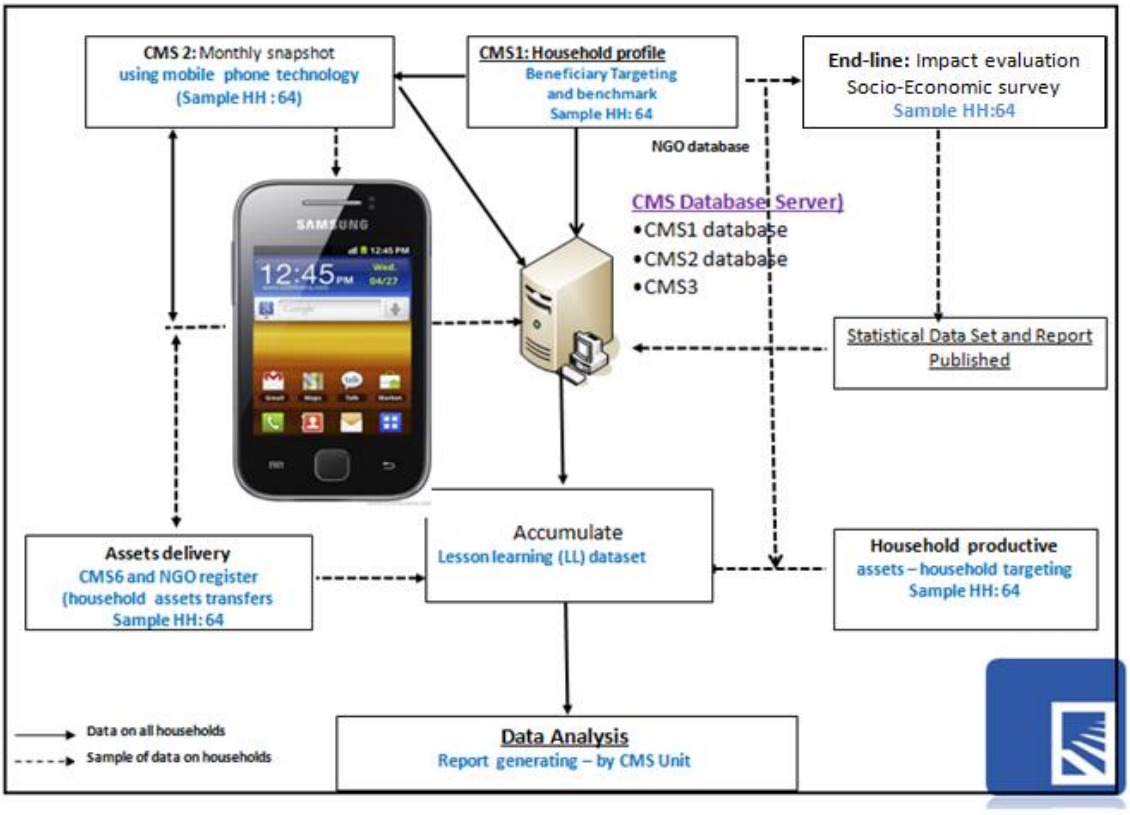
Documents Cited

- Project Memorandum
- Quarterly Change Reports 2014
- Self Review Reports 2012 and 2013
- SILPA 2012
- SSS Annual Report 2012
- Field Reports (shiree)
- Monthly and Annual Progress Reports
- CMS 4 Reports
- CMS 6 Reports 2013 and 2014
- Internal and External Audits
- Public resources (see reference list)

CHAPTER TWO: ENDLINE– BASELINE FINDINGS

The present section seeks to establish the efficiency and effectiveness of these innovation modalities in uplifting people from extreme poverty in the given communities and regions by comparing socio-economic conditions at the end of the intervention (May 2014) with baseline information (2011-2012) using specific indicators. Based on these indicators, Shiree Multidimensional Graduation threshold is applied to identify whether households have exited from extreme poverty over the 3 years of project period.

Study design: A formal survey through the Endline to Baseline Survey was conducted to collect standardised and comparable information from 64 randomly selected households. Taking advantage of the uniqueness of the household identities, the same 64 households were selected from the baseline database and also from the Change Monitoring System (CMS) 2 monthly snapshots and CMS 6 assets delivery, which was compiled as a census of all beneficiaries, to analyze change over time. The paradigm below outlines Shiree's various CMS instruments and accumulated lessons learning dataset.



Statistical basis for sample size: These sample sizes are based on a power test with 80% power and 5% significance to detect significant improvement in income and expenditure as well as a household head and household demography.

Data collection & Method: A pre-tested questionnaire with well trained field staff members was used to collect information.

Field work: A total of 6 enumerators, 2 Research Assistants from Scale Fund organizations, 2 Shiree CMS personnel, and 1 Monitoring officer conducted the necessary field work. Data collection was done under the remote guidance of a researcher from Cambridge University and closely monitored by Shiree's CMS Unit. The trained enumerators carried out interviews primarily of household heads on their current socio-economic conditions using a pre-tested, semi-structured questionnaire.

Statistical analysis: The study has used a mixture of statistical tests including **chi-square** when making categorical comparisons and **t-tests** comparing continuous variables by gender of household head and **ONEWAY ANOVA** analysis of variance when comparing a continuous variable by NGO. **Multivariate** data analysis refers to any statistical technique used to analyze data that arises from more than one variable.

Constraints: It should be noted that the data for the endline study for all households was collected during the same time period, but the baseline data was collected phase-by-phase at different times and during different seasons. Moreover, data collection for the endline study was conducted by more trained enumerators in comparison to baseline study data collection. Therefore, the data may contain seasonal variations and other variations due to the different levels of understanding and experience of the data collectors.

Organization of the chapter: This report does not aim to compare the effectiveness of innovation projects to one another, but rather, the socio-economic changes in the BHHs of specific projects since baseline and the success of the innovation. Therefore, a separate analysis of each project has been done, keeping in mind each project's unique modalities, locality, and targeted communities. Statistically relevant findings from the SSS project are presented in the following section.

Household Basic Demographic Characteristics

Table: 1.1: Distribution of HH average size according to sex of HH head

CMS1 – Baseline						CMS3 – End line						CMS2 (Monthly snapshot)					
Male		Female		Both		Male		Female		Both		Male		Female		Both	
M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
3.7	1.4	1.9	1.4	3.1	1.6	4.0	1.4	2.1	1.2	3.3	1.6	4.1	1.4	2.1	1.2	3.4	1.7

NB: M – Mean; SD – Standard Deviation [Note: Mean - the simple average of the numbers. The Standard Deviation is a measure of how spreads out numbers are from the normal] Among the male-headed households, the mean household size increased to 4.0 (endline) from the baseline mean household size of 3.7 and for female-headed households from 1.95 (baseline) to 2.08 (endline)[2].

[2] This is consistent with research across the shiree programme which shows that economic empowerment may lead to the "recombination" (coming together) of families.

Occupation

Table 2.1: Change in primary occupation of HH head

Occupation	CMS1-Baseline		CMS3-Endline	
	N	%	N	%
Unemployed	-	-	2	3
Agriculture day labour	17	27	20	31
Other day labour	42	66	14	22
Domestic maid	3	5	1	2
Skilled labour	-	-	3	5
Industrial/garment labour	-	-	3	5
Petty trade/business	-	-	1	2
Cottage industry/handicraft	1	2	-	-
Housewife	-	-	4	6
Livestock/Poultry	-	-	2	3
Begging	1	2	1	2
Rented rickshaw/van/boat/push cart	-	-	2	3
Owned rickshaw/van/boat/push cart	-	-	3	5
Farmer on leased in land or water-body	-	-	7	11
Farmer on own land or water-body	-	-	1	2
Total	64	100	64	100

Primary occupation of beneficiary household head (the head of the family and primary decision maker) indicates that majority of the household heads occupation is day labour despite a significant reduction (from 92% at baseline to 53%). This reduction is attributed to household head changing their main occupation to farmer involved on leased in land or water-bodies (11%), rented/owned rickshaw (7%), and rented & owned rickshaw/van (8%). It is important to note, however, that the direct beneficiaries of the project are not necessarily the household head, and so the survey results reflect the primary occupation of the family member who is the head of the family.

Table 2.2: Occupation of main beneficiary

Occupation	CMS3-Endline	
	N	%
Unemployed	1	2
Agriculture day labour	5	8
Other day labour	10	16
Domestic maid	2	3
Skilled labour	1	2
Industrial/garment labour	1	2

Occupation	CMS3-Endline	
	N	%
Cottage industry/handicraft	7	11
Housewife	22	34
Livestock/Poultry	12	19
Begging	1	2
Farmer on leased in land or waterbody	2	3
Total	64	100

The major intervention of the SSS project was to involve beneficiaries or their family members in agricultural related works for regular income generating, however, the results above showed that majority were not involved in farming of land or waterbody, with majority being a housewife (34%) or managing livestock/poultry (19%). Due to unavailability of baseline data, it is not possible to analyse the change.

Table: 2.3: Distribution of other occupations of HH head according to sex

Job No.	CMS1-Baseline						CMS3-Endline (May'2014)						CMS2 – monthly snapshot (May'2014)					
	Male		Female		Total		Male		Female		Total		Male		Female		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
1	42	100	22	100	64	100	2	5	5	21	7	11	2	5	5	23	7	12
2							8	20	7	29	15	23	8	22	5	23	13	22
3							11	28	6	25	17	27	10	27	6	27	16	27
>3							19	48	6	25	25	39	17	46	6	27	23	39
Total	42	100	22	100	64	100	40	100	24	100	64	100	37	100	22	100	64	100

NB: Number of occupation including household main occupation.

This table indicates that income source vulnerability is declining as majority of the households have gained an additional income source (see table 2.3) to supplement the primary source. At endline, 39% households have more than 3 income sources and 27% households have two income sources. This is a positive finding as multiple income sources is a good indicator of resilience.

Income

Table 3.1: Mean distribution of HH monthly income (cash and in kind *[*Note: **in kind** refers to goods, services, and transactions not involving money or not measured in monetary terms.]*

Baseline		Endline		Differences		Test
Mean	SD	Mean	SD	Mean	SD	
1,082	517	11,167	13,484	10,085	13,437	t=6.004, p=1.043

The survey found a considerable change in household income, with the mean increases in income being 10,085 BDT. Here, income includes both cash and in-kind*. The higher than expected standard deviation indicates that there is more variability in the data set, which is particularly driven by the different types of beneficiaries' occupation.

Table 3.2: Mean distribution of HH monthly regular income per capita/day

Variables /Categories	Baseline		Endline		Differences		Test
	Mean	SD	Mean	SD	Mean	SD	
Cash income	12.81	7.19	94.75	89.68	81.93	89.55	t=7.320, p= 5.524
Kind income	1.78	3.84	25.40	32.28	23.62	32.28	t=5.854, p= 1.874
Total	14.60	7.76	120.15	103.81	105.56	103.50	t=8.159, p= 1.881

Change in poverty threshold

Table 3.3: Distribution of HH poverty level according to total income (cash & in kind) per capita/day and sex of HH head

NB: Extreme Poverty line - using the mean income and standard deviation in the HIES 2010 report for urban and rural areas, the poverty line corresponding to the lowest 10% was calculated separately for urban and rural areas in Taka per person per day. Government of Bangladesh inflation rates were used to generate new poverty lines (baseline weighted average of 2011 & 2012: 28.8 BDT and end-line: 35.5 BDT pppd)

Variables (sex)	Baseline						End line					
	Extreme poverty < 28.8 BDT		Above extreme poverty>= 28.8 BDT		Total		Extreme poverty < 35.5 BDT		Above extreme poverty >= 35.5 BDT		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Male	42	100	-	-	42	100	-	-	40	100	40	100
Female	22	100	-	-	22	100	1	4.2	23	95.8	24	100
Total	64	100	-	-	64	100	1	1.6	63	98.4	64	100
Test							X^2=1.693, p=0.193					

Adjusted for inflation, the percentage of households that remain below the extreme poverty line (per capita per day income below 35.5 BDT) during endline was 1.6%.

Expenditure

Table 4.1: Mean distribution of HH monthly total expenditures

Baseline		Endline		Differences		Paired t-Test
Mean	SD	Mean	SD	Mean	SD	
1,013	441	7,587	11,392	6,574	11,333	t=4.641, p=1.806

In line with the income changes seen above, there is a corresponding considerable change in the expenditure level. Expenditure refers to not only cash expenditures but it includes irregular expenditures such as house repair and the purchase of furniture.

Table 4.2: Change in poverty thresholds (total-expenditure)

Variables (sex)	Baseline						Endline					
	Extreme poverty <Tk28.8		Above extreme poverty>=Tk28.8		Total		Extreme poverty <Tk35.5		Above extreme poverty >=Tk35.5		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Male	42	100	-	-	42	100	5	12.5	35	87.5	40	100
Female	22	100	-	-	22	100	5	20.8	19	79	24	100
Total	64	100	-	-	64	100	10	15.6	54	84	64	100
Test							X^2=0.790, p=0.374					

Adjusted for inflation, the endline survey found that 84% of households are now spending more than the extreme poverty income threshold line at 35.5 BDT. This percentage remains similar if irregular expenditures are included along with regular income.

Assets

At present 76.5% households invested their assets in livestock and 77% own poultry, among which 53% and 72% BHHs have more than 3 livestock and poultry respectively.

Table 5.1 Ownership of asset HH according to HH head categories in percentage

Asset Type	No of items	Baseline						End line					
		Male		Female		Both		Male		Female		Both	
		N	%	N	%	N	%	N	%	N	%	N	%
Livestock	0	42	100	22	100	64	100	10	25	5	21	15	23
	1	-	-	-	-	-	-	3	7.5	2	8	5	8
	2	-	-	-	-	-	-	6	15	4	17	10	16
	3+	-	-	-	-	-	-	21	52.5	13	54	34	53
	Total	42	100	22	100	64	100	40	100	24	100	64	100
Poultry													
	0	40	95	22	100	62	97	8	20	7	29	15	23
	1	-	-	-	-	-	-	-	-	-	-	-	-
	2	2	5	-	-	2	3	2	5	1	4	3	5
	3+	-	-	-	-	-	-	30	75	16	67	46	72
	Total	42	100	22	100	64	100	40	100	24	100	64	100
Working equipment	0	4	9.5	3	14	7	11	-	-	1	4	1	2
	1	9	21	8	36	17	27	1	2.5	4	17	5	8
	2	8	19	6	27	14	22	1	2.5	1	4	2	3
	3+	21	50	5	23	26	41	38	95	18	75	56	87.5
	Total	42	100	22	100	64	100	40	100	24	100	64	100
Household belonging	0	3	7	1	4.5	4	6	-	-	-	-	-	-
	3+	39	93	21	95.5	60	94	40	100	24	100	64	100
	Total	42	100	22	100	64	100	40	100	24	100	64	100

Table 5.2: Mean asset value of asset transferred from Shiree-supported project (BDT)

Variables /Categories	End line					
	Male		Female		Both	
	Mean	SD	Mean	SD	Mean	SD
Shiree Poultry	6,980	354	6,935	323	6,963	341
Shiree Agricultural Input	7,173	2,545	6,991	2,674	7,105	2,574
Land Lease Amount (Decimal)	13	-	13	-	13	-
Land Lease Value	3,171	429	3,227	325	3,192	392
Shiree Solar Hurricane	1,200	1,488	1,250	1,511	1,219	1,485
Shiree Cash Support for IGA	1,200	-	1,347	721	1,255	441
Shiree Total Value	19,723	3,121	19,751	3,407	19,734	3,204

Table 5.3: Distribution of land (decimal) by household

Land types	Average amount in decimal (within those who have land)	Average value in taka (within those who have land)	N	% (within 64 Bhh)
Homestead Land Own	4.92	-	22	34.38
Cultivable Land Own	30.75	-	4	6.25
Share cropping	30	-	34	53.13
Mortgaged Land	31.33	42,352	27	42.19
Total (any land)	**36.16**	**-**	**58**	90.63

The total asset value during endline is 36,839 BDT where value of the assets transferred under the projects mean was 19,734 BDT. In addition, 42.19% of the households have on average 31.33 decimal of mortgaged land (table 5.3) with means value of 42,352 BDT (and zero at baseline). There is, however, a notably significant difference between assets hold by male headed household and female headed household at 43,701 BDT and 25,403 BDT respectively (table 5.4).

Table 5.4: Mean distribution of HH assets according to gender of HH head (BDT)

Variable/ Category	Baseline						End line					
	Male		Female		Both		Male		Female		Both	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Livestock	-	-	-	-	-	-	20,740	51,864	11,354	13,225	17,220	41,833
Working equipment	362	317	223	206	314	290	4,836	8,052	1,102	944	3,436	6,617
HH belongings	2,040	1,127	1,617	804	1,895	1,041	13,185	9,947	9,466	7,185	11,790	9,132

Total	2,696	1,511	2,096	1,086	2,490	1,401	43,701	55,567	25,403	18,841	36,839	46,051

Household Savings and Loans

In the endline survey, 89% of households have some amount of savings, with a mean value of 14,627 BDT. Majority of households have individual savings (78%); however, only 17% have a bank account.

Table 6.1: Distribution of HHs reporting to have savings

Category (TK.)	Baseline						End line								
	Male		Female		Both		Male			Female			Both		
	N	%	N	%	N	%	N	Mean	%	N	Mean	%	N	Mean	%
0	42	100	22	100	64	100	5	-	12.5	2	-	8	7	-	11
1-1000	-	-	-	-	-	-	1	400	2.5	2	350	8	3	367	5
1001-5000	-	-	-	-	-	-	8	4,063	20	3	3,667	12.5	11	3,955	17
5001-10000	-	-	-	-	-	-	8	7,608	20	6	7,150	25	14	7,412	22
10001-15000	-	-	-	-	-	-	5	11,840	12.5	4	12,950	17	9	12,333	14
15001-20000	-	-	-	-	-	-	3	18,000	7.5	4	20,000	17	7	19,143	11
20001+	-	-	-	-	-	-	10	42,835	25	3	38,133	12.5	13	41,750	20
Total	42	100	22	100	64	100	40	15,883	100	24	12,533	100	64	14,627	100
Test							X^2=4.481, p=0.612								

Table 6.2: Places of savings

Places of Savings	Baseline		Endline	
	N	%	N	%
Bank	-	-	11	17
NGOs	-	-	16	25
Relatives	-	-	3	5
Self	-	-	50	78
Group	-	-	3	5
Others	-	-	2	3

In relation to loans, 16% of the households now had a loan. These include loans with interest free informal sources (6%) and with formal loan with interest (5%), with majority of the loans (60%) used for IGA purposes.

Table 6.3: Distribution of HH reporting to have savings as per HH head category.

Option	Baseline						End line						CMS2 (Monthly snapshot)					
	Male		Female		Both		Male		Female		Both		Male		Female		Both	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
No	42	100	22	100	64	100	5	12.5	2	8	7	11	5	13.5	2	9	7	12
Yes	-	-	-	-	-	-	35	87.5	22	92	57	89	32	86.5	20	91	52	88

Table 6.4: HH percentage reporting outstanding loans

Sources of loan	Baseline					End line				
	Yes		No		Outstanding mean (TK.)	Yes		No		Outstanding mean (TK.)
	N	%	N	%		N	%	N	%	
Informal without interest	-	-	64	100	-	4	6.3	60	94	2,875
With interest informal loan	-	-	64	100	-	1	1.6	63	98	22,000
Formal loan with interest MFI	-	-	64	100	-	3	4.7	61	95	9,500
Formal loan with GoB	-	-	64	100	-	-	-	-	-	-
Loan from shomity or CBO with interest	-	-	64	100	-	2	3.1	62	97	10,547
Total HH	-	-	64	100	-	10	15.6	54	84.4	8,414

Housing Condition and Access to Water Supply, Sanitation and Electricity

CHANGE IN WALL AND ROOF MATERIAL OF HOUSE

Table 7.1 Distribution of HHs according to wall construction materials and sex of HH heads

Materials (walls)	Baseline						End line					
	Male		Female		Both		Male		Female		Both	
	N	%	N	%	N	%	N	%	N	%	N	%
Grass/jute stick/ leaves/plastic	39	93	20	91	59	92	10	25	4	17	14	22
Bamboo	1	2	-	-	1	2	-	-	1	4	1	2
Mud	-	-	-	-	-	-	-	-	1	4	1	2
Tiles	2	5	2	9	4	6	-	-	-	-	-	-
Tin/CI sheets	-	-	-	-	-	-	30	75	18	75	48	75
Total	42	100	22	100	64	100	40	100	24	100	64	100
Test	X^2=0.963, p=0.617						X^2=3.810, p=0.283					

Endline findings indicate a change in the quality of wall material of a majority of the households. During baseline, almost all house walls were made of Grass/jute stick/leaves/plastic (92%), while at endline 75% of households had walls made of tin.
Similarly, 100% of households now have roofs made of tin.

Table 7.2 Distribution of HHs according to roofing materials and sex of HH heads

Materials (roof)	Baseline						End line					
	Male		Female		Both		Male		Female		Both	
	N	%	N	%	N	%	N	%	N	%	N	%
Tiles	42	100	22	100	64	100	-	-	-	-	-	-
Tin/CI sheets	-	-	-	-	-	-	40	100	24	100	64	100
Total	42	100	22	100	64	100	40	100	24	100	64	100
Test												

HOUSE SIZE

The mean house size has increased considerably from baseline. During baseline mean, house size was 121 sqft while in endline, it is 239 sqft.

Table 7.3: Mean distribution for size of house and per capita housing space according to sex of HH head

Categories	Mean of house size (sqft)		Mean of per capital floor space (sqft)	
	Mean	SD	Mean	SD
Baseline	121.16	48.68	54.43	44.53
Endline	238.57	83.63	95.92	69.16

An interesting shift in house ownership was found where majority (87.5%) of households used to live in their own house at baseline, whilst at endline 41% lived in their own house and 39% constructed their own house on khas land (table 7.4). It is unclear as to the reasons behind the change in ownership and why there is a high percentage of BHHs who owned their own house at baseline.

Table 7.4: Ownership distribution of house according to sex of HH head.

House ownership	Baseline						Endline					
	Male		Female		Both		Male		Female		Both	
	N	%	N	%	N	%	N	%	N	%	N	%
Owned	38	90.5	18	82	56	87.5	16	40	10	42	26	41
Rented	-	-	-	-	-	-	-	-	-	-	-	-
Parent	2	5	3	14	5	8	4	10	-	-	4	6
Parent in law	1	2	-	-	1	2	-	-	-	-	-	-
Live rent free	1	2	1	4.5	2	3	-	-	1	4	1	2
Own house on khas land	-	-	-	-	-	-	15	37.5	10	42	25	39
Someone else's land	-	-	-	-	-	-	4	10	3	12.5	7	11
Other	-	-	-	-	-	-	1	2.5			1	2
Total	42	100	22	100	64	100	40	100	24	100	64	100
Test	X^2=2.319, p=0.509						X^2=4.829 , p=0.437					

ACCESS TO SAFE WATER

100% of households collect drinking water from hand tubewell, which was the case at baseline.

OWNERSHIP OF PROTECTED SOURCE

During baseline 91% of the households collected water from the tube well owned by the government. The endline findings indicate that 22% of the beneficiary households now have access to their own tube well or have access to tube well owned by others (73%). The reasoning is also unclear; it may be influenced by the condition or distance to the public tube well.

Table 7.5: Distribution of HHs according to ownership of hand tube wells and sex of HH heads

Sources of drinking water	Baseline						Endline					
	Male		Female		Both		Male		Female		Both	
	N	%	N	%	N	%	N	%	N	%	N	%
Owned by household	-	-	-	-	-	-	9	22.5	5	21	14	22
Shared ownership	3	7	1	4.5	4	6	1	2.5	1	4	2	3
Own by others							30	75	17	71	47	73
Public (Government)	38	90.5	20	91	58	91	-	-	-	-	-	-
NGO Supplied	1	2	1	4.5	2	3	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	1	4	1	2
Total	42	100	22	100	64	100	40	100	24	100	64	100
Test	X^2=0.373, p=0.830						X^2=1.855, p=0.603					

SANITATION

No major changes are seen in the sanitation practices.

ELECTRICITY

During baseline 100% households had no connection to electricity, while 42% now have access to electricity. It was, however, unexpected that none of the households have access to solar power, given the distribution of Surya Hurricane solar panel.

Table 7.8: Distribution of HHs according to connection of electricity and sex of HH heads

Type of electricity connection	Baseline						End line					
	Male		Female		Both		Male		Female		Both	
	N	%	N	%	N	%	N	%	N	%	N	%
No electricity	42	100	22	100	64	100	26	65	11	46	37	58
Connected to main line	-	-	-	-	-	-	8	20	5	21	13	20
Connected to generator	-	-	-	-	-	-	6	15	8	33	14	22
Solar power	-	-	-	-	-	-	-	-	-	-	-	-
Total	42	100	22	100	64	100	40	100	24	100	64	100
Test							X^2=3.263, p=0.196					

Food Security

The households were asked about the food coping strategies they used as a result of financial hardship in the seven days prior to the survey with a pre-coded list of 10 food strategies (table 7.9). As demonstrated in the table food security was low at endline and 94% of all households reported using less than 2 food coping strategies in the past 7 days. Due to limitations in the baseline questionnaire it is not possible to present detailed comparative analysis of food security between baseline and endline.

Table 8.1: Food Coping

Question (Last Seven Days)	Male		Female		Total	
	Yes	%	Yes	%	Yes	%
Eat Smaller Portions of Food (Quantity)?	3	7.5	1	4.2	4	6
Eat Less than Three Times a Day?	-	-	1	4.2	1	2
Eat Food of Lower Than Normal Quality?	1	2.5	-	-	1	2
Eat Food Naturally Available or Gathered Wild Potato, Kochu, etc?	1	2.5	-	-	1	2
Borrow Money to Buy Food?	1	2.5	1	4.2	2	3
Bought Food on Credit?	1	2.5	-	-	1	2
Give More Food to An Earning HH Member?	2	5	-	-	2	3
Total (any food coping)	3	7.5	1	4.2	4	6
Food Coping (>=2)	3	7.5	1	4.2	4	6

Food Diversity

The households were asked how often family members had eaten 6 different food items in the 7 days prior to the survey (table 8.2). As demonstrated in the table, there was a positive average consumption of eggs, poultry, meat, milk and pulses.

Table 8.2: Number of days (%) in the last week that household members consumed foodstuffs

Food types	**Male**		**Female**		**Total**	
	N	**%**	**N**	**%**	**N**	**%**
Fish						
0	-	-	-	-	-	-
1	2	5	1	4	3	5
2	5	12.5	5	21	10	16
3+	33	82.5	18	75	51	80
Meat						
0	15	37.5	10	42	25	39

1	20	50	11	46	31	48
2	5	12.5	3	12.5	8	12.5
Pulse						
0	3	7.5	1	4	4	6
1	7	17.5	3	12.5	10	16
2	11	27.5	10	42	21	33
3+	19	47.5	10	42	29	45
Vegetable						
3+	40	100	24	100	64	100
Fruit						
0	8	20	5	21	13	20
1	5	12.5	3	12.5	8	12.5
2	17	42.5	11	46	28	44
3+	10	25	5	21	15	23
Milk						
0	13	32.5	8	33	21	33
1	5	12.5	2	8	7	11
2	8	20	7	29	15	23
3+	14	35	7	29	21	33
Egg						
0	5	12.5	1	4	6	9
1	2	5	3	12.5	5	8
2	11	27.5	5	21	16	25
3+	22	55	15	62.5	37	58
Food Diversity						
<5	3	7.5	1	4	4	6
>=5	37	92.5	23	96	60	94
Mean	5.9	-	5.96	-	5.92	-

Women's Empowerment

In the end-line survey the majority of women reported (Table 9.1) that they had a 'major' or 'main' influence on decision making in their households in all categories asked and 92% of women reported having a 'main' influence on how to use your time for work; a sign of women's empowerment. Due to limitations in the baseline questionnaire it is not possible to report comparative analysis of women's empowerment between endline and baseline. However, using Shiree State of Extreme Poverty Baseline Report (2014:26) based on 17 shiree partner NGOs, slightly under half of all women reported the husband as the sole decision makers on use of household earnings and around one third of all women were not confident talking to men outside their family nor taking small financial decisions on their own. Additionally, half of all women did not feel confident moving outside their village alone.

Table 9.1: Influence on decisions in your household (female replies)

Decision	Main %	Major %	Small %	No %
Children's education	27	58	2	14

Purchase or sale of land	39	55	6	-
Buying or selling large assets	36	58	5	2
Taking or repaying loan	33	56	9	2
Everyday expenditure	33	58	8	2
Important family matters	30	61	6	3
When to have children	2	62.5	2	34
How to use your time for work	92	8	-	-

Table 9.2: Social Empowerment (Female replies)

Question	Yes %	No %
There are people outside my family I can rely on for help	95	5
I feel frightened of moving alone outside my village	17	83
I feel I have enough information about the government programmes designed to help the poor	94	6
I feel confident that I can face whatever the future brings/holds	97	3
I feel comfortable speaking and participating in community groups	91	9
I feel comfortable addressing UP Chairmen/Members/Ward Commissioner	89	11
Adult men in my household do some of the domestic work	64	36
If I face income constraints I would marry off my daughter at an early age to save dowry money	5	95
I feel I may face disapproval if I move alone outside my village	3	97
Are you a member of any social or community group? (eg CBO)	2	98

Graduation

The programme graduation has been developed over time through analyses of quantitative and qualitative data with the most recent iteration relying on a multi-dimensional checklist across a range of key socio economic indicators. The graduation line constitutes an index of multi-dimensional indicators from which a household is deemed "graduated" if it meets a set number of indicators (which differs according to rural and urban settings). The Shiree multidimensional Graduation index (Annex 2) is further used to monitor sustainability or resilience – the ability of households to stay above the defined Graduation threshold and to give a practical meaning to the concept of extreme poverty eradication (= 100% graduation).

Table 10: Household overall graduation

Graduation Criteria	Baseline %	Endline %
Essential Criteria		
Food Coping (<2)=1, (>=2)=0	-	94
Supplementary Criteria		
PPPD Income (Cash+Kind) (Inflation adjusted- baseline 28.8 & endline 35.5 taka)-HIES 2010	-	98
Number of jobs (>=2)	-	89
Cash savings (>=1000 taka)	-	84
Productive asset value (>=10000 taka)	-	59
Non-Productive asset number (>=4)	68.8	86
Food diversity (>=5)	-	94
Gender & Social Empowerment (>=75% female answering positively)	-	80
Sources of safe water	100	100
Sanitary latrine	76.6	81
Access to any land	93.8	91
Graduation (Essential 1+ Supplementary 6)	**-**	**94**

CONCLUSION

The main innovation of this project involves a 3 Tier Farming (3TF), 2 Tier Farming (2TF) and improved variety of sugar cane as the main income generating activities (IGAs). This innovation has not achieved the intended outcome; the project team and management has struggled in the implementation of the main innovation for a variety of reasons, such as lack of beneficiaries' involvement in selecting their IGAs and non-participatory process at design and implementation that neglects local social aspects. The innovation was later modified to better meet the local context and to ensure that the project was able to lift as many beneficiaries out of extreme poverty.

Despite the fact that the technical innovation was not successful, this project shows – similar to shiree other partner projects – that livelihood transformation projects can work with the extreme poor but the IGAs selection must be appropriate. This is reflected in the high graduation rate achieved by this project of 94% graduation at endline (utilising Shiree Multidimensional index) after significant changes were made to the innovation in year two and three with the support from Shiree. The project became less innovative than originally promised but the revised approach was able to reach the intended outcome.

This project also shows how important the role of management is in ensuring the effective and efficient delivery of the outputs and achieving the impact that the innovation intended. Poor management meant that the innovation has not been given the full justice or chance to succeed. In other words the success or failure of the innovation itself may be masked by the level of management and operational effectiveness. When a project focuses too much on the innovative design of the assets (as learned in this project), high transaction costs can be incurred, project implementation can be delayed and the project loses its focus to lift the extreme poor out of poverty.

Although in the end this project was able to demonstrate a strong economic and social benefit for the households, and particularly to the women beneficiaries targeted by the project; the question remains as to whether they would be able to sustainably maintain this gain through savings and income diversification alone.

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Annex 1: Financial Overview

Expenditure Item	Original Budget	Revised Budget	Actual Expenditure (June 2011-May 2014)	Variance	Remarks
Human Resource Cost	7,828,268	7,812,913	7,878,308	(65,395)	
Travelling Cost	589,312	480,483	451,011	29,472	
Vehicle & Equipments	39,000	178,866	178,866	-	
Office Rent and Utilities	594,000	518,495	519,761	(1,266)	
Administrative Cost	648,244	713,108	710,315	2,793	
Operational Cost	962,215	942,403	817,976	124,427	
Direct Delivery to Beneficiaries	18,776,220	20,171,442	20,194,852	(23,410)	
Management Cost	883,118	924,530	922,531	1,999	
Contingency	1,471,863	50,000	-	50,000	
TOTAL	**31,792,240**	**31,792,240**	**31,673,620**	**118,620**	

Note: Amount in BDT

Annex 2: Shiree Multidimensional Graduation Index for IF

Essential Criterion	Rural	Urban
Food coping strategies of household - eating smaller portions, eating less than 3 meals per day, eating food of lower than normal quality, eating gathered food, eating no food in 24 hours, borrowing money for food, buying food on credit, sending family member elsewhere to eat, giving more food to earning household member, letting female household members eat last or not at all	≥2 strategies = 0 <2 strategies = 1	≥2 strategies = 0 <2 strategies = 1
Supplementary Criteria		
Poverty line - using the mean income (cash & in-kind) and standard deviation in the HIES 2010 report for urban and rural areas. Government of Bangladesh inflation rates were used to generate new poverty lines for 2011-2014.	2010<25.5 =0, ≥25.5 = 1 2013<33 = 0, ≥33 = 1 2014<35.5 = 0, ≥35.5 = 1	2010 <41 =0, ≥41 = 1 2013 <53 = 0, ≥ 53 = 1 2014 < 57 = 0, ≥57 = 1
Number of sources of income – number of jobs of all household members	<2 jobs in household = 0 ≥ 2 jobs in household = 1	<2 jobs in household = 0 ≥ 2 jobs in household = 1
Cash savings – amount of reported cash savings in Taka/household	<1000 Taka/household = 0 ≥ 1000Taka/household = 1	<1000 Taka/household = 0 ≥ 1000Taka/household = 1
Value of productive assets – defined as value of cattle, calves, goats, poultry, pigs, fishing nets, rickshaw, boat, sewing machine, cottage industry, agricultural equipment, mobile phone, bicycle, permanent shop, temporary shop, other permanent asset and other temporary shop asset	<10,000 Taka/household = 0 ≥10,000 Taka/household = 1	<7000 Taka/household = 0 ≥7000 Taka/household = 1
Number of non-productive assets of household – defined as owning a television, radio, fan, jewellery, wooden box, blanket, table, wardrobe, chair, mattress and bed	<4 assets = 0, ≥ 4 assets = 1	<4 assets = 0, ≥ 4 assets = 1
Food diversity of household - pulse, green leafy and other vegetables, fruit, milk, eggs, fresh/dried fish, poultry and meat	<5 foods = 0, ≥5 foods = 1	<5 foods = 0, ≥5 foods = 1
Gender Empowerment - of female adult member of household based on decision making and views	<75% answering positively = 0 ≥75% answering positively = 1	<75% answering positively= 0 ≥75% answering positively= 1
Access to safe drinking water of household - defined as meeting the MDG guidelines	No = 0 , Yes = 1	Not Applicable
Access to hygienic sanitation of household - defined as meeting the MDG guidelines	No = 0, Yes = 1	Not Applicable
Access to land of household - all land comprising homestead, cultivable, temporary lease, sharecrop and use free of charge	No = 0, Yes = 1	Not Applicable
Maximum score	**11**	**8**
Graduation threshold	**Essential 1 + 6 Supplementary**	**Essential 1+ 4 Supplementary**