MINISTRY OF FOREIGN AFFAIRS
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Danida

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EVALUATION OF AGRICULTURAL GROWTH & EMPLOYMENT PROGRAMME (AGEP), BANGLADESH

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LIST OF ABBREVIATIONS

AAO	Additional Agricultural Officer
ABDC	Agro Business Development Component
AEC	Agricultural Extension Component
AESA	Agro-Eco System Analysis
AFSP	Agriculture and Food Security Project
AGEP	Agricultural Growth and Employment Programme
BFP	Business Focal Point
CHT	Chittagong Hill Tracts
CHTDF	CHT Development Facility
CMU	Component Management Unit
CSC	Component Steering Committee
DAE	Department of Agricultural Extension
DKK	Danish Kroner
DLS	Department of Livestock Services
DOF	Department of Fisheries
DPP	Development Project Proposal
DQA	Data Quality Audit
EOD	Embassy of Denmark
EQs	Evaluation Questions
EVAL	The Evaluation Department in the Danish Ministry of Foreign Affairs
FAO	Food and Agriculture Organisation of the United Nation
FF	Farmers Facilitator
FFS	Farmer Field School
FGD	Focus Group Discussions
FO	Farmers Organisations
FYP	Five-Year Plan
GoB	Government of Bangladesh
Ha	Hectar
HDC	Hill District Councils
IFM	Integrated Farm Management
IFMC	Integrated Farm Management Component
IFPRI	The International Food Policy Research Institute
IPM	Integrated Pest Management
KII	Key Informant Interviews
LDC	Least Developed Countries

MDG	Millennium Development Goals
MoA	Ministry of Agriculture
MF	Master Facilitator
MoCHTA	Ministry of Chittagong Hill Tracts Affairs
MT	Master Trainer
NGO	Non-Governmental Organisation
NSC	National Steering Committee
PDC	Para Development Committee
RFLDC	Regional Fisheries and Livestock Development Component
RIC	Regional IFMC Coordinator
RIU	Regional Implementation Unit
SAPPO	Sub-Assistant Plant Protection Officer
SDF	Social Development Fund
SDG	Sustainable Development Goals
SPPS	Strengthening Plant Protection Services
TAC	Technical Advisory Committee
TOC	Theory of Change
UAO	Upazila Agricultural Officer
UNDP	United Nations Development Programme
UP	Union Parishad
WEIA	Women's Empowerment Index in Agriculture

Bangladeshi Taka (BDT) is the unit currency of Bangladesh. 100 BDT is equivalent 1.2 USD (based on September 2019 rate).

EXECUTIVE SUMMARY

EVALUATION BACKGROUND AND OBJECTIVES

Denmark has a long history of supporting development of the agriculture, livestock and fisheries sectors in Bangladesh, dating back to the 1970s. Since the 1990s, the "farmer field school" (FFS) approach has constituted a key element in the sector programmes funded by Danida. This evaluation concerns the use of the FFS approach within the Danish-supported Agricultural Growth and Employment Programme (AGEP) in the period 2013-2018.

The overall objective of the evaluation is to document achievements and analyse the outcomes and impact from FFS in AGEP since 2013. Based on this, the evaluation should prepare recommendations for the future as inputs for the design of a new Danish country programme in Bangladesh (for the period 2021-2026).

FFS as implemented in AGEP

The FFS approach was developed by FAO in the late 1980s and is a group-based learning and empowerment process. FFS is participatory and community-based; the learning takes place in the field in small groups doing comparative studies/experiments, where farmers learn together and from each other. In AGEP, the FFS approach has been practiced within two components: i) the Integrated Farm Management Component (IFMC), implemented in seven regions[1] of Bangladesh by the Department of Agricultural Extension (DAE) within the Ministry of Agriculture; and ii) the Agriculture and Food Security Project (AFSP) in the Chittagong Hill Tracts (CHT), implemented by United Nations Development Programme (UNDP). The total budget of AGEP was DKK 405 million[2], out of which DKK 300 million were allocated for IFMC and DKK 45 million for AFSP.[3]

There are notable differences in the way FFS has been implemented in IFMC and AFSP. First, the conditions in CHT are very different from those of the Bangladeshi lowlands. This includes lower starting points in productivity, different governance systems, less market influences, etc. Second, AFSP has been a much smaller programme, implemented

1 Dhaka, Rajshahi, Rangpur, Barisal, Khulna, Chittagong and Sylhet.

2 DKK 75 million were contributed by the Government of Bangladesh.

3 DKK 50 million were allocated for Katalyst and DKK 10 million were unallocated funds.

through a project modality while IFMC has been implemented country-wide through a government agency (DAE). Furthermore, whereas farmers in IFMC were encouraged to form Farmers Organisations (FOs) after finalising FFS, this was not the case in AFSP where this element was not included.

The main emphasis in this evaluation has been on IFMC, since an end-evaluation of ASFP had already been conducted.[4] The assessment of IFMC has included implementation of a household survey (as a follow-up to an earlier baseline study) as well as qualitative fieldwork in four regions; two in the North (Rangpur and Rajshahi) and two in the South (Barisal and Chittagong (Feni District)). For AFSP, the focus has been on validation and triangulation of findings from the end-evaluation (which included a household survey) through a qualitative fieldwork mission to CHT.

KEY FINDINGS FROM THE EVALUATION

FFS has been a relevant approach to support rural development in the Bangladeshi context

The FFS approach is fully in line with the Government of Bangladesh's Vision 2021 and the 7th Five-Year Plan (2016-2020), which have been aligned to the Sustainable Development Goals (SDGs). It is emphasized in these plans that income distribution should be significantly improved, leading to a faster pace of poverty reduction, by prioritising policies, institutions and programmes that are supporting lowering of income inequality and empowering of citizens. In addition, the farmer segment targeted by FFS (landless and marginal farmers) has been complementary to the target group of the DAE mainstreaming approach, which mainly focuses on medium and small-scale farmers. The FFS approach has therefore fitted well with Bangladesh's current development strategy and planning, in relation to the SDGs.

Significant impacts from the FFS approach but less pro-poor profile

FFS has contributed to a significant increase in household income through increases and diversification of production, both in IFMC and AFSP. On average, the impact from FFS on household income has been close to BDT 10,000 annually, equivalent to an average monthly household income for the benefiting households. In particular, farm income from poultry and eggs, vegetable gardening and fish production has contributed to significant higher income increase in FFS households compared to a group of control households. It is important to note however, that the income effects have been more significant for the relatively richer households than for the poorest households.

4 End-Evaluation/Impact Assessment for Agriculture and Food Security Project (AFSP) Phase II, prepared by IRG Development Services Ltd. on behalf of UNDP, July 2018.

FFS households have also reduced their vulnerability and increased their intake of most food items significantly more than control village households. FFS has contributed to a significant reduction in the risk of food crises in households in both IFMC and AFSP and nutrition aspects have been improved, mainly through enhanced homestead gardening and poultry production as well as massive awareness raising campaigns (not only through AGEP). In terms of employment, the evaluation found examples where more youth and women (outside family labour) were being employed in farm production and in service functions, such as vaccination, but employment generation as a result of FFS was modest. Although the evaluation found indications of some spill-over effects from FFS farmers to non-FFS farmers within FFS villages, there seems to be potential for larger impact in this area.

Quality issues identified in relation to FFS curriculum and training of farmers
The time-consuming exploratory learning in IFMC-FFS has been reduced due to a combination of more subjects into the curriculum, an increased number of modules and sessions being shortened. Bringing numerous different topics (rice, vegetables, poultry, cows, fish, nutrition, etc.) into the same FFS has made it difficult to cover all topics in a participatory and experiential way. The exploratory element of FFS, building on using the farmers' own skills and experience from the field and encouraging them to apply these experiences in problem solving, has only happened to a limited extent in practice. This has also impacted negatively on maximizing the effect of training in, for instance, Integrated Pest Management (IPM). In addition, challenges related to the scaling up process have been identified, especially organisational and logistic issue have been problematic. In AFSP, the training has been conducted mainly by using an FFS approach that is still exploratory or at least participatory.

Many of the FFS facilitators conducting the training in IFMC had limited experience as facilitators and, due to the many different modules included in the FFS, they had to deal with topics outside their own area of experience. In addition, the facilitators have been supervised and guided by DAE staff, who are mainly crop experts, with limited knowledge on fish, livestock, poultry, nutrition and women's empowerment. All this has contributed to lowering the quality of the FFS. In AFSP the access to extension services appeared more impressive and could be augmented further by increased use of systematized farmer-to-farmer extension.

Bias in the selection of FFS participants and facilitators
Although the majority of the selected FFS participants in IFMC have been landless and marginal farmers, in many cases they have not come from the poorest and most vulnerable farmers within these groups. Likewise, while the FFS guidelines encouraged participation of female-headed households/widows, only relatively few participants belonged to this group. The guidelines and supervision process for selection of partici-

pants have not been sufficient to avoid that relatively richer and more powerful farmers within the communities often have got preference for participating in the FFS.

Whereas there has been an equal distribution of male and female farmers, there has been an unequal representation of men and women as FFS facilitators. In both IFMC and AFSP only one in four facilitators were women. It seems that this, to a larger extent, is more a reflection of cultural barriers than a lack of interest among women to become facilitators. In the Bangladeshi context women are not considered farmers, although they are increasingly engaged in agriculture.

Mixed results on adoption of new skills and farming techniques
The evaluation found a relatively high uptake among farmers of the new simpler technologies promoted by FFS in both IFMC and AFSP. The farmers in the South seemed generally more motivated than farmers in the North to learn and adopt new technologies to boost development in their area. Likewise, the uptake was higher in AFSP than in IFMC. The evaluation found that the difference in uptake was to some extent explained by the difference in participants' motivation to apply and adopt new FFS techniques in the two geographical areas. The number of NGO and Government of Bangladesh (GoB) implemented projects are larger in the North than in the South, thus more opportunities for support already exist in the North. The uptake of the more advanced technologies introduced by FFS in IFMC was found to be much lower. This was mainly explained by the reduced quality of the FFS and, in particular, that the explorative learning parts had been reduced.

Women have been empowered but challenges remain, in particular on mobility
In IFMC, FFS has contributed to positive changes in relation to women's participation in decision-making processes e.g. on how to make use of income and on adoption of new farming technologies. Women have also become more involved in selling and marketing processes and they feel more confident now when speaking in public. Although women's mobility has also improved, it is still a constraining factor that most women are not allowed to go to markets on their own and thereby benefit from FFS on the same terms as men. In terms of ownership and access to productive resources, FFS has not contributed to larger female control over household assets.

In AFSP, FFS has contributed to ethnic minority women having acquired more access and partial control over income, especially income from poultry and homestead gardening. This has positively affected women's position in the household, leading to larger involvement in decision-making. This is a considerable change compared to five years ago, when both ethnic minority and ethnic Bengali women were reluctant to participate in FFS, while now they are even joining community events.

The same change has, however, not materialized with Bengali women in CHT.

Shortcomings in the implementation of the farmer's organisations model
The developed and applied model for establishing and training of FOs in IFMC has not worked as intended and implementation has been done with insufficient testing and learning. Both the reasons for establishing the FOs, as well as the level of functionality of these organisations varied a lot across villages. In several cases the FO leaders had been selected due to political relationships rather than through a participatory process.

The evaluation findings also show that FFS has resulted in FFS households more actively applying marketing practices than non-FFS households. At the same time, the evaluation found large variations in the benefits from the market linkages training. Women have gained more access to markets through FOs with the establishment of collection points.

FFS has been cost-effective but institutional weaknesses were identified
Cost calculations show that FFS has been a very cost-effective investment in both IFMC and AFSP, with a pay-back time of 1-1.5 year. On the other hand, it is also clear from the evaluation that the current institutional arrangements for FFS in both IFMC and AFSP are not able to continue without the substantial external financial support.

The evaluation findings show that both a number of the hoped-for strengths and envisioned challenges from working with a government-led model have materialized in IFMC. The FFS approach has indeed been scaled up and substantial results have been delivered. At the same time, issues regarding management and supervision, quality, fidelity, etc., have been encountered and have influenced performance. AFSP has applied a different division of labour between line departments and implementing partners (not just UNDP but also NGOs) and both the costs and quality of the support have been higher than in IFMC. While it cannot simply be assumed that such a multi-actor model would be effective or efficient if simply transferred to other parts of Bangladesh, the different forms of partnerships may be explored.

One of the aims of the IFMC was to strengthen the national dialogue on farmer-centred approaches by establishing a national platform. The Bangladesh Agricultural Extension Network has been founded under the leadership of DAE and includes membership of other government departments and institutions (notably Department of Fisheries (DoF) and Department of Livestock Services (DLS)), NGOs and national and international extension organisations. This is clearly an important achievement as a foundation for future dialogue.

MAIN CONCLUSIONS

The relevance of applying a FFS approach has remained high within the Bangladeshi context over the period of evaluation in support to the country's efforts to become a Lower Middle-Income country and graduate from a Least Developed Country (LDC) to a developing country. However, more support and efforts may be needed to bring the positive experiences from use of the FFS approach more effectively into national policy development and implementation processes.

The FFS approach, as implemented in both IFMC and AFSP, has delivered several positive results along the lines of the hoped-for changes in AGEP. Since 2013, almost one million poor people (representing close to half a million households) in rural Bangladesh have benefitted directly from new knowledge and techniques related to agricultural production and nutrition introduced through FFS in AGEP. The impact from FFS on household income, food security, diversification of agricultural production, women's empowerment and nutrition has been significant.

The scaling-up of FFS in IFMC, and especially the combination of many training modules into one package, has led to reduced quality of the FFS training. The approach of exploratory learning has been diluted in most FFS training in IFMC and is a main reason for the decline in quality. The training has still been of sufficient quality to lead to positive results in production and income, albeit not as good as in earlier phases.[5]

Favouritism and clientelism in the process of selection of FFS villages and participants in IFMC has to some extent led to exclusion of the poorest farmers from participating. While the upscaling of FFS has made it possible to support a large group of farmers who would not be reached through DAE's mainstreaming approach, the support has, at the same time, had a weaker pro-poor profile compared to previous programme phases.

AGEP has contributed to a significant enhancement of women's empowerment within FFS households. However, persisting challenges and barriers for women's mobility and decision-making power in relation to farm management need to be addressed more explicitly. This would require a more holistic approach to rural livelihood and farming systems, where farming will be seen as a family business and gender inequalities addressed in a more co-operative manner with women and men.

5 See the 2011 Evaluation Report.

The decision to implement the FO model and market-oriented activities in IFMC through a government institution (DAE) has lowered the quality. DAE has had insufficient capacity and shown limited interest to implement these activities along the lines of the programme design and does not appear to be the right partner in this area. In addition, targets have been too ambitious considering a complex context, large geographical coverage and the level of financial and human resources allocated.

FFS as implemented in IFMC has shown signs of institutional weaknesses and management challenges at various levels affecting the efficiency of the interventions. The dual and decentralised management structure applied for programme implementation has not worked as intended, the established M&E system has only been partly functional in support of managerial and operational activities, and the set-up for backstopping and quality assurance included inherent risks for inefficiencies.

Despite high cost-effectiveness from the supported interventions, the evaluation of the FFS approach raises critical questions about the future, not least in relation to IPM, finance and institutional partnerships. Important areas such as IPM in relation to high value crops has not been sufficiently covered by the supported interventions. Institutional arrangements and finance for future FFS support are still unclear and, while it is unlikely that DAE will have the capacity and capability to continue with the FFS approach on its own, alternative institutional and financial modalities for FFS have not been tested as part of IFMC.

RECOMMENDATIONS

RECOMMENDATION 1: Future development interventions in Bangladesh, aiming at reducing vulnerability and livelihoods among poor rural households, should continue making use of the FFS approach, incorporating the recommendations given below to address current weaknesses and opportunities. This should also include concerns about bearing the costs of adaptation to climate change in Bangladesh, which have major implications for the most vulnerable. In view of a recent slowdown in the pace in poverty reduction and an increased inequality in Bangladesh, a properly designed FFS approach with an explicit pro-poor focus could contribute to a reversing of these trends, as it is able to foster a rise in income as well as improved food security and nutrition amongst poor farmers even in the short-term.

RECOMMENDATION 2: The season-long exploratory learning should be brought back as the heart of the FFS approach in Bangladesh. This will be crucial to ensure that not only technologies are introduced but also that FFS will stimulate, encourage and empower farmers to develop problem-solving skills and have the confidence to apply them on other innovative and developing practices. This will include a review of the curriculum and that FFS become more focused (fewer modules and participants in one FFS). FFS participants should get more influence on selection of modules, based on their needs and priorities. A more flexible household approach, where a couple could split up and attend different FFS sessions, could be explored. FFS facilitators should have practical experience in the topic that they teach. Furthermore, in view of the general trend for production of more high-value crops, it appears important to develop FFS curricula for these crops and ensure that IPM is adequately addressed. The possibility for including follow-up visits to FFS participants from facilitators (after completion of FFS) should be further explored, based on the positive experiences from AFSP.

RECOMMENDATION 3: Current guidelines and procedures for selection of FFS/FO participants and group composition should be reviewed and more clearly defined, emphasising inclusion and focusing on the poorest and most vulnerable farmers. This will imply some clear choices in a future Danish country programme, including: i) more narrow definition and targets for inclusion of the poorest and most vulnerable farmers (e.g. more clear definition of vulnerability, more strict requirement to land access and ownership, specific targets for participation of female-headed and other vulnerable household groups); and ii) a stronger supervision of the selection process at a time when changes in rural power structures in Bangladesh have been observed, which are making it more difficult for the power-poor to be included in development projects such as FFS.

RECOMMENDATION 4: Future FFS interventions should include a broader definition of women's empowerment as well as inclusion of more specific goals and targets. While AGEP basically has focused on women's participation and income, other relevant parameters to include in a women's empowerment definition would be time consumption, ability to speak in public, decision-making, mobility and control of assets, etc. Close cooperation should be ensured with other programmes working in this area in Bangladesh (such as IFPRI). The current approach for identification and employment of facilitators should be revisited to ensure a more equal gender balance with a particular view to strengthening women's participation as facilitators.

RECOMMENDATION 5: The approach to establishing and training of FOs should be reconsidered. This should include an assessment of alternative partnerships to DAE. The approach to training should be based on the principles and praxis of exploratory learning and could well focus on farmer clubs (and similar groups) already developed in previous Danida supported programmes. Any new model should be well piloted and tested before scaling up.

RECOMMENDATION 6: A more effective management information and monitoring system should be established for subsequent FFS programmes/phases. This should include: i) a Baseline Study that will be designed, conducted and preserved to make it as useful as possible for ex-post evaluation. Due to the complexity of this process, an expert with required skills and expertise should be consulted; ii) a performance monitoring system for FOs should be established based on a few, easily collected indicators; and iii) the monitoring system should include specific targets and indicators for measurement of women's empowerment and qualitative participation (see Recommendation 5), spill-over effects from FFS as well as of direct and indirect employment effects from FFS and FOs.

RECOMMENDATION 7: Continued support should be provided to the Bangladesh Agricultural Extension Network as a platform for national dialogue on farmer-centred approaches and multi-actor consultation. This could ultimately lead to involvement of a broader group of key stakeholders in planning and implementation of FFS. By implication, there is a need to continue the process of establishing and strengthening the national dialogue, and to ensure that Danida continues to engage in advocacy for the various important aspects of the FFS approach. This includes support to policy development, such as development of a Gender Policy in DAE.

RECOMMENDATION 8: Alternative "FFS models" should be piloted to make the support as self-financing and best practice oriented as possible (such as establishing of FFS networks and commercialization of services and income-generating activities). Strengthening of peer train-

ing networks should also be considered a key element for development of an approach more focused on sustainability, including with a view to promoting larger spill-over effects and encouraging FFS farmers to share information with others. Here it will be important to build further on the combined experiences from IFMC and AFSP (working with national partners, NGOs, project unit vs. GoB management, the role of GoB line departments; use of different approaches for selection and use of trainers/facilitators etc.).

1 INTRODUCTION

The Evaluation Department of the Danish Ministry of Foreign Affairs (EVAL) has commissioned Nordic Consulting Group (NCG) and Orbicon A/S to undertake an independent evaluation of support provided to the Agricultural Growth & Employment Programme (AGEP) in Bangladesh during the period 2013-2018.[6]

There is a very long history of Danish assistance to the agriculture, livestock and fisheries sectors in Bangladesh, dating back to the 1970s. In the 1990s, Danida supported efforts to improve soil fertility through a balanced use of fertilizers and by dealing with crop losses through the introduction of integrated pest management (IPM) in farming systems. Since the 1990s, the "farmer field school" (FFS) approach has constituted a key element in the sector programmes funded by Danida. The evaluation concerns AGEP in the period 2013-2018 which succeeded the agricultural sector programmes. In AGEP, the FFS approach was practiced within the Integrated Farm Management Component (IFMC) implemented in Dhaka, Rajshahi, Rangpur, Barisal, Khulna, Chittagong and Sylhet regions by the Department of Agricultural Extension (DAE); and the Agriculture and Food Security Project (AFSP) in the Chittagong Hill Tracts (CHT) implemented by United Nations Development Programme (UNDP). In addition to this, AGEP included an agri-business development component (Katalyst), which ended in March 2017 and is not part of this evaluation.

IFMC I was initiated in 2013 and was finalised by end 2018 with the intention to initiate the IFMC II in the beginning of 2019. This did, however, not materialize as an agreement with the DAE had not been signed by the time the evaluation was launched. AFSP II was completed in 2017 and AFSP III was initiated immediately after. An end-evaluation of AFSP II was finalised in 2018[7] and the focus of this evaluation is therefore primarily on FFS implemented under IFMC I and, secondarily, on AFSP II.

6 The evaluation team comprises: Carsten Schwensen (Team Leader), Eva Broegaard, Steffen Johnsen, Louise Scheibel Smed, Mofarahus Sattar, Rabeya Rowshan and John Rand. The Bangladesh Center for Advanced Studies (BCAS) assisted with planning and implementation of a household survey.

7 End-Evaluation/Impact Assessment for Agriculture and Food Security Project (AFSP) Phase II, prepared by IRG Development Services Ltd. on behalf of UNDP, July 2018.

1.1 Objectives, scope and purpose of the evaluation

According to the Terms of Reference (Annex 1), the objectives of this evaluation are threefold: i) To document the achievements of the AGEP since 2013; ii) To analyse the outcomes and impact of IFMC and AFSP, where a particular emphasis will be on the adoption of new farming techniques and practices, as well as marketing knowledge promoted through the project components; and iii) On the basis of the lessons learned through the AGEP, to prepare recommendations for the future to be used as inputs for the design of a new country programme for Danida in Bangladesh (for five years, from 2021 to 2026). Thus, the evaluation covers both IFMC and AFSP as two components of the AGEP which use the FFS approach but with the main emphasis being on the IFMC, which is by far the largest component of AGEP. This also means that the analysis of AFSP in this report is not done with the same depth as is the case for IFMC, and some areas (e.g. institutional and M&E aspects) are mainly dealt with in relation to IFMC.

1.2 Brief introduction to AGEP

AGEP is a continuation of Danish support to the agriculture sector in Bangladesh. The support was implemented as a sector programme from 2000 to 2013 where the support shifted to a thematic programme under the country programme, as reflected in Table 1.

In 2011, Danida evaluated the FFS approach in Bangladesh and studies of FFS in different regions of the country were undertaken. The evaluation found that more than 500,000 rural households had benefitted from knowledge and techniques acquired through participation in these FFSs. Furthermore, it was found that there had been a significant impact on household nutrition and food security, notably among the poorest. Household incomes had increased in comparison with control groups and production had diversified. In short, the evaluation concluded that the FFS approach had been very successful in terms of improving livelihoods, not least for many women in the rural communities and for the poorest households.

TABLE 1. DANISH SECTOR SUPPORT TO THE AGRICULTURAL AND GROWTH SECTOR (MILLION DKK)

Programme	Period	Danish contribution	GoB contribution
Agriculture Sector Programme Support II (ASPS II)	2006-2013	531	79
Agricultural Growth and Employment Programme (AGEP) I	2013-2018	330	75*
Agricultural Growth and Employment Programme (AGEP) II[8]	2019-2021**	90	30

**Only for IFMC.*

*** The period for IFMC II only, the AFSP III runs from 2018 to 2021.*

The overall (development) objective of the AGEP was defined as contributing "to an increased pro-poor and inclusive growth and sustainable employment creation". Although the programme was not intended to directly generate employment, it was anticipated that job opportunities would emerge from interventions that increased the value of farm produce and thus would create more jobs. AGEP has three components, as listed in Table 2 below, but only IFMC and AFSP included FFS.

8 AGEP II is not part of the evaluation but is included to provide an overview of the Danish agriculture support. NB AGEP II 2019-2021 has not yet started except for AFSP.

TABLE 2. OVERVIEW OF AGEP I COMPONENTS, OBJECTIVES AND BUDGET

Agricultural Growth and Employment Programme I (AGEP I) 2013-2018			
Components	**Immediate Objective**	**Implementing Partner**	**Budget (million DKK)**
Integrated Farm Management Component (IFMC)	Agricultural production of female and male marginal and small farm households increased through Integrated Farm Management (IFM) Farmer Field Schools.	Dep. of Agricultural Extension (DAE)	300
Agriculture and Food Security Project (AFSP) II in the Chittagong Hill Tracts (CHT)	1. Agricultural production of female and male marginal and small farm households increased and diversified through IFM FFS in the Chittagong Hill Tracts. 2. Implementation of the CHT 1997 Peace Accord accelerated through further devolution of agricultural services to the Hill District Councils.	UNDP/Ministry of CHT	45
Agro Business Development Component (ABDC)/Katalyst*	Strengthening the competitiveness of the agricultural and agro-business sectors	Swisscontact/ Ministry of Commerce	50
Reviews/unallocated funds			10
Total budget million DKK			**405****

** This component is not included in the current evaluation.*

***DKK 75 million Government of Bangladesh (GoB) contribution and Danida contribution of DKK 330 million.*

1.3 Overview of the evaluation report

This introductory section (Chapter 1) is followed by a presentation of the methodology and approach (Chapter 2). Chapter 3 provides a presentation of the context for the AGEP programme with a specific emphasis on political-economic issues, and on agricultural and rural sector development. Chapter 4 presents the programme design with a brief description of the institutional set-up, the evolution of FFS and a description of the differences between AFSP and IFMC. Chapter 5 builds on the programme design and analyses the implementation and results of FFS. FFS Costs and Organisations are analysed in Chapter 6, and Chapter 7 considers

sustainability issues of the FFS and the Future for FFS in Bangladesh. Chapter 8 provides conclusions and recommendations.

Unless specifically mentioned in the text, the abbreviation FFS refers to FFS under IFMC. When dealing with AFSP, this is particularly mentioned.

2 EVALUATION METHODOLOGY AND APPROACH

This chapter includes a brief version of the methodology and approach applied for the evaluation. For a more detailed explanation, see Annex 6.

2.1 Analytical framework

The design of the evaluation reflects the objectives and evaluation questions as set out in the ToR. The design has been tailored to make the most out of the resources at hand, by utilizing existing data with due consideration of its strengths and weaknesses and collecting the needed additional information. A key aspect of the evaluation is to identify and assess achievements, as well as the critical factors behind positive or less positive performances. The performance of the two AGEP components covered by the evaluation are addressed in line with the ToR:

- For IFMC, a theory-based, mixed method approach has been applied to capture results at outcome and impact level in a credible manner. This involved both a survey following up on an earlier baseline study, as well as qualitative fieldwork and programme documentation review.

- For the AFSP component, the assessment builds on a combination of the recent UNDP-commissioned end-evaluation (which included a household survey) supplemented with a qualitative fieldwork mission.

The evaluation used the AGEP programme information, including the logical framework and results frameworks for IFMC and AFSP (see Annex 4) to establish an overall Theory of Change (ToC).[9] This has been key to understanding whether the support has worked as intended and whether programme assumptions materialized or not. This includes the role of contextual and external factors influencing the programme. More specifically, the analytical framework entails a mixed methods approach including both rigorous quantitative impact assessment, and contribu-

9 A ToC was not included in the AGEP Programme Document. See Annex 7 for an overview of the reconstructed ToC

tion analysis combined with more qualitative aspects, all informed by the ToC.[10]

EVALUATION QUESTIONS AND CRITERIA:
The 10 Evaluation Questions (EQs) from the ToR provide the overall framework for the evaluation assignment (the EQs are presented in the Evaluation Matrix in Annex 6 together with judgement criteria and indicators). These questions, together with the evaluation objectives and key issues, are the basis of the design and methodological approach. Both qualitative and quantitative indicators have been used, as the range of issues are multifaceted and require indicators that capture this complexity (i.e. issues related to the implementation processes content/quality, results achieved, efficiency, adaptation to context, etc.) The table below summarises the application of the evaluation matrix in the current report, how the EQs relate to the OECD/DAC criteria and in which chapter they are being addressed.

TABLE 3. EQS RELATED TO OECD/DAC CRITERIA

EQs	Topic	Report	OECD/DAC
4, 5 and 8	Implementation of FFS	Chapter 5 (5.1, 5.2)	Relevance, effectiveness, sustainability
1, 2, 4, 6, 7, 9	Results of FFS	Chapter 5 (5.3-5.6)	Effectiveness, impact, efficiency, sustainability
3	Value for money	Chapter 6	Efficiency
10	Lessons learned/ recommendation	Chapter 8	

2.2 Methods for data collection and analysis

The overall approach to data collection and analysis was based on a mixed-methods approach.

HOUSEHOLD SURVEY
A household survey was implemented within four different regions; two in the North (Rangpur and Rajshahi) and two in the South (Barisal and Chittagong (Feni District)). The survey was implemented as a follow-up to a baseline survey (implemented in 2014) with some adjustments to

10 The approach serves as a way of framing the work with the ToC. More information on contribution analysis and the mixed methods approach can be found in Annex 6. The operational implications of the approach are covered in the sections on the ToC as an analytical framework, the quantitative and qualitative data collection and challenges and limitations respectively.

enhance its usefulness to the evaluation. This included mainly adding of FFS participants to the survey as most of the households included in the baseline study had not become participants in FFS. It was therefore also necessary to supplement the baseline questionnaire with recall questions, in order to gather baseline information about the FFS participants.[11] Data collected from FFS households by AGEP prior to the start of the FFS were also used to construct a proxy baseline for FFS participants.[12] The resulting data base with information regarding both the situation before and after the implementation of the FFS, and for both FFS-participants and non-participants, has been used to identify the specific results that can be attributed to IFMC.[13]

Within the four regions, 14 villages (including a total of 19 FFS groups) were identified across the baseline survey villages and the list of FFS villages. These 14 villages were located within the four above-mentioned regions. In addition, 34 non-FFS villages from the baseline survey (all located within the same four regions) were included in the control group.

USE OF TWO DIFFERENT TYPES OF CONTROL GROUPS

It should be noted, that the evaluation has made use of two different types of control groups (control households both from within (Non-FFS) and outside FFS villages (Control)). This has allowed for a more nuanced assessment of variance in results patterns, including possible spill-over effects from different types of FFS interventions. In most cases, the data analysis has been done for both Non-FFS and Control households. However, on women empowerment, the analysis has focussed mainly on FFS vs. Non-FFS data, i.e. changes observed within the FFS villages, since a number of gender and women empowerment projects are being implemented all over Bangladesh, thus the risk for contamination of control villages would be high. For land ownership the comparison is

11 While use of recall is less than ideal (due to the obvious problem of accuracy), care has been taken to ensure that it draws on research into what types of issues are most relevant for more detailed recall questions.

12 It should be stressed that the qualitative field work raised issues regarding the accuracy and reliability of these data, indicating that the information may not always have been provided directly from the farmers and the register having been filled in later by programme staff (see below for more regarding challenges and limitations).

13 A so-called double different approach. The double difference measures the difference in the observed change between participating households/individuals and control village households/individuals, based on baseline (recall) data and ex-post data. Thus, the double difference eliminates external determinants of the outcome, in cases where these are the same for the two groups during the intervention period. The double difference approach assumes common time effects across groups and no composition changes within each group. In order to identify results stemming from FFS in CHT, the UNDP has also commissioned an impact assessment based on a double-difference approach, but this has been implemented with a somewhat different (technical) methodology (see further below).

also made only between FFS and Control households, since increased land ownership among FFS households could be at the cost of less ownership among Non-FFS households within the same villages.

These are defined in the Table 4.

TABLE 4. DEFINITION OF HOUSEHOLDS INCLUDED IN THE SURVEY

Households	Definition
FFS household	Households included in FFS, treatment group
Non-FFS household	Households from FFS villages but *not* part of FFS
Control households	Households from villages where no FFS has been implemented

The household survey effectively covered 965 households (388 FFS households and 577 control households), over the four regions as listed in Table 5.

TABLE 5. HOUSEHOLDS INCLUDED IN THE SURVEY PER REGION

Region	FFS households	Total # of households surveyed
Rangpur	85	249
Rajshahi	109	289
Barisal	121	303
Chittagong (Feni)	73	124
Total	**388**	**965**

The evaluation has used a propensity score matching approach[14] to carry out an econometric analysis of the collected household data, based, to a large extent, on a matched double difference approach.[15] The robustness of the results from the econometric data analyses have been tested at the 1% (most significant), 5% and 10% (least significant) statistical significance level.

14 Mathematical technique used to select members of the control group that share characteristics with members of the participants group, through estimation of a statistical model based on matching characteristics (household characteristics).

15 The information on general household characteristics (size of land, education (years), household size, number of males/females) in the data set has been used fully in the matching approach pursued.

QUALITATIVE DATA COLLECTION

The qualitative fieldwork was designed to be implemented *after* the preliminary results from the household survey were known. This sequencing allowed an element of follow-up on particular interesting findings and results from the survey, including more in-depth assessment of specific issues. Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs) together with site inspections were applied as the key qualitative methods by the evaluation. The fieldwork covered visit to three regions (Rangpur in the North, Barisal in the South and Chittagong Hill Tracts), where the Upazilas and villages listed in Table 6 were visited during a three-weeks period:

TABLE 6. QUALITATIVE FIELDWORK IN RANGPUR, BARISAL AND CHT REGIONS

Rangpur region			
Upazila	**Village**	**Female farmers**	**Male farmers**
Pirgacha Upazila	Bara Hayat Khan village	11	0
	Gunjar Khan Amintari Village	11	8
	Uttar Chandipur Village	6	7
Palashbari Upazila	Basudebpur, Bhagwanpur village	12	5
	Balarampur Village	14	3
	Purbo Gopalpur village	9	6
	Paschim Goalpara village	20	18
Barisal region			
Betagi Upazila	Dakshin Hosnabad village	14	5
	Chandkali village	11	6
	Uttar Kawnia	15	4
Chittagong Hill Tracts region			
Rangamati upazila	Borodona village	23	4
Langadu upazila	Ishaqpara village	22	9
Naniarchar upazila	Jogendrapara village	20	12
Total			
		188	**87**

The selection of Upazilas and villages for fieldwork visits was based on a wish to be able to study how the market linkage element was implemented, and to be able to cover implementation of FFS activities within different provinces (rich/poor) and within different agro-ecological zones; activities that were completed some time ago (potential impact and sustainability issues), as well as more recent activities (more focus on outcomes) as well as logistics and practicability of travel.

The following group of stakeholders was covered as part of the qualitative fieldwork:

- 3 Upazila Agricultural Officers (UAOs), all males
- 3 Upazila FFS coordinators in CHT
- 3 Sub-Assistant Plant Protection Officers (SAPPOs), all males
- 8 Sub-Assistant Agriculture Officers (SAAOs), all males
- 2 District officers/coordinators in CHT (both males)
- 26 FGDs with FFS farmers, 188 females and 87 males
- 2 FGDs with non-FFS farmers in Barisal, 13 females and 6 males
- 7 non-FFS members, 2 males, 5 females, in Rangpur FFS villages
- 23 farmers facilitators (FFs)
- 13 executive members and Business focal Points (BFPs), 7 male/5 females
- 7 Farmer Organisations (FOs)
- 6 UNDP technical programme officers (M&E, livelihoods, training)
- 6 UNDP Master trainers

In addition to the KIIs and FGDs, the evaluation made direct observations within the visited villages of FFS technology uptake and/or any changes at village/household level resulting from FFS activities.

Data collection is summed up in the map below with indications of where the household survey and qualitative fieldwork was conducted.

2.3 Limitations and Challenges

As for any evaluation, there are some important limitations and challenges to consider. While the approach to data collection and analysis was planned to address and remedy these challenges as far as possible, there were nevertheless a range of issues that must be kept in mind.

RISK OF POSITIVE BIAS

The risk of positive bias was considered up front; both in relation to the monitoring data, and in terms of possible "diplomatic" bias during data collection, either due to general politeness and tendencies towards confirmations; or due to risk of showcasing and preparation of informants, whether by design or unconsciously. This posed challenges for both the quantitative data collection and the qualitative fieldwork. It was not possible to carry out the household survey without some involvement of DAE staff, due to the need for mobilization of the villagers. However, in general, the survey enumerators and the fieldwork team could carry out their activities in an unsupervised manner. With regards to the use of programme monitoring data, the risk of positive bias has had the implication that the evaluation has used these only in combination with other data sources and mainly for descriptive purposes.

PROGRAMME STAND-STILL

The fact that the evaluation investigated a programme that was not under implementation, posed limitations on both observations of practice and the dialogue regarding, for instance, selection processes, use of manuals and guidelines, etc. For instance, it would have been useful to observe training sessions with the changes in curriculum and number of training sessions that have taken place, as part of the evaluation's relevance and quality assessment.[16]

BASELINE DATA AND "REAL WORLD" LIMITATIONS FOR THE QUANTITATIVE IMPACT ASSESSMENT

The household survey has required the use of supplementary data sources, such as household information sheets (filled in prior to enrolment in FFS by Upazila officers), and the incorporation of recall questions in order to capture the baseline situation for FFS participants. Furthermore, there may be nuances and effects, which do not come across as significant in the survey, simply because they are hard to detect, and not because they are not "real" results. By implication, care should be taken not to over interpret details of the responses. Rather, the key messages to be taken from the survey are thus the broader lines of changes

16 The situation also came with logistical challenges related to ensuring hard copies of programme information from the field prior to termination of the programme – a challenge programme staff was most helpful in trying to remedy – and in the availability of regional programme staff for interviews.

and results. In outlining the findings, care has been taken to explain the strength of the different findings, both as they come across in the quantitative analysis, but also with consideration given to the qualitative fieldwork and other data sources.

USE OF DIFFERENT METHODOLOGIES FOR THE AFSP AND IFMC HOUSEHOLD SURVEYS

The recent AFSP II End-Evaluation is an important data source for the evaluation, as it conveys findings regarding the results of FFS as implemented in CHT. Thus, it is important to briefly outline some of its limitations and the implications for its interpretation.

The evaluation findings build on comparison of control and treatment groups, and the report states that the only difference between the control and treatment group is that the treatment group participated in AFSP II. However, the selection of the control group is done on a very limited number of characteristics, namely land holding size and gender of the household head. Furthermore, the control group is about half the size of the treatment group, which makes it more difficult to ensure that the control group and the comparison group are similar.[17] The risk of positive bias is a concern as well. While this is also true for the follow-up survey, there are some additional issues for the AFSP survey. For instance, there are questions about positive change that have been posed in a manner that may lead to the informant feeling "invited" to provide a positive answer.[18]

In order to address potential bias, a small qualitative fieldwork exercise in CHT was added to the evaluation approach. This has allowed for validation of the AFSP end-evaluation, for the triangulation of findings, and for working with a richer picture of processes and experiences. Nevertheless, the specific findings from the AFSP evaluation should be interpreted with these limitations in mind. It should also be mentioned that, due to the use of different methodologies, different wordings in

17 For instance, the treatment group has more experience on farming than the control group, the number of working family members is higher, and there is a marked difference in the yield reported in the "before" scenario. Working with a smaller control sample can be perfectly fine, if one is very certain about the similarities between the two groups. This, however, cannot simply be assumed to be the case and therefore a small sample size is problematic. For comparison, the follow-up survey established a sample of 388 FFS households and 577 control households).

18 Care must always be taken to ensure that the wording of questions do not add to the risk of positive bias, by "inviting" positive answers (for instance, it is seen as better to ask about change without indicating any direction of the change, rather than asking whether improvements have happened, asking the informant to confirm or deny). In this light, it may have felt too natural for respondents to simply say "yes" to questions like: "Do you think your knowledge and perception on improved technology after participation in the project increased?" or "Do you think that AFSP II project has increased your farm income?").

the questionnaires, etc., direct and specific comparisons between the two double-difference analyses has not been attempted (for instance in relation to income amounts).

3 BANGLADESH DEVELOPMENT CONTEXT

3.1 Overall national development planning framework

The overall vision for Bangladesh's development in the AGEP implementation period has been embedded in the GoB Vision 2021, which is a political statement on where Bangladesh intends to be when it marks the 50-year anniversary of independence in 2021: "a country with accelerated economic growth and empowered citizens." This development is to take place in the context of better education, social justice, protection of the environment, climate resilience, respect for democracy, rule of law, human rights and equal opportunities. Vision 2021 proposes a set of concrete measures to achieve eight identified goals[19] by 2021, through implementation of several short- and medium-term initiatives and interventions. The GoB recognises that the promotion of democratic, efficient and accountable institutions, and of gender equality are important means for making the Vision 2021 a reality. Improvements in these areas are essential to realise the GoB's ambition of achieving an accelerated economic growth rate of 8% in 2021.

The 7th Five-Year Plan (FYP) 2016-2020 labelled "Accelerating Growth, Empowering Citizens" was approved by the GoB in November 2015. It was developed with a view to operationalising the Vision 2021 while also taking into account the Sustainable Development Goals (SDGs). Bangladesh has followed the course of planned development since 1973 through development of FYPs. The 7th FYP articulates new strategies, institutions and policies, while strengthening the existing ones, to complete the remaining agenda of achieving the social and economic outcomes of the Vision 2021 agenda. The plan strives for job creation as the wheel to generate GDP growth. In Bangladesh, more than 2 million new workers enter the labour market every year. The 7th FYP also emphasizes that income distribution should be significantly improved,

19 These goals are: to become a participatory democracy; to have an efficient, accountable, transparent and decentralised system of governance; to become a poverty-free middle-income country; to have a nation of healthy citizens; to develop a skilled and creative human resource; to become a globally integrated regional economic and commercial hub; to be environmentally sustainable; and to be a more inclusive and equitable society.

leading to a faster pace of poverty reduction. In this regard, the plan puts emphasis on policies, institutions and programmes that will support lowering of income inequality and empowering the citizens.

3.2 Socio-economic development

OVERALL PERFORMANCE

Bangladesh was widely acclaimed as one of the front runners of Millennium Development Goals (MDGs) implementation. The country made outstanding progress in the areas of poverty alleviation, food security, primary school enrolment, and gender parity in primary and secondary level education, lowering infant and under-five mortality rates and maternal mortality ratios, improving immunization coverage, and reducing the incidence of communicable diseases. Many MDG targets were achieved ahead of time and most within the 2015 deadline.

Bangladesh has also made good progress towards most of the SDGs (UNDP SDG Progress report). The starting time of the SDGs (2016-30) and Bangladesh's 7th FYP (2016-20) was a mere coincidence; nonetheless it provided the country a good opportunity to integrate SDGs into the 7th FYP, thus making Bangladesh an early starter of SDG implementation. All 17 SDG goals have been integrated into the plan, thus achievement of plan objectives and targets will at the same time contribute towards achievement of the SDGs.

Bangladesh managed, in 2015, to achieve the status as Lower Middle-Income economy in the World Bank rankings through a fast-paced GDP growth (an annual growth rate of 6.5% over the past decade, reaching 7.9% last year. In March 2018, Bangladesh entered into the process of graduating from UNs Least Developed Countries (LDC) to becoming a developing country in 2024, by fulfilling all three eligibility criteria (per capita income, human assets and economic vulnerability). The graduation process is expected to lead to opportunities but also to challenges for Bangladesh[20], e.g. in terms of future mobilisation of development finance, including official development assistance (ODA). The ODA has declined from 3.1% to 1.5% of GDP over the past two decades.

GOOD PROGRESS IN MOST SOCIO-ECONOMIC INDICATORS

Bangladesh has, over the past three decades, experienced a remarkable reduction in the poverty rate (reduced from 44.2% in 1991 to 24.3 in 2016).[21] Between 2010 and 2016 poverty fell significantly and faster in rural areas than in urban areas. While the urban poverty rate declined

20 "Bangladesh's Graduation from the Least Developed Countries Group - Pitfalls and Promises". Debapriya Bhattacharya, 2018.

21 Bangladesh Household Income and Expenditure Survey 2016/17.

from 21.3% to 18.9% between 2010 and 2016, rural poverty decreased from 35.2% to 26.4%. Poverty reduction in rural areas accounted for 90% of all poverty reduction in the period from 2010 to 2016.

Life expectancy, literacy rates and per capita food production have increased significantly during the last decades, maternal health has improved and the number of girls in schools increased. In the 2018 Human Development Report, Bangladesh ranked number 136 out of 180 countries, placing the country in the medium category of human development.

In terms of promoting women´s empowerment, Bangladesh ranks 48 in global ranking of countries with a score of 0.721, indicating significantly better performance in this area compared to South Asian neighbouring countries. While gender inequality in general has improved in Bangladesh, there is still a need to address gender-based violence and equal access to health, education and employment. Continued efforts in this area will also help increasing the economic participation of women, which is needed to accelerate growth.

POVERTY AND INEQUALITY REMAIN MAJOR CHALLENGES

Despite the impressive progress in many socio-economic parameters, poverty and inequality remain major challenges in Bangladesh. However, although poverty has decreased in recent years, the rate of poverty reduction has slowed down. Almost one out of four Bangladeshi's still live in poverty and one in eight of the population live in extreme poverty.

At the same time, a worrying development is that the inequality in Bangladesh is increasing. According to the latest Household Income and Expenditure Survey of the Bangladesh Bureau of Statistics, the country's Gini coefficient (which is the economic measure of inequality) increased from 0.458 in 2010 to 0.482 in 2016, indicating that the inequality is increasing in the country.

The increasing inequality has implications for poverty reduction and relative deprivation, as well as posing a main challenge confronting Bangladesh. Partly it is a problem resulting from the inability to bring all types of income under progressive taxation and partly it is a problem of not being able to appreciably increase the share of government expenditure on education, health, rural development, and social protection in total government expenditure. The country therefore faces an urgent need for more focused policies and programmes with larger impact on reducing inequality. Although the GoB has been following a pro-poor development strategy, combining acceleration of economic growth with

the reduction of poverty and inequality, this has not yet succeeded in reversing the worsening income distribution.[22]

WOMEN EMPOWERED MORE POLITICALLY THAN ECONOMICALLY

According to the Gender Gap report from 2018, Bangladesh has considerably reduced gender gaps concerning education and health, as well as gaps in political empowerment. However, in terms of economic empowerment and women's economic participation and opportunities, Bangladesh is ranked poorly as 107 out of 115 countries.[23] According to the International Food Policy Research Institute (IFPRI's) Women's Empowerment Index in Agriculture (WEIA), the areas that contribute most to Bangladeshi women's disempowerment are weak leadership and lack of control over resources.[24] Discrimination against women in wages, continued low female labour force participation, inadequate representation of women in senior civil service positions and inadequate female managerial jobs in the private sector are some of the key challenges the 7th Five Year Plan strives to improve.[25]

Women in Bangladesh are not traditionally recognized as farmers and their growing role in agricultural production, particularly among poor households, tends to be undervalued. Agriculture is perceived as a man's domain and a woman, even if highly educated, may not participate much in agricultural decision-making.[26] Apart from this, women face challenges that hinder them from full economic participation in agricultural production. This includes the religious practice of female seclusion (purdah), which requires women to be accompanied by men and/or covered when working outside the home or in public spheres.

In addition, women have severely limited access to and control over income, assets, credits, inputs and extension services and a transmission of property through the male line largely excludes women from landownership.[27]

22 World Bank, 2018.

23 Gender Gap Report, 2018.

24 Sabina Alkire, Ruth Meinzen-Dick, Amber Peterman, Agnes R. Quisumbing, Greg Seymour and Ana Vaz: IFPRI Discussion Paper 01240 December 2012, The Women's Empowerment in Agriculture Index.

25 7th Five Year Plan FY2016-FY2020, Accelerating Growth, Empowering Citizens, General Economics Division (GED) Planning Commission, Government of the People's Republic of Bangladesh, 2015.

26 Sabina Alkire, Ruth Meinzen-Dick, Amber Peterman, Agnes R. Quisumbing, Greg Seymour and Ana Vaz: OPHI WORKING PAPER NO. 58, The Women's Empowerment in Agriculture Index, February 2013.

27 Alessandro De Pinto, Greg Seymour, Elizabeth Bryan and Prapti Bhandari, IFPRI Discussion Paper 01849, Women's Empowerment and Crop Diversification in Bangladesh, June 2019.

Data from 2011-12 showed that female land ownership was only 8.5%, and more recent studies indicate that this is still a considerable hindering factor for women's participation in agriculture.[28]

DECLINE IN GOVERNANCE INDICATORS

Bangladesh is widely seen as a 'paradox' in terms of governance and development because of the perceived ineffectiveness of its political institutions. It scores low/very low on many indicators concerning the quality of governance. [29]

Bangladesh is close to the top of the global league table for corruption. In Transparency Internationals Corruption Perception Index 2018, Bangladesh was ranked number 149 out of 180, which is below neighbouring countries like India and Pakistan. This is down from rank 143 in 2017 and from rank 134 (out of 178 countries) in 2010. The main explanations for this decline are: no practical commitment to curb corruption; little or no steps to stop high-profile corruption; uncontrolled scams and corruption in banking and financial sector; and the Anti-Corruption Commission's failure to act effectively.[30]

At the same time, Bangladesh's score in the latest Democracy Index 2018[31] fell to its second lowest level in a decade. Bangladesh ranked 88 on the Democracy Index 2018 out of 165 countries, the second worst performance since the index was introduced in 2006. Given the overall score and ranking, the 2018 index classified Bangladesh as a "hybrid regime", which in the report is defined as countries where "substantial irregularities are recorded during elections, governments repress opposition parties and their candidates, and weaknesses prevails in civil society and political culture, (and in) the functioning of administration and political participation".

Bangladesh has, generally, developed high quality policies, but implementation and enforcement remain a challenge. Capacity constraints in the public administration have resulted in delays and slow implementation progress of the GoB's development plans and have resulted in difficulties in implementing complex institutional reform processes. Likewise, the GoB's capacity to engage with the private sector and create good conditions for private investments and public-private partnerships

28 Deborah Rubin et al., Qualitative Research on Women's Empowerment and Participation in Agricultural Value Chains in Bangladesh", USAID, 2018.

29 World Governance Indicators http://info.worldbank.org/governance/wgi/index.aspx#home and Government of Bangladesh (2015): "7th Five-Year Plan (FY2016-FY2020) – Accelerating Growth, Empowering Citizens".

30 Transparency International, 2018.

31 Economist Intelligence Unit, 2018. The Index is based on five categories – electoral process and pluralism; civil liberties; the functioning of government; political participation; and political culture.

is an area where improvements are yet to be made. The public sector is currently not adequately equipped to address the key challenges, which are required to achieve the needed economic and social reformation.[32]

The respect for universal human rights remains high on the agenda in Bangladesh. The National Human Rights Commission has identified a series of challenges within civil, political, social and cultural rights in its second five-year strategic plan for 2016-20. This includes discrimination against women and gender-based violence, and full and prompt implementation of and compliance with, the Chittagong Hill Tracts (CHT) Accord focusing on land rights.[33]

3.3 Environmental and sustainability challenges

The issue of sustainability is a key concern, both in light of the environmental implications of the economic growth achieved by Bangladesh in recent years, and in relation to threats to both sustainability and growth in the coming years. This section highlights some key tendencies, with emphasis on issues of relevance to this evaluation.

The threat of climate change is of particular importance to Bangladesh as stated by the World Bank Vice President for the South Asia Region: "... especially for Bangladesh, climate change is an acute threat to development and efforts to end poverty... In addition to the coastal zones, the warming weather will severely affect the country's inland area in the next decades. To deal with climate change, the country needs to focus on creating jobs outside the agriculture sector and improve the capacity of its government institutions."[34] This indicates both the risk to agriculture – and the need to ensure an effective agricultural production to maintain food security. At the same time, the economic growth has introduced increased environmental problems. A recent World Bank Report stresses how the environmental degradation and pollution is now a threat to higher growth, while pointing to the need for policies and institutions for green growth and to ensure implementation of clean technologies.[35]

32 World Bank, 2015.

33 National Human Rights Commission (2015): "Second Five-year Strategic Plan (2016-220). See http://www.nhrc.org.bd/

34 See World Bank 2018: "South Asia's Hotspots: Impacts of Temperature and Precipitation Changes on Living Standards" and "Bangladesh's Hotspots – Conference Edition Country Snapshot, and the related press release: https://www.worldbank.org/en/news/press-release/2018/09/26/bangladesh-rising-temperature-affects-living-standards-of-134-million-people. While this report emphases urban problems and the role of industry, it also points to agriculture-related problems, such as pesticides in drinking water.

35 See World Bank 2016: Gautam et al: Dynamics-of-rural-growth-in-Bangladesh-sustaining-poverty-reduction.

Studies indicate that, in relation to diversifying agriculture and pushing for a high yield, farmers in Bangladesh often turn to (unsafe and problematic) use of pesticides.[36] Pesticide use has long been highlighted as a problem both in relation to the environment and to public health in Bangladesh. Pesticide consumption increased dramatically from the 1960s onwards, with an increased awareness of the various adverse effects,[37] and various attempts to curb overuse (the FFS initiative being one). With regards to recent developments, studies' findings differ: Some point to an overall increase since 2006; others to a decrease.[38] However, there is little doubt that consumption remains high and overuse widespread. The most recent Food and Agriculture Organisation (FAO) statistics show 2014 as the year with the highest average pesticide use per area of cropland in Bangladesh.[39] A range of studies further point to high concentrations of pesticides in soil and water, while other studies have shown widespread overuse of pesticides.[40] Pesticide use can be particularly high in vegetable farming, pointing to a particular risk of a shift towards high-value crops, with strengthened IPM as one possible aspect of addressing this risk.[41] Thus, while agriculture is a key driver of economic growth, researchers stress that, after having made strong progress with regards to food security, the GoB now needs to strengthen the focus on nutrition security and safe food production, including the issue of pesticides.[42]

3.4 Agricultural and Rural Sector Development

Bangladesh has, over the past decades, experienced a declining share of agriculture in the economy (down from 30% of GDP in 1990 to 13% in 2017). Despite the GoB's efforts to diversify the labour market by moving away from agriculture and favouring the manufacturing and service sectors, agriculture remains a key sector in the economy, providing

36 Shammi et al (2018) Pesticide exposures towards health and environmental hazard in Bangladesh: A case study on farmers' perception. Journal of the Saudi Society of Agricultural Sciences https://doi.org/10.1016/j.jssas.2018.08.005

37 See Rahman 2013.

38 A. N. Faruq; Sher-e-Bangla Agricultural University, Agriculture and Pesticide Consumption in Bangladesh, Conference paper Sep 2018; Effluent Control and Waste Disposal in Pesticide Industry, and Shammi et al. 2018.

39 http://www.fao.org/faostat/en/#data/EP/visualize

40 For a recent overview of studies, see Shammi et al (2018) Pesticide exposures towards health and environmental hazard in Bangladesh: A case study on farmers' perception. Journal of the Saudi Society of Agricultural Sciences https://doi.org/10.1016/j.jssas.2018.08.005

41 Gautam et al (2017): Impact of training vegetable farmers in Bangladesh in integrated pest management (IPM).

42 A. N. Faruq; Sher-e-Bangla Agricultural University, Agriculture and Pesticide Consumption in Bangladesh, Conference paper Sep 2018; Effluent Control and Waste Disposal in Pesticide Industry.

more than 45% of total household income and employing nearly half of the country's workforce. However, following urbanization and climate change, the amount of farmland is shrinking, and most rural households have very little cultivable land.

Bangladesh's rural economy, and specifically agriculture, have been powerful drivers of poverty reduction in Bangladesh since 2000. Indeed, agriculture accounted for 90% of the reduction in poverty between 2005 and 2010. Furthermore, agriculture is a major source of rural jobs in Bangladesh. More than 87% of rural people derive at least some income from agriculture. However, two-thirds of rural households rely on both farm and non-farm incomes. Pro-poor agricultural growth has stimulated the non-farm economy in Bangladesh: a 10% rise in farm incomes generates a 6% rise in non-farm incomes.[43] Poverty is however still much more prevalent in rural than in urban areas. Thus, growth in rural areas is still key to reducing overall poverty in Bangladesh.

Bangladesh has made commendable progress over the past 40 years in achieving food security, with food grain production tripling between 1972 and 2014. It is notable that this has taken place despite frequent natural disasters and a population growth rate which has remained at a level of just above 1% over the past decade. Bangladesh has one of the fastest rates of productivity growth in the world since 1995 (averaging 2.7% per year, second only to China), and the country's agricultural sector has benefited from a sound and consistent policy framework backed up by substantial public investments in technology, rural infrastructure and human capital. Nonetheless, Bangladesh is among the most vulnerable countries to climate change, which poses a long-term threat to the country's agricultural sector, particularly in areas affected by flooding, saline intrusion, and drought.[44]

THE DYNAMICS OF RURAL POWER STRUCTURES

From a total population of 165 million[45] in Bangladesh, more than 70% still live in rural areas. About 87% of rural households rely on agriculture for at least part of their income and livelihood.[46] Thus, the real power structure of Bangladesh remains reflected in the ordinary rural settlements and their businesses and employment and "*the key to understanding Bangladeshi society lies in the appreciation of the dynamics of its rural*

43 WB 2016; Gautam et al. "Dynamics of rural growth in Bangladesh : sustaining poverty reduction";https://www.worldbank.org/en/news/feature/2016/05/17/bangladeshs-agriculture-a-poverty-reducer-in-need-of-modernization.

44 Chowdhury (2018): "Population Growth and Economic Development in Bangladesh".

45 World Bank, 2018.

46 Bangladesh Bureau of Statistics.

settlements."[47] Therefore, in order to understand the challenges as well as the potentials of development programme interventions in rural areas, the power structures of the Bangladeshi society and rural communities need to be understood.

According to recent studies,[48] rural power structures in Bangladesh are extremely complex. In addition, rural Bangladeshi society is stratified economically as well as socially, dividing people into power elites or power-poor, big landowners or tenants, merchants or salesmen, rich money lenders or poor peasants, artisans or landless labourers, literates or illiterates, and so forth. According to these studies, influential elites, through their power and economic supremacy, have open access to rural resources and derive direct benefits from development processes, while poorer groups (precisely those that many development projects target) face access-related issues and are often deprived of benefits accruing from development efforts. Thus, the power structures '*extend from the elite control to central or national level institutions right down to the village or neighbourhood levels*'[49] and encompass the range of individuals who seek to 'broker' elite relationships and resources across wider society.

The studies show that large rural areas in Bangladesh, historically populated by surplus farmers, are now predominantly comprised of power-elite patrons, poor peasants, bonded labourers, political elites and their followers and at the lowest tier, deprived power-poor illiterates. Lewis (2010) describe how local elites are diversifying their power base beyond landownership and money lending into multiple and often flexible party-political affiliations and other forms of income generation. The research also shows that the city-based elite, who have migrated from the smaller villages, still exercise some power over local communities by keeping in touch with the rural poor, mostly through renting their lands to peasants and contributing money to youth clubs and other local activities, mainly religious institutions such as mosques, temples and pagodas. Likewise, landownership is no longer the only determinant of rural power. Increasingly, political attachments to the ruling/opposition party have become an important determinant in maintaining power relationships and premeditated cultural exclusion of the power-poor.

An important observation from the studies is also that new accumulation of rural wealth is based on the privatised introduction of microcredit controlled by non-governmental organisations (NGOs), bringing new non-traditional rural business households into local power structures at village level. Both new and older elites are exploring new and diversified strategies of livelihood expansion and consolidation, including various

47 Khan (2015).

48 See e.g. Afsar (2010); Lewis (2011); Khan (2015) and Ullah (2016).

49 Ullah (2016).

economic activities, involvement in party and political networks, engagement through forming civil society action groups and setting up NGOs. Most influential among these new power relations is political party affiliation, making this connection truly crucial to increasing individual power, as it provides a person with more freedom to do as they choose.

The latest Union Parishad (UP) elections (January-March 2016) indicated that UPs are used as a base to consolidate the ruling party's power through rural power elites. In such ways, national politics are reflected at village level. All accumulations of wealth, power and control are equivalent to the exercise of a 'winner takes all' notion of power practice when it comes to accessing certain privileges from association with different social and government institutions. It seems that what goes on at the national level is replicated in rural environments.[50]

Within Bangladesh, elite-poor relationships are predominantly based on unequal exchanges of power and loyalty, with a general pyramid-like structure. As the pyramid grows, the patronage resources, including protection and benefits, flow downwards in exchange for loyalty. People likewise follow similar paths, selling their power to power-elite patrons, once surplus farmers but now often political leaders. These influential patrons, by virtue of their power and economic supremacy, enjoy privileged access to rural resources and derive benefits from all development processes, while the poorer groups, the clients, have minimal access and are also deprived of benefits accruing from development efforts.

Finally, the studies observed that power relationships in rural areas were increasingly becoming subject to common processes of change, specifically politicisation of all social institutions, increasing NGO involvement, livelihood differentiation due to images of urban cosmopolitanism, and political musclemen's control of local socio-political institutions such as clubs, schools and bazars. All these corresponding changes bring different local outcomes and feed the observed array of asymmetric power relations.

3.5 Cultural and contextual issues related to Chittagong Hills Tracts

CHT has experienced conflict since 1975 and the hills-people have suffered immensely, including through loss of land and resources. Although these apparently ceased with the Peace Accord in 1997, tensions still remain. The overall implementation of the Peace Accord remains an

50 ESID (2017): "The Bangladesh Paradox: Why has politics performed so well for development in Bangladesh?".

unfinished process, including issues related to land dispute resolution[51] and local elections. The limited implementation of the Peace Accord has had ramifications in the current CHT society in many ways and at various levels. There have been frequent bouts of violence with palpable tensions along communal – indigenous and non-indigenous – lines and therefore the need for improving overall socio-economic conditions in the region poses formidable challenges. Failure to address general development needs and the rights of ethnic minorities has left the region lagging behind the rest of the country. Only 7.8% of all people living in CHT complete primary education and the prevalence of absolute poverty and extreme poverty in ethnic communities are 65% and 44% respectively.[52]

The hill districts of CHT are inhabited by 11 indigenous ethnic groups[53] in addition to the Bengali people. They differ markedly from the Bengali majority of Bangladesh with respect to language, culture, physical appearance, religion, dress and farming methods. The demographic equation in recent years has tilted overwhelmingly towards Bengalis, who now constitute almost 50% of the total population. There were only 3% Bengalis in CHT at the time of partition of India in 1947 and indigenous people constituted 97% of the hill population. Majority of the indigenous people are Buddhists, and the rest are Hindus, and few are Christians but all of them have significant animistic traditions. These traditions are influenced by their surrounding nature and influence costumes more than religion. Most of the ethnic groups are matriarchal. Bengalis on the other hand are mostly Muslims, and patriarchal, and their lifestyle is more shaped along religious dictates. The cultural differences sometime shape opposing attitudes and fuel tensions.

The indigenous people collectively identify themselves as 'Jhumias' or 'Jummas'. The name derives from the practice of 'jhum' cultivation, which is a slash and burn agriculture. Traditionally, they lived on hunting and gathering, jhum cultivation, and some fishing. But their lifestyle is changing fast and adapting to modern ways. Traditionally, the hill-people have never lived as a cash-dependent society, but they do now. All the respondent indigenous people met by the evaluation team were keeping their growing children out of their homes to stay in the towns, apprehensive of being targets of arbitrary detention. None of the par-

51 However, it should be noted that as of May 2013, the GoB Cabinet has approved the amendment to the CHT Land Dispute Resolution Commission Act 2001 in line with the Peace Accord as a step toward resolving land disputes in the CHT. This is considered a major progress toward the implementation of the Peace Accord, though without much progress on the ground so far.

52 Government of Bangladesh (2015): "7th Five-Year Plan (FY2016-FY2020) – Accelerating Growth, Empowering Citizens".

53 Chakma, Marma, Tripura, Tanchangya, Lushai, Pangkhua, Bawm, Mro, Khyang, Khumi and Chak.

ents wanted their kids to return to their homes anymore after finishing their schooling. Therefore, they need lots of cash for education of their children while keeping them away from home. This has increased their interest towards adoption of technologies that could readily bring them cash.

The long conflict has prevented the hill districts from availing much of any public service or NGO coverage for decades. This is in contrast to the rest of the country that experienced unhindered and sustained development support (although also subject to power structure issues) during the period covered by the evaluation, and gradually progressed. So, when the services started coming in, the technology adoption for the hitherto unserved hill districts appears much brighter in comparison to that of area served by the IFMC.

Physiographic difference of CHT regarding agricultural production is striking; and whereas IFMC is practised in largely flat lands with floodplains that allow rice-dominant agriculture, the hill districts are largely forest areas. Forests are, however, disappearing due to conflict and forced settlement by ethnic Bengalis; in addition, CHT has very little rice-growing lands and these areas are either in narrow strips along valleys or lakesides or on limited hillside terraces.

4 PROGRAMME DESIGN

First the evolution of FFS is discussed, then a comparison between IFMC and AFSP is conducted. The overall institutional set-up of AGEP programme design is presented with a focus on IFMC.

4.1 Evolution of FFS

The FFS approach was developed by FAO in the late 1980s in the IPM programme, covering much of South and Southeast Asia. The programme had been initiated as a response to serious food security problems arising from over-reliance on pesticides and FAO had a small demonstration project in Bangladesh. By 1995 the GoB approved the Danida-funded IPM programme in Bangladesh and introduced the FFS approach in a project called 'Strengthening Plant Protection Services' (SPPS). This marked a shift in Danish support from delivering pesticides to a focus on reducing their use.

In 2000 the FFS/IPM (in rice and vegetables) became part of the Danida-GoB Agricultural Sector Programme Support, the ASPS I. Its successor, ASPS II implemented FFS in two Programme Components: i) Agricultural Extension Component (AEC); and ii) Regional Fisheries and Livestock Development Component (RFLDC). AEC aimed at developing improved extension systems to support poor, marginal and small crop farmer households, by using the FFS approach and group development concepts. RFLDC on the other hand focused on fishery and livestock development in remote and marginal coastal areas. One distinct difference between the two FFS approaches was that AEC applied a household approach where one household – consisting of one man and one woman – was considered an FFS member whereas the RFLDC approach was an individual approach where either one man or one woman from a household participated in a FFS. Nevertheless, learning principles in the two components were compatible and the evaluation from 2011 summarised them as illustrated in the box below.

BOX 1: LEARNING PRINCIPLES FOR FFS

EXPLORATORY LEARNING IN FFS

1. Farmer centered: the FFS consists of field studies and special topics, based on farmer-identified problems.
2. Group-based discovery learning: FFS is a group-based learning process using the farm-ers' own experience. The learning is done in the field in small groups doing comparative studies/experiments (discovery learning). Farmers' learn together and from each other.
3. Learning focused: FFS is not top-down technology transfer but is learning focused. The field is the learning site and provides learning material. Farmers' experimentation is part of the discovery learning. Farmers are encouraged to experiment, also in their own fields.
4. Facilitators: FFS requires competent, skilled facilitators, able to facilitate the learning process; no teaching. Facilitators create a suitable learning environment, provide back-stopping and facilitate learning by asking questions. Competent facilitators should have good technical knowledge but also a certain attitude. It requires good mentoring, on-the-job training and experience to become an expert facilitator.
5. Empowerment: farmers make all decisions in FFS by collecting data – analysing data – making decisions – reaching group consensus. Participants have the right to make mis-takes and learn from their mistakes. Farmers develop confidence in their abilities and local knowledge. FFS improves farmers' communication, conflict and problem-solving abilities, leadership and discussion skills.
6. System approach: FFS is a system approach. It considers the farm and the whole agro-ecosystem in the learning process. Agro-Eco-System Analysis (AESA) or Farm Management Analysis is applied to assess the system.
7. Community based: FFS is participatory and community based. Success depends on involvement of individual farmers and the community. Activities have to continue over a long period of time to be effective. Key for sustainability is farmer ownership of the process at all levels.

When the previous evaluation was conducted (2011) steps had been taken to develop a unified FFS approach under the integrated farm management label that would cover the areas previously covered by two different components. Hence, the IFM-FFS combined crops with fish and livestock, and with the intention to continue applying the exploratory learning principles when implementing FFS while at the same time scaling up.

In designing the AGEP I, it was decided to continue providing extension services through the FFS approach and to maintain the focus on poor and marginalised farmers. The overall modality for FFS was still seen as project-based, but with the emphasis on building on national structures; an approach that was considered suitable and a way to balance the principles of alignment and aid effectiveness, in light of local conditions.

The change under IFMC can briefly be summarised as follows: a) a major upscaling in terms of geographical area and number of villagers/farmers targeted, b) merging and partial reworking of curricula from AEC and RFLDC and thereby inclusion of more technologies but with the same time available and c) more direct implementation by Upazila and 'regional' DAE. As a consequence of the geographical expansion, regional offices were set up with lead roles in implementation, quality assurance and monitoring – as discussed above. In addition, a business development component was added. It was acknowledged from the outset that the scaling up and the change in role for the DAE comprised a number of challenges, and a range of risks were identified, including delays due to bureaucratic structures and institutional barriers to cooperation.[54] In addition, it was highlighted that the approach would pose high demands on the capacity of the DAE, necessitating follow-up and continued capacity development.[55]

THE DEPARTMENT OF AGRICULTURE EXTENSION AS A KEY PARTNER INSTITUTION FOR FFS

A key element in the institutional arrangements for AGEP was the decision to select DAE as the core implementing institution for FFS activities. DAE, established in 1982, is an important arm of the Ministry of Agriculture (MoA) and it represents a consolidation of efforts by the GoB to disseminate agriculture-related information and technology, protect and promote key staple and cash crops, as well as providing essential extension services and support to Bangladeshi farmers. DAE is the largest public sector extension service provider in Bangladesh[56] and has contributed significantly to increasing crop production, particularly in rice and wheat, which has played an important role in the country's efforts to attain self-sufficiency in food production.[57]

While the mandate and mission of DAE relates to all types of farmers in the country, practical experience has shown large variations in farmers' contact with DAE extension services. DAE's mainstream extension coverage mainly seems to benefit medium to large scale farmers.[58] While this may be linked to the relative size of the groups and the limited resources of the DAE, it nevertheless indicates a need for complementary support

54 Danida 2013: AGEP, IFMC component description 2013, Danida version.

55 Danida 2012: AGEP appraisal report.

56 According to a 2017 overview, the DAE had a staff of approximately 26,000, with approximately 22,000 working in the field service wing.

57 https://www.weadapt.org/organisation/department-of-agricultural-extension

58 The share of marginal and small-scale farmers that was in contact with DAE extension services during 2015 was much lower than the share of medium and large-scale farmers (with 6% of marginal farmers having received services against 25% of the large farmers).

programmes (like IFMC) to ensure sufficient attention and focus within DAE on the marginal and small farmers in Bangladesh.

Danida has long experience from working with the DAE, with collaboration starting back in 1993. DAE has been promoting the concepts of IPM, Integrated Crop Management and IFM through FFSs with Danish support since 1996 and IFMC would, in this way, build on earlier capacity building support and experiences. Thus, in light of both its mandate and its outreach, DAE was seen as well placed to be the agency solely responsible for implementation. It should be noted that this role included coordinating the practical involvement of other relevant actors, such as extension staff from the Department of Fisheries (DoF) within the Ministry of Fisheries and Livestock, responsible for specific extension services in these sectors.

Whereas FFS was, in the past, implemented mainly by Danida technical advisors, in AGEP it was now DAE who implemented the programme with Danish funds. This way of working with DAE also linked to considerations regarding longer-term sustainability and consideration of future exit strategies, pointing to the option of a "wider application, within DAE, of the successful (as demonstrated in the FFS evaluation) extension approaches developed through many years of project support". This was to be facilitated as part of the IFMC through establishment of a national platform for extension actors.

ESTABLISHING OF FARMERS ORGANISATIONS AND MARKET LINKAGES

Under AGEP, it was recognized that improved production techniques were not the end of the story and that supporting poor, marginal and small farmers may also entail focusing on the value chains between producers and consumers, i.e. on what have become known as "market linkages". Therefore, it was decided to build on experiences from RFLDC and AEC and establish a component on FO and market linkages under the IFMC component. In RFLDC and AEC, FFS participants were encouraged to form post-FFS groups, which could develop into collaborative groups (farmers' clubs or associations). The intention was to represent farmers' broader interest in rural development, develop market linkages by their own mechanisms or even develop rural enterprises. The groups also serve(d) for continued learning and development of new crops and other products.

Under IFMC, the intention was to empower female and male farmers to form FOs, targeting them for additional training and linking up to service providers, and eventually benefiting from market actors and micro-finance organisations to increase farm profitability. According to the IFMC guide, termed 'Transformation of IFM FFS to Marketing FO', FOs in IFMC were planned to emerge directly from the group of FFS participants with a focus on marketing. It was the assumption that the exploratory/discovery learning in the original FFS approach would lead

not only to good learning results but also to increased human and social assets. This was expected to have a large bearing on the quality and power of farmers' organisations/clubs/associations emerging after a group of farmers would had worked together in a season-long training.

The appraisal of the AGEP programme (2012) highlighted that '*Farmers' Organisations play an important role in the AGEPs strategy and implementation framework. The aim and approach is to empower the farmers in groups for them to raise their voice, bulking production surplus, achieving better prices – and in this respect using the FOs as a tool in linking farmers to the market players (both regarding supplies and production)*', and the Programme Document for AGEP states: '*Farmer Clubs and Farmers Organisations will be established and developed into sustainable organisations*. The intention of the FO component was to encourage first steps of FO development to enable a continued collaboration in the most functional FFS groups which would then get better access to markets.

The appraisal further noted that '*It may prove difficult to recruit the needed number of qualified staff, especially in the field and with regards to building capacity in FOs. In parallel, the rolling out of activities in many new districts and Upazilas may pose a risk of overstretching the IFMC and DAE implementation capacity*.' Therefore, it was recommended that the support to development of FO and their market activities be treated as 'testing the water' with a gradual roll out and learning along the way. This was also reflected in the rather limited budget allocated for developing FOs.

With regards to FOs, the risk of elite capture (in the form of FOs becoming exclusive clubs for the local privileged groups) was also emphasised by the appraisal: "*There is a potential trade-off between the wish to ensure continued group dynamic through FO membership to FFS participants and the risk of establishing exclusive clubs for the village elite, possibly leading to increased polarization and exclusion of the poorest households and women. Limited absorption capacity in the CBOs and obligations of payment of regular membership fees present a restriction to the access of the poorest FFS members to the FOs.*"

The appraisal report further emphasised that DAE had little capacity (experience and/or resources) in working with FOs, both at central level but also at lower levels. Therefore, considerable capacity building of DAE field staff was recommended if they should be able to assist the FOs to materialise into vibrant and sustainable FOs and further linking them (or "handing them over") to other areas of support, such as credit and agribusiness development (e.g. Katalyst). While specialist knowledge and experience in building commercialised FOs was seen as highly needed, it was recommended to focus on sustainable capacity building within the existing GoB systems, and within DAE in particular, rather than outsourcing the FO capacity building activities to external agencies (e.g. NGOs).

4.2 FFS in IFMC and AFSP

There are notable differences in FFS in IFMC and AFSP; this section discusses the differences in terms of their programme design. FFS in AFSP was developed with support from master trainers from IFMC as well as support from FAO technical staff and DAE has therefore played a considerable part in establishing the UNDP project in CHT. Nevertheless, considerable differences prevail, not least due to the very different contexts. Table 7 below provides an overview of the differences in the design.

In order to consider the relevance of implementing a FFS in a specific village, the IFMC FFS register[59] clearly provides instructions on how to assess a potential village through a transect walk and a household survey.[60] The register mentions poverty prone areas that are generally free from floods, where communication systems are comparatively good and that areas with social conflict should be excluded.[61] According to the register, the number of households in the village was to be listed, accessibility in terms of roads, number of schools, mosques and ponds/ rivers in the area as well as the amount of cultivated and irrigated land are also to be included. The registration form includes a classification of farmers with clear definitions of landless, marginal, small, medium and large family farms[62] and the number of families within these categories which are to be included. Further, the registration includes information of families' ownership of small and large ruminants and lists the number of female-headed households.

Following the transect walk a community meeting should be organised with a minimum of 30 households selected and facilitated by a Farmer Facilitator (FF) who is supported by a SAAO. It is emphasized in the Guidebook that participants must be landless, marginal or small farmers and that female headed households should be prioritised.[63] This means that households with access to land from 0-249 decimals (up to 2½ acres) are to be included for FFS but it is not specified whether the land needs to be owned, leased or sharecropped. Further it should be noted that, in a Bangladeshi context, a farmer with 2½ acres of land is a rather large farmer and therefore the definition does not fully support the

59 Register Khata, IFM Farmer Field School, IFMC, version 24th August 2015.

60 IFM FFS Session guidebook, November 2016. This is also confirmed by the FF curriculum where sessions of household survey and transect walk are included in the Detailed Day's Plan of Farmer Facilitator-ToT on Integrated Farm Management (IFM) Farmer Field School (FFS).

61 IFM FFS Session guidebook, November 2016.

62 Landless: 0-49 decimal; Marginal: 50-99 decimal; Small: 100-249 decimal; Large: more than 700 decimal). Based on Register Khata, IFM Farmer Field School, IFMC, version 24th August 2015.

63 IFM FFS Session guidebook, November 2016.

pro-poor focus as set out in the AGEP design. Selection criteria therefore leave room for interpretation in terms of landownership and how many households from the different categories should be included. In the end, 25 households with around 50 participants are selected for FFS.

When farmers were selected for FFS, facilitators were required to register the composition of households in the FFS based on a household survey (including land category, male or female headed household, agricultural activities, etc.). However, there have been no requirements that the survey should include interested but non-selected households and it is therefore difficult to assess the extent to which suitable households may have been left out.

In AFSP, the guidelines for selecting a community clearly emphasizes that priorities should be given to reach underserved areas. Furthermore, participants were to be from more marginalised families in a village and, on average, 22 participants were included in one FFS due to the different individual approaches as mentioned above, hence resulting in much smaller groups compared to IFMC.

Another central difference concerns recruitment of Farm Facilitators. FFs under AFSP are recruited from local communities, whereas in IFMC FFs are recruited from FFS participants. In AFSP, FFs are key persons conducting FFS sessions at the community level on different issues relating to agriculture, including crop, horticulture, livestock, etc. It is a key strategy for AFSP to ensure ownership and engagement from FFs by selecting locally based members of the community to facilitate the FFS. Three government extension departments established links with FFSs for the delivery of coordinated extension services. Farmer facilitators and service providers in crops, livestock and aquaculture were trained and linked with the extension departments to enable the provision of extension services on demand.

TABLE 7. DIFFERENCES BETWEEN FFS IN IFMC AND AFSP

Topic	IFMC	AFSP	Implications of differences in FFS methods
Time period	Strictly seasonal, sometimes tied to the rice seasons.[64]	FFS runs for a full year. After completing the FFS over the year, the FF provides follow-up support for another six months	Time frame is longer in AFSP with more follow-up support than in IFMC. Therefore, the support is also more costly in AFSP
Selection of communities	• Poverty prone areas • Free from floods • Accessible • Good communication systems • No social conflict	• Underserved areas (no GoB/ NGOs) • Primarily farming communities • Remote but accessible • Food insecurity • Inclusion of all ethnicities • High food insecurity[65] • Where female HH are located	AFSP gives particular priority to remote, under-served communities. This is not explicitly mentioned in IFMC.
Selection of participants	• Landless, marginal or small farmers (less than 250 decimals of land) • Female headed households • 50 participants per FFS, although not all attend all modules	• Priority of disadvantaged and marginal if mixed community • Female headed households • In average 22 participants	AFSP has a more explicit focus on marginalised HHs, whereas IFMC operates with a broad target group based on access to land.
FFS training	Exploratory learning still exists in rice-module and homestead gardening module[66] but increasingly absent in newer additions (i.e. nutrition).	Longer time period allows for more explorative learning and all processes from seed treatment to post-harvesting explored.	FFS under IFMC has too little time to fully be exploratory although explorative elements are still included (i.e. trials)
Modules	51 sessions consisting of preparatory modules (4), rice production (14), homestead gardening (7), nutrition (3), poultry (4), small ruminants (4), large ruminants (5), aquaculture (5), FO and social issues (4)[67]	A total of 48 sessions – modules for FFS are selected through a series of consultations, and include vegetable production, poultry (chicken-duck), fish rearing, cow rearing, pig rearing, beef fattening, rice production, nutrition, compost preparation, etc.	In AFSP modules are selected based on participants' wishes and needs. This is not done in the same participatory manner in IFMC.

64 Farmer Field Schools, Agricultural Extension Component (2006-2012), Integrated Crop Management: Learning by doing, learning by experience, 2011.

65 AFSP Guideline for selection of communities (Annex 1).

66 As evidenced in the Integrated Farm Management FFS Guidebook (Session Plan and Session Guide)', IFMC 2015 and reported by farmers to the evaluation.

67 Integrated Farm Management (IFM) FFS Curriculum, Integrated Farm Management Component (IFMC), January 2014.

Topic	IFMC	AFSP	Implications of differences in FFS methods
Facilitation/ facilitators	• FFS participant showing more motivation and engagement • Both married and single men/ women to be considered • Literate	• A local farmer between 25 and 45 years • Main occupation in agriculture and with acceptance from the community • FF is required to adopt the technology learnings in her/ his farm for demonstration	In AFSP, locality of FFs is considered key. In IFMC FFs are selected among FFS participants who are then implementing FFS outside their own locality
Marketing and organisation	A model linking FOs and BFPs was introduced in IFMC. The intention was first to ensure linkages with extension services and access to additional training and, secondly, to link FOs to markets through the BFPs.	Marketing is addressed primarily through the Para Development Committee (PDC), as an organisational approach and FOs are not included in the support package.	The model is largely implemented as a prescribed model, with little flexibility and room for adjustment.
Institutional set-up	DAE: Central, regional, Upazila levels	UNDP: Project unit	Implementation through a large government institution (in IFMC) vs. a smaller project modality (in AFSP)

In order to understand these differences, the institutional set-up for IFMC is discussed below.

4.3 Institutional set-up for IFMC

The institutional set-up for IFMC comprised an inter-ministerial Component Steering Committee (CSC) chaired by the MoA, with participation from a number of government ministries, departments and organisations (including but not limited to DAE, DoF, Department of Livestock Services (DLS), a representative from the Ministry of CHT Affairs and the Danish embassy). The CSC was tasked with overall oversight as regards approval of work plans and budgets, etc. with an expectation that at least two meetings would be held per year. A Component Implementation Committee was also set up, chaired by the Director General of DAE, with the participation of the various wings of DAE, which should meet quarterly to review the progress of IFMC.

A Component Management Unit (CMU) was set up at the DAE headquarter, with the responsibility for the day-to-day management to be headed by a DAE-designated Project Director with assistance from a Senior Advisor. Responsibilities included facilitating, coordinating and supervising IFMC activities as well as preparation and adherence to the various

guidelines, training curriculum, training of Master Facilitators (MFs) and Subject Matter Specialists, preparation of annual work plans, etc.

A key part of the set up was the six Regional Implementation Units (RIUs) that were overall responsible for implementation of field activities. The RIUs were to operate under the direct supervision of the CMU. For each RIU, a regional team was set up, consisting of GoB staff, a Regional Technical Coordinator, two Master Facilitators, a M&E officer and a team member was designated Gender Focal Point. The regional teams were responsible for training of the FFs, support to FOs, assessments of quality and standards of implementation, etc. The set-up was intended be based on co-management, both at the headquarter level and at the regional level, with collaboration, dual sign off, etc., to ensure an appropriate division of responsibility and authority between Danida and DAE. This is different than in the earlier phase, where programme management was lodged at a central Programme Management Unit, more fully under Danida authority.

The overall M&E arrangements follow the structure of AGEP, with programme monitoring following the components. For IFMC, an M&E approach was developed which contained various sub-elements, including a baseline study, results and performance monitoring (or progress), mid-term and end evaluations. With regards to the evaluations and results monitoring element of IFMC, this was largely to be carried out externally. The baseline report was prepared and has been important to guide the evaluation's household survey, but the mid-term evaluation, although commissioned was never finalised due to poor quality of the work and has therefore not been considered in the current evaluation.

For the internal monitoring, the data was collected by DAE Upazila offices and IFMC monitoring staff, jointly with the small regional monitoring team (a Monitoring Officer and an Assistant Monitoring Officer) who were responsible for collecting and analysing the data at the regional level, and with the national M&E Advisor responsible for compiling the data and preparing the various progress reports. The emphasis was on tracking progress against targets, highlighting both the quantity and quality of the interventions in order to assess effectiveness and efficiency.

4.4 Institutional set-up for AFSP

The institutional set-up for AFSP mirrors the different context in which this component has been implemented. It must be kept in mind that the national institutional set-up in CHT is different from the rest of Bangladesh. All development activities are under the responsibility of the Ministry of Chittagong Hill Tracts Affairs (MoCHTA) and the Hill District Councils (HDCs). The line departments e.g. DAE, DLS, DoF etc.

are transferred to HDCs following the agreements signed between the concerned ministries and respective HDCs.

The management and organisational arrangements for AGEP-AFSP were to a large degree directly transferred from AFSP I with only minor adjustments, as it was the assessment of involved actors that arrangements had functioned well under AFSP I. The interventions were managed by UNDP, through the CHT Development Facility (CHTDF) and the Community Empowerment Programme. Management structures were under the guidance of the National Steering Committee (NSC) with inputs from the Technical Advisory Committee (TAC) on Agriculture. The project proposal outlines UNDPs long presence in CHT and its long-term experience and credible relationships with HDCs and MoCHTA, the core institutions entrusted with delivering services in the CHT.[68]

At the national level, the NSC and the TAC were responsible, respectively, for the overall supervision of, and providing technical guidance to the project. At the district level, the District Managers had the responsibility for maintaining partnerships with relevant stakeholders. District FFS Experts were tasked with backstopping on FFS implementation and on capacity building of the relevant parties as well as ensuring the delivery of quality extension services in remote areas of the CHT, in close cooperation with HDC AFSP team, different line departments and Master Trainers.[69] This was one of the points of involvement between GoB line departments and the UNDP-led AFSP, with line departments such as DAE, DoF and DLS at district and Upazila level being connected to the AFSP project.

At the Upazila level, Upazila Field Supervisors were responsible for supervising the activities of the Upazila-based HDC staff, partner NGO staff (in some areas) and for providing support in community mobilization, PDC formation, fund management and monitoring of project activities, etc. The involvement of partner NGOs with specialist field staff providing follow up and technical training is one of the features where the AFSP has been distinct from IFMC.

For AFSP, M&E was delegated to UNDP, with the expectation that the overall approach and the indicators developed for the entire AGEP programme would also be relevant to capture support to CHT. The M&E system worked with participatory monitoring as well as progress and performance monitoring. The AFSP has not worked with sample-based impact monitoring in a manner similar to IFMC but has assessed impact through a baseline study and a follow-up survey, that has fed into an impact assessment as part of a project end-evaluation. AFSP established

68 AFSP project document, 2013, p. XII.

69 AFSP project document, 2013, p. 84.

Progress Monitoring tools for assessing progress on planned activities and outputs. The project staff also conducted periodic case studies with participants in order to understand different levels of participation and progress of households.

5 IMPLEMENTATION AND RESULTS OF FFS

5.1 Quality and relevance of the FFS approach

FFS in Bangladesh (and many other countries) started because high external input to farming threatened the sustainable production of rice, to a level where food security was under threat. 'Secondary pests' emerging from the use of pesticides became impossible to control with other pesticides. To help farmers grasp how the threat emerged and the mechanisms at play in the field, the FFS introduced intensive field-based exploratory/discovery/experimental/experiential learning. Farmers were challenged in the field to experiment with alternatives to pesticides based on learning from the FFS. In one plot they would do as they used to do whereas in another plot they would apply their new knowledge and skills, follow the development and learn by doing. One example of such an exploration: Farmers usually get upset when they see insects eating the leaves of their crops and respond by spraying with an insecticide. In exploratory learning, the farmers will observe how the larvae chewing on the leaves more often than not will be eaten by a spider or a beetle, and they will see some larvae that become strange looking, and after some time small parasitic wasps emerge from them – after having killed the larva. They discover that a lot of these insects are actually useful. The learning approach included weekly sessions of three to four hours, in the field.

Such an insight can only be obtained convincingly by having discovered it, shared it with peers in the group and by having taken management decisions based on the discovery. It further helps the understanding when farmers in a sequence of early-season sessions have been cutting away (literally, with a scissors) part of the plant's leaves. And then compare at the end of season that the plots where they cut leaves have same yield as the one where they did not – meaning insects that make a few holes in leaves actually do not really do any damage. It further helps, when the groups have seen the insects in action and gotten to appreciate what they do. There are many other key insights to be explored and discovered in this way. And each crop is different, its agronomy, its pest and diseases and even the 'natural enemies' of the pests are different. Therefore, it is key to the approach that enough time is allocated to such experiments to allow for proper learning and to ensure sustainability.

5.2 Selection of FFS participants and facilitators in practice

SELECTION OF VILLAGES FOR FFS

As described above, the IFMC register mentions poverty prone areas that are generally free from floods, where communication systems are comparatively good and that areas with social conflict should be excluded.[70] According to the register, the number of households in the village is to be listed, accessibility in terms of roads, number of schools, mosques and ponds/rivers in the area as well as the amount of cultivated and irrigated land.

According to the village information collected as part of the household survey, there are some notable differences in the characteristics between FFS villages and control villages, that indicate that FFS villages are less rural and relatively more developed than the control villages. First, the number of households and inhabitants in FFS villages is larger than in control villages (an average of 699 households and 2,875 inhabitants in FFS villages compared to an average of 439 households and 1,807 inhabitants in the control group). Second, the share of paved roads in FFS villages is higher than in control villages (42% against 28% in control villages). Third, the share of farmers in control villages is larger than in FFS villages (80% against 70% farmers in FFS villages).

It must be noted that this situation is post-FFS, and the FFS interventions may therefore have contributed to the observed development within the FFS villages. However, according to interviews with the village leaders, it is rather unlikely that the FFS have contributed to any substantial development at village level (as discussed in this report, results are mainly at FFS household level, there have been limited spill-over effects within FFS villages). Instead, FFS villages seem to have been better than control villages to attract other development projects during the same period. This again indicates, that other criteria, such us the existence of rural power-elite structures (see context section, Chapter 3), may have weighted higher than 'poverty prone' in the selection of villages for FFS.

In Barisal, the Upazila officials were able to explain the selection criteria for FFS in detail and openly shared some of the challenges they met when selecting villages and participants for FFS. Lack of modern technological uptake and accessibility of the area were mentioned as key criteria and a specific emphasis was put on identifying female-headed households as instructions in the guideline requires. When a village had been selected, a community meeting was conducted and, normally, more interested farmers than the numbers needed for the FFS would show up. In the meeting, it was emphasized that participating in FFS is

70 IFM FFS Session guidebook, November 2016.

time consuming and it was explained what is expected from participants. Finally, a shortlisting of 30-40 households was prepared and participants were selected based on the production activities that farmers were already engaged in, as well as their level of motivation. FGDs with female FFS participants in Dakshin Hosnabad village and Chandkali village in Barisal confirmed that the selection process within these villages had been conducted according to the established criteria and hence qualitative findings largely confirmed the application of the established guidelines in Barisal.

In Rangpur, Upazila officials were not able to explain to the same extent as in Barisal how FFS households had been selected and important deviations were observed. Here also, lack of modern technology was a key parameter for village selection, however, the selection strategy seemed less focused on *poverty prone areas* in both Pigacha and Palashbari Upazilas, where the villages visited during the qualitative fieldwork appeared rather affluent. Also, the evaluation came across examples where FFS were being implemented in areas where other development actors were implementing similar type of projects. This is not directly against the guidelines but according to Danida technical staff it had been emphasized that it would be desirable to select areas with few other development projects. Nevertheless, up to ten ongoing different NGO/governmental projects were identified in Rangpur villages, whereas in Barisal villages a maximum of two to three projects were active.[71]

In two villages in Rangpur, large projects such as the Social Development Fund (SDF)[72] are being implemented, i.e. Uttar Chandipur village and Purbo Gopalpur village with relatively large amounts of funds (more than DKK 1 million per village). In Purbo Gopalpur village, SDF initiated their work already in 2008-2009 selecting 115 women for training in various topics including beef fattening, group formation, marketing and value chain, and the SDF also provided credit to initiate businesses. One group of women subsequently registered a CBO doing beef fattening and, with the credit from SDF, they invested in the machines and materials required for beef fattening (i.e. vaccination equipment). The village also funded a community building from SDF funds. In 2012, the same village was selected for FFS (under IPM). In Uttar Chandipur village, SDF

71 This is, however, only partially confirmed by the survey data where numbers of other projects in Rangpur are estimated to four including FFS, so a relatively lower estimation than what was derived from the qualitative FGDs. In Barisal the estimation from the survey data of three other projects correlates better with what was found during the fieldwork. The difference between the number of projects in the two regions is not significant according to the survey data but according to qualitative FGDs the difference was quite notable, not least the size of the projects.

72 SDF calls itself an 'autonomous organisation under the Financial Institutions Division, Ministry of Finance'. Therefore, it is rightly a government institution, but different from the departments.

initiated their projects in 2016 and the IFMC FFS was implemented in 2018. In both cases, it was difficult for the evaluation to grasp for what particular reasons it was decided to implement an FFS in these villages already quite well covered by other substantial development projects.

SELECTION OF FFS HOUSEHOLDS

As described in Chapter 4, FFS participants must be landless, marginal or small farmers and have access to not more than 1 hectare (ha) of land and, in addition, female-headed households should be prioritised. The majority of the FFS households included in the household survey fall within the marginal and small farmers categories, although 7% owned more land than the upper limit of 0.2 ha, as reflected in Table 8.

TABLE 8. OVERALL DISTRIBUTION OF FFS HOUSEHOLDS IN THE SURVEY ACCORDING TO SELECTED CATEGORIES

Households	Total #	%
Landless (less than 0.2 ha of land)	195	47%
More than 1 ha of land	26	7%
Female headed	17	4%

These survey data findings are largely in line with the findings from a lessons-learned exercise of IFMC,[73] which was based on a sample of internal IFMC monitoring data. The lessons-learned exercise showed a lower share of landless FFS households (36%) but the share of female headed households was found to be higher (10%). A slightly smaller share of FFS households (4%) were found to own more than 0.2 ha of land.

The regional distribution of landless and female-headed households, as well as households with too much land included in FFS, is reflected in the Table 9. Feni District (in Chittagong) had by far the largest number of both landless and female-headed households.

73 "Lessons Learned exercise, IFMC", power point presentation, Henrik Kjærsig, December 2017.

TABLE 9. REGIONAL DISTRIBUTION OF FFS HOUSEHOLDS IN THE SURVEY ACCORDING TO SELECTED CATEGORIES

Households	Rangpur	Rajshahi	Barisal	Feni (Chittagong)
Landless (less than 0.2 ha of land)	47%	43%	38%	75%
More than 1 ha of land	2%	10%	10%	1%
Female-headed	4%	4%	2%	11%

In Rangpur the evaluation consulted three non-FFS farmers in one of the villages who had expressed interest in joining the FFS but were declined due to having too little land. According to the guidelines their land holdings were, however, within the target range for FFS. It is obviously inevitable that some households will have to be declined as only 25 households can participate at a time. However, in this specific village in Palashbari Upazila, where a retired DAE official had initiated the FFS and selected the other FFS participants from among his extended kinship, the selection process did not follow guidelines. This provided a practical example of the nepotism and political interference referred to in the context section (Chapter 3).

Likewise, and in line with the survey results, the qualitative fieldwork found only few examples of female-headed households selected for FFS. In Rangpur, participants in the qualitative FGDs described the selection process of IFMC as being based on male farmers being selected first, and then their wives were included secondarily. Female farmers confirmed to the evaluation that men were selected first and that females joined later as spouses. As a result, female-headed households were less likely to be selected and this was the case in both Pigacha and Palashbari Upazila. The evaluation found that several female farmers in Rangpur demonstrated a low level of motivation, because they had been included in the FFS as spouses and not based on their own wish.

In AFSP the selection of households has been quite different than in IFMC. In AFSP, it was not couples who were selected for FFS, but instead one member from each household. Women were motivated to participate and not selected based on their husbands' wishes to participate. Initially, AFSP experienced obstacles involving women as both Bengali and ethnic minority women were reluctant to participate as agriculture was considered a domain for men only. However, this changed gradually when women experienced other women's benefit from the FFS. The circumstances in CHT and need for ready cash is also a motivating factor, as discussed in the context chapter. Parents are keen on keeping their grown children away from home since they fear that they will become targets of arbitrary detention. Therefore, they need cash to keep their

children in school. This provides one incentive for them to apply and adopt the technologies that can readily bring them cash.

SELECTION OF FARMERS FACILITATORS (FF)

As mentioned in Chapter 4, one very important difference that distinguishes IFMC from AFSP is how the FFs have been selected and engaged. Further, in AFSP the facilitator was required to adopt the technology learnings in her/his own farm so that these could act as demonstrations and also motivate others to adopt. No such arrangement existed in the IFMC-model. On the other hand, in IFMC the FFs should have been FFS participants themselves before being further trained to become an FF, whereas in AFSP FFs have been farmers who have never been in an FFS before.

In Rangpur, the UAOs explained that facilitators were recruited from skilled FFS participants who had demonstrated a high level of motivation throughout implementation of the FFS. Criteria further included literacy, equal representation of males and females, and marital status. The UAOs explained that married women were more likely to stay in the area and therefore were given preference. This is, however, not in accordance with the guidelines where it is explicitly stated that facilitators can be both married and single.

The evaluation found unequal representation of men and women as FFs. According to IFMC monitoring data, a total of 1,755 males and 623 females worked as FFs from 2012 to 2017, hence a total of 26% of FFs were females. The Gender Strategy (2018) specifies that "Front line service providers – those working directly with farmers, such as FF – should be at least 50% women", thus this target has not been achieved. It is however important to acknowledge that the DAE has made progress in this area and that the figures indicate a continuous increase in number of female FFs over the period. The target for female FF recruitment in AFSP was 40%, but only 24% was recruited. Performance on the two projects as regards recruitment of women have, therefore, been rather similar.

This unequal distribution of male and female FFs was confirmed by the qualitative fieldwork. In Rangpur, the distribution was one female to five male facilitators in both Pirgacha Upazila and Palashbari Upazila. One female facilitator explained that several males and females had been trained to become facilitators but only one of the two female facilitators passed the exam. The female facilitator explained "*The project prefers men. There were more women that participated in the exam, but they did not pass. I have no idea why the project prefers men… women are efficient and do well to live up to the needs… but women are treated as if they are uncapable*". The successful female facilitator knew of several potential female facilitators who did not pass the exam but had never heard of any men who did not pass. She was convinced that the woman

who failed the exam was equally qualified as herself and as the male facilitators who actually passed the exam. The unsuccessful candidate was not allowed to do a re-examination and was eventually replaced by male facilitators with the official explanation that there was no budget to repeat another training session and therefore no possibility to recruit new potential female candidates. A similar picture was provided by other female facilitators, who explained that there were several good female candidates to recruit as facilitators to ensure an equal representation among facilitators, but they were not recruited.

This is further aggravated by the fact that fewer women than men have been selected for FF training. According to IFMC annual progress report (2017-18), 24 batches of training-of-trainers were conducted with new FFs. 827 male and 368 female FFs were trained, hence only around 30% of trained FFs were women. The annual report also reflects that, initially, few female BFPs were selected for training since IFMC field workers argued that only few women were qualified and interested in participating. Therefore, only 15% of BFPs were women until it was made a specific requirement to have two male and two female BFPs per group. The annual report 2017/2018 concluded: "*It turned out not to be an issue reaching the 1:1 gender ratio when mandatory, and female BFPs were as qualified, persistent and regular as men. This became an important lesson learnt for strategy design and supervision of field workers*."

The annual report also raised the issue of having mainly men as IFMC field workers and that this has constituted a barrier for selection of women. Only 5% of DAE staff are females and little progress has been achieved in this area during the project period.[74] The IFMC gender strategy developed in 2018 indicated that advocating for more female staff members was outside the scope of the project. Yet, considering the impact this has had on female participation and selection processes for FFs, BFPs and others, this is considered to be a lost opportunity to not advocate for more institutional changes in DAE. The example mentioned above, with BFPs, indicates that a more equal representation of males/females is feasible when the requirement is mandatory. However, without requesting DAE to actively address these challenges progress is not likely to materialize as is also the case with percentages of DAE staff. This is indeed a pity since the gender review from 2018 reflects that introducing female FFs is key in order to promote women's active participation in the project. Therefore, it will be important for DAE to develop and implement a gender strategy to address some of these challenges and to ensure a gender mainstreaming within the institution.

As also reflected in the context section, in Bangladesh women are not considered farmers, although they are increasingly engaged in agricul-

74 Annual progress reports 2015-2016; 2016-2017; 2017-2018.

ture. Cultural barriers are therefore likely to have affected selection of candidates for FF and BFP training sessions. According to the gender review 2018, women constitute more than 50% of FFS participants but the perception of women not being farmers is also observed in the training sessions and in decision-making processes. Examples of men talking on behalf of women and marginalizing them in decision-making occurred in the observed FFS sessions conducted as part of the gender review.[75] Stereotypical gender patterns from the households are hence replicated in the FFS and in the project as such. This also applies to the division of work among male and female FFs, since male FFs tend to facilitate large scale vegetables, IPM sessions, etc. whereas female FFs tend to be more engaged in traditional "female issues" such as nutrition, poultry and homestead gardening.

Nine out of 30 Master Trainers (MT) in AFSP were women (compared to a target of 50%). Considering the specific context of AFSP it was a bit unrealistic to propose a 50-50% of MTs and, although several strategies have been applied to reduce this gender gap, it has not materialized. The main responsibility of the MT is to ensure that the FFS are mostly practical/practice oriented, that the topics and technologies go well with the seasonal requirements, and that participatory exercises were carried out by the farmers themselves. The MTs were required to visit each FFS under their jurisdiction twice a year, but in practice they were visiting more times to provide more support to the FFs than foreseen.

5.3 Training of farmers

The combination of more subjects included into the FFS in IFMC and an increased number of modules combined with sessions being shortened has led to the time-consuming exploratory sessions being reduced. Including numerous different topics (rice, vegetables, poultry, cows, nutrition, etc.) in the same FFS, makes it difficult to cover all topics in a participatory and experiential way. Some sessions have been implemented mainly in the form of short lectures followed by discussions, while others (e.g. household gardening) have elements of exploratory learning and emphasis on participation. Poultry and beef fattening are conducted much like the household-gardening session, according to the guidebook and to FGDs held with female farmers. However, findings from the Gender Review (2018) indicate that the squeezing of numerous topics into the FFS has had negative consequences for the encouragement of the farmer's own problem-solving skills. As indicated in Box 1 in Section 4.1, the exploratory element of FFS builds on using the farmers' own skills and experience from their fields and encourages them to apply these experiences to problem solving; however, the gender review

75 Christine Hunter and Nasima Akter, Review of the gender activities of the Integrated Farm Management Component (IFMC) Bangladesh, April 2018.

did not find that this was happening in practice. In addition, challenges related to the scaling up process should be recognised, especially where organisational and logistical issues have been problematic (see also discussions in Chapter 6).

This development confirms that the risks identified in the appraisal report for AGEP (2012) have materialized to some extent: '*The widening of the scope as well as the up-scaling in the new IFM FFS constitute a risk of an overly focus on technology transfer. During the course of piloting and finalization of the IFM FFS, the AT considers it important to maintain the qualities of the learning process inherent to the FFS approach.'* Discussions from the qualitative fieldwork indicate that this has only been partly achieved. Whereas some participants indicated too little time to allow allocated for proper learning, others emphasized that time had been sufficient.

One critical example of this risk materialising is pest management related to large-scale vegetable production. The technical aspects of this was previously (in the ASPS-phases) a season-long, field-based course with weekly sessions of exploratory practical sessions allowing farmers to see the development of vegetables during different stages. Although it was the intention of IFMC to focus on high-value crops including vegetables, a module for this kind of larger-scale production has not been included in the training guide. In Uttar Chandipur in Rangpur, which focuses on large-scale vegetable production, the training in management of pests and diseases had been covered by the module 'Integrated management of vegetable insects and diseases', which was developed for homestead gardening of vegetables. This is not sufficient to cover the subject adequately since vegetable farming systems are complicated. In order for farmers to avoid the risks associated with becoming dependent on pesticides they need, for example, to have directly observed, in the field or in a small experiment, that insect pests have ample natural enemies ('farmers friends') in a field that is not sprayed with broad-spectrum pesticides and farmers need to have experienced the effect of practical management actions.

The expected consequence of a reduction of knowledge and experience of the trained farmers may lead to a risk of increased pesticide use. These practices may in turn threaten sustainability of the production (see Chapter 7). It should, nevertheless, be noted that some technical methods implemented as part of IPM, such as pheromone traps (traps to catch males of one specific insect pest), are used in homestead gardening so the methods are already there but currently not implemented as part of larger scale vegetable farming. In AFSP, IPM has on the other hand been well implemented. The end-evaluation found that farmers have reduced use of pesticides and enhanced their knowledge of beneficial insects and benefits of protecting the ecosystem. This knowledge

has according to the end-evaluation also had an impact on reducing the depletion of forests in CHT.

As regards the technically somewhat less complicated subjects, such as beef fattening, chicken rearing and household gardening, these have been delivered (according to the training guides and evaluation interviews with farmers) with quite strong elements of exploratory learning. This may well be the reason for the positive results of IFMC in these areas, which will be further explained in next section.

In AFSP, the training has been conducted mainly by using FFS approaches that are still exploratory or at least participatory. Highly positive results are reported, both in terms of adoption of new technologies and increased yields. It should be noted that conditions are much different in the CHT compared to the lowlands, including lower starting points in productivity, different governance systems, less market influences, fewer competing messages, AFSP being in project implementation mode, etc., so direct comparison may be misleading.

5.4 Adoption of new skills and techniques

According to the survey findings, 75% of the IFMC FFS households (male and female) have adopted at least five of the new technologies promoted by FFS (Table 10). This is slightly below the programme target of an 80% household adoption.[76] In non-FFS households, only 16% have adopted more than five technologies and in control households this is only 10%. This indicates some spill-over effects on non-FFS households.

76 The findings regarding use of skills and knowledge and adoption of techniques build on a combination of survey results and information from the qualitative fieldwork. It should be mentioned that the survey has not been able to carry out a comprehensive assessment of all skills and techniques, due to both the fact that FFS contains a wide range of skills and techniques, often comprising various elements, and that the questions need to address specific activities. Thus, while care has been taken to cover a wider range of skills and techniques in the quantitative survey than was the case for the baseline survey, it does not cover all possible applications. The survey covered about 33 different technologies/practice changes, with an option to indicate “other” practices as well.

TABLE 10. SHARE OF HOUSEHOLDS THAT INTRODUCED MINIMUM FIVE NEW TECHNOLOGIES*

	FFS	Non-FFS	Control
Minimum five new technologies	75%	16%	10%

**Non-FFS households are villages where FFS operated. Control groups are households in villages where FFS did not operate.*

The data shows a higher uptake of new practices in the South (Barisal and Chittagong (Feni)) than in the North (Rangpur and Rajshahi). Table 11 illustrates the differences across regions and here it is clear that targets have been achieved in the South but not entirely in the North.

TABLE 11. FFS HOUSEHOLDS THAT INTRODUCED MINIMUM FIVE NEW TECHNOLOGIES PER REGION

	Rangpur	Rajshahi	Barisal	Feni/Chittagong
FFS	77%	49%	88%	93%

This finding is in line with the evaluation's observations from the field, that farmers in the South seemed generally more motivated to learn and adopt new technologies to boost development in the area. The qualitative fieldwork indicated that other NGO and GoB implemented projects were fewer in the South than in the North. This could explain the difference in participants' motivation to apply and adopt new FFS techniques in the two different geographical areas. In CHT, findings from the evaluation of AFSP revealed that about 84% of beneficiary farmers of the targeted communities adopted at least five IFM FFS promoted technologies so here the target has been over-achieved.

CROPS

In rice[77] and vegetable production (in larger fields) the farmers report an increased use of chemical and organic (cow dung) fertilisers after training in FFS. Likewise, line transplanting of rice seedlings coming from the seed bed has been adopted by around half of the FFS farmers. This corresponds with findings from the qualitative fieldwork where line

77 Technologies promoted by FFS: Characteristics of good seed and rice varieties, use of balanced fertilizer, Integrated Plant Nutrition Management, age of the seedlings, plantation distance and number of seedlings per hill, water management in rice, major pest insects of rice and management according to IPM, major pest diseases of rice and management according to IPM, weed and weed management, roughing, harvesting and post harvesting procedures, storage of seed.

transplanting was observed and FFS participants explained how they use cow dung in their fields. Findings from the survey on new techniques introduced by FFS are illustrated in Table 12.

TABLE 12. NEW YIELD INCREASING TECHNIQUES IN RICE AND FIELD VEGETABLES, WHICH FARMERS HAVE INTRODUCED AFTER FFS, IN IFMC

Technologies	FFS	Non-FFS	Control
Urea	52%	10%	2%
MP	49%	16%	3%
Gypsum	50%	11%	5%
Zinc sulphate	42%	9%	5%
Cow dung	41%	14%	8%
Line transplanting	56%	22%	14%
Testing of high-yielding crop varieties	42%	9%	5%
Hand pollination (of vegetables, e.g. cucumber)	50%	11%	5%

Some techniques like use of urea and line transplanting were already extensively used by rice farmers (especially Boro rice) before the introduction of FFS; however, the FFS has added new yield-improving ways of using these techniques with only limited efforts.[78] Nevertheless, only half of the farmers have adopted these techniques. This may indicate that farmers are using less time in their rice fields, where farming is quite simple, as they adopt more new technologies in other types of farming. The survey, as well as the qualitative fieldwork, confirmed that more diversification is now taking place due to FFS.

The level of testing of high-yield varieties has been quite low, possibly limited by access to these varieties of seeds or their price. Especially in the North of Bangladesh, farmers have introduced additional, higher-value field crops, partly replacing rice. These are mainly potatoes, maize and some fruit trees (oranges and dragon fruit). Maize production alone has, in 2018, increased by 18%.[79] IFMC training does, however, not cover these crops.

78 The transplanting in rows ensures even space between 'hills' of rice plants, so all have enough space to grow. In more haphazard, traditional transplanting some hills get too much space, others too little.

79 Interview with UAO in Palashbari Upazila.

Table 13 below illustrates the IPM techniques acquired in larger fields. Here the adoption rate among FFS farmers must also be considered quite low, considering that bird perching is a very simple technique (put an L-formed stick in the ground), while light-trapping requires access to electricity in the field. The qualitative fieldwork observed few examples of application of these techniques in larger fields, but female farmers indicated that they had learned how to make light traps for homestead gardening.

TABLE 13. ADOPTION OF IPM TECHNIQUES IN LARGER FIELDS: PERCHING BRANCHES FOR INSECT-EATING BIRDS AND LIGHT TRAPPING OF NIGHT-FLYING INSECTS

Technologies	FFS	Non-FFS	Control
Perching	52%	10%	2%
Light trapping	49%	16%	3%

More positive findings were observed in CHT. The AFSP end-evaluation found that use of IPM techniques in vegetables was very good with a great impact on conservation of natural resources, the ecosystem and biodiversity as well as management of the environment. 65% of FFS households adopted IPM techniques and reduced their application of pesticides with one litre per year. [80]

FISH FARMING

Fish culture is undertaken by few due to limitations in pond access. In most cases, for farmers who adopted fish culture the knowledge retention was good in relation to pond preparation, timing of the operations, release of fingerlings, feed application, etc. However, as Table 14 illustrates, the adoption rate is low and only 25% indicated introducing new fishery techniques.[81] The evaluation did observe application of these techniques in practice but lack of access to ponds is reflected in the low uptake. Fish farming techniques have not had a spill-over effect on non-FFS farmers in FFS villages since the application rate is the same as with the control groups.

80 End-Evaluation/Impact Assessment for Agriculture and Food Security Project (AFSP) Phase II, 2018.

81 Techniques promoted by FFS: Pond preparation, selection of fish species according to types of pond, number of fingerlings for stocking considering different layers of pond, identify the quality fingerlings, transportation, adaptation and release of fingerlings, feed and fertilizer management after stocking, water quality management, fish diseases and their prevention, technique of FMA practice in pond, measures for fish marketing.

TABLE 14. FISH CULTURE TECHNIQUES FARMERS HAVE INTRODUCED AFTER FFS

Technologies	FFS	Non-FFS	Control
Cleaning the pond side/dyke of weed growth	25%	2%	2%
Cleaning of the pond; removing water-borne weeds	26%	2%	2%
Using lime in pond water as part of pond preparation	25%	4%	2%

**Non-FFS households are villages where FFS operated. Control groups are households in villages where FFS did not operate.*

Fish farming can be started all times of the year, as long as water is available. The dried-out ponds in the northern districts is one reason for a low scale of fish culture there and was observed during fieldwork that those engaged in fish culture were pumping water into their ponds from tube-wells to maintain proper water levels.

Profit from fish farming was reportedly good (see further discussion in Section 5.6) and there were some examples of wealthier farmers who managed to engage in fish farming in the North. In Purbo Gopalpur village (Palashbari Upazila) where the FOs invested in joint fish farming and in Uttar Chandipur village (Pirgacha Upazila) where a farmer cultivated carps and managed to increase production three-fold by applying new techniques.

In Southern Bangladesh conditions for fish culture are much more favourable and larger impacts of the aquaculture training were found by the qualitative survey. In Dakshin Hosnabad village, men were trained in fish farming and were now cultivating fish in shared ponds. They had managed to increase the production due to the application of the techniques, with a positive impact on both consumption and income.

In AFSP, none of the villages visited had engaged in fish farming also due to lack of ponds. One village had initiated preparation of a pond but was yet to start cultivating. However, according to findings of the evaluation, 68% of FFS households prepared the pond/creeks for stocking compared to only 4% of control groups. This resulted in a considerable increase of AFSP fish production of the beneficiary farmers increased from 8 kg to 15 kg per 0.2 ha for pond and for creek it increased from 19 kg to 22 kg per 0.2 ha. Statistical analysis revealed that productivity of pond fish and creek fish were significantly positively correlated with adoption of IFM FFS technology.

POULTRY

Most farmers have been engaged in poultry production for decades but by applying easy techniques promoted by FFS[82] and with low investments they have increased their production of eggs and poultry. Findings from the survey on new techniques introduced by FFS are illustrated in Table 15.

TABLE 15. POULTRY TECHNIQUES INTRODUCED BY IFMC WITH A SIGNIFICANT DIFFERENCE BETWEEN FFS AND NON-FFS*

Technologies	FFS	Non-FFS	Control
Hatching pan	36%	3%	2%
Chick separation	17%	0.6%	0%
Vaccination	41%	6%	6%

**Non-FFS households are villages where FFS operated. Control groups are households in villages where FFS did not operate.*

This data demonstrates that new techniques such as hatching pan, chick separation and vaccination of poultry are being applied more often among FFS households than in control and non-FFS households in villages with FFS. Vaccination was applied by 41% of the FFS participants whereas only 6% of non-FFS in FFS villages vaccinated their chickens. Interestingly, there is no difference between non-FFS and the control group indicating that there has been little spill-over from FFS members to non-FFS farmers living in villages where FFS have been implemented. Qualitative interviews confirmed that FFS members now vaccinate their chickens and female farmers explained that chickens are, to a greater extent, now surviving because of this. Availability of vaccination services in the villages was found to be a contributing factor for the high uptake. These services are being provided by NGOs and GoB projects also engaged in training farmers in poultry production, especially in Rangpur. In AFSP, a much higher uptake of vaccination services was recorded among FFS households compared to control households. 81% of FFS households received vaccination services and 98% of these considered services to be effective. For comparison, only 13% of control households received vaccination services.[83]

82 Techniques promoted by FFS: production plan for poultry, different breeds of indigenous poultry and their characteristics, improved poultry house management, laying and broody hen management, chick and duckling management, diseases and their prevention.

83 End-Evaluation/Impact Assessment for Agriculture and Food Security Project (AFSP) Phase II, 2018.

Hatching pan was used by 36% of FFS members surveyed whereas chick separation is being conducted by 17%. These techniques were well explained by female farmers in both Rangpur and Barisal (Chandkali village, Dakshin Hosnabad village, Uttar Kawnia) during the qualitative fieldwork and a higher application was indicated than the numbers derived from the survey. Hatching pan and chick separation from the hen were largely non-existing techniques among non-FFS and control groups surveyed.

In AFSP, the evaluation found a significant correlation between uptake of FFS techniques such as vaccinations, hatching pan and increased production. Due to these techniques FFS women have considerably increased their production from 9.5 to 43 kg on average per household.[84] FGDs with farmers confirmed that the technologies introduced by AFSP were new to them as they were doing poultry production in the traditional way before FFS. Several of the ethnic minorities' (i.e. the Chakmas) religious beliefs prevent them from slaughtering and consuming chickens and, therefore, they sell the chickens on the market so there is no direct impact on the families' nutrition in this regard.

In Betagi Upazila, the women in the village have specialised in producing eggs which they sell through the FO and their business has expanded quite markedly. They explained how they have applied several of the techniques promoted by FFS (implemented in 2015), i.e. the house management technique: "*Poultry is everywhere. We built three storage houses for chickens. It is not only us* (members of FO) *who does this, but the entire village is doing it. Men are not interested... The collection center is open twice a week and we collect min. 80 eggs and max. 100 eggs every time"* (FGD with female farmers, Uttar Kawnia). This example shows that, contrary to what the survey data above illustrates, there is some level of spill-over effect in this village.

On the other hand, female farmers in a non-FFS village (close to an FFS village) in Barisal explained that they were not applying these techniques, although they had heard about them. The women here explained: "*We are not doing it because we are lazy. We are doing it the traditional way*". This is an example of the need for "exploratory learning" in FFS; new techniques are not getting adopted only by hearing a story or by a lecture, but by "experiencing" it.

HOMESTEAD GARDENING

Homestead gardening techniques are, to a large extent, applied by female farmers with positive impacts on yield and family consumption.

84 End-Evaluation/Impact Assessment for Agriculture and Food Security Project (AFSP) Phase II, 2018.

The table below illustrates the findings from the household survey and identifies new practices introduced within homestead gardening.[85]

TABLE 16. HOMESTEAD GARDENING TECHNIQUES INTRODUCED BY IFMC WITH A SIGNIFICANT DIFFERENCE BETWEEN FFS AND NON-FFS*

Technologies	FFS	Non-FFS	Control
Soaking seed beds before growing seedlings	52%	13%	9%
Sorting & selecting seedlings	49%	13%	6%
Hand pollination	26%	7%	2%
Organic and herbal (botanical) pesticides	29%	3%	7%
Year-round homestead gardening	35%	4%	7%

**Non-FFS households are villages where FFS operated. Control groups are households in villages where FFS did not operate.*

According to the survey, more than half of the FFS participants surveyed soak the seed bed before growing seedlings (52%) and also sort and select seedlings (49%). Only 13% of non-FFS participants surveyed do that and less than 10% in the control group apply these techniques.

29% of FFS households surveyed indicate using botanical pesticides whereas only 3% of non-FFS do this. Interestingly, more farmers in the control group uses botanical pesticides (7%). This was confirmed by the qualitative FGDs. There were members in all FFS groups who explained that they have started applying compost fertilizer to increase yield and they were able to explain how to protect vegetables against insects. In Gunjar Khan Amintari village in Pirgacha Upazila female farmers explained how compost fertilizer is a healthier way to produce vegetables, how they have stopped buying vegetables at the market and that they are now consuming more in the household.

In both Rangpur and Barisal female farmers were able to explain how to protect vegetables and fruit against pests and diseases, how to prepare compost, and plant rows of vegetables 12 inches apart to ensure better

85 Techniques promoted by FFS: Space utilization of homestead area through vegetable and fruit cultivation, technique of year-round vegetable/fruit production, technique of Agro-Eco System Analysis (AESA) practice in vegetable/fruit gardening, insect pest and disease of vegetables/fruit and their prevention. Fertilizer & water management and pruning in fruit trees.

yields. In most villages, women explained that they have started growing more varied vegetables and fruits reflecting that they are applying the year-round vegetable/fruit production.

In AFSP, a much higher uptake of techniques was recorded within homestead gardening compared to under IFMC. This included 85% of FFS households applying hand pollination compared to 26% under IFMC. 65% of FFS households in CHT also used IPM techniques in vegetables and fruits. The qualitative FGDs in CHT confirmed findings from the evaluation of the high uptake of technologies within homestead gardening. Several techniques were observed including bed/land preparation, application of fertilizer and use of proper seeding. Also in CHT, the bulk of homestead gardening is conducted by women, although, there were examples of men helping to irrigate the vegetables. Women were very motivated and dedicated and income increased considerably as a result of new techniques and hard work. Especially, ethnic minority women were to a large extent able to control the income from this work.

SMALL AND LARGE RUMINANTS

The practical work around large ruminants such as cattle and pig rearing and small ruminants such as goats, was primarily conducted by female farmers. The qualitative field work to FFS villages in Barisal and Rangpur showed that beef fattening, cow and goat rearing[86] were the most common practices, whereas pigs rearing was also conducted by ethnic minorities in CHT. Contrary to rearing of cattle and goats in Rangpur and Barisal, pigs rearing in CHT was mainly conducted by men. Beef fattening was conducted in all villages that the evaluation visited in Rangpur region whereas dairy production (milking cows) with beef fattening as a by-product was more applied in Barisal and in CHT. Table 17 illustrates the findings from the household survey and identifies new animal feeds used for large ruminants.

86 Production plan for beef fattening/cow rearing considering market price of meat/milk, cattle/cow feed, nutrition and health management, cattle/calf/cow diseases and their prevention, selection of cows/cattle, improved cow house, technique of Farm Management Analysis.

TABLE 17. FEEDS GIVEN TO SMALL AND LARGE RUMINANTS LAST YEAR WITH A SIGNIFICANT DIFFERENCE BETWEEN FFS AND NON-FFS HOUSEHOLDS*

Technologies	FFS	Non-FFS	Control
Cereal bran	30%	5%	3%
Pulse bran	20%	6%	3%
Oilcake	26%	4%	2%
Green grass	25%	3%	3%
Straw	22%	3%	1%
Urea molasse	7%	0.6%	0.7%

**Non-FFS households are villages where FFS operated. Control groups are households in villages where FFS did not operate.*

Especially cereal brans were found to be commonly applied with 30% of FFS households using this feed for their ruminants but also oilcakes and green grass were applied as feed. These feeds were not applied by non-FFS and the control groups and a very small spill-over effect has occurred. In almost all FFS groups visited during the qualitative field mission female farmers explained how they applied urea molasse mix especially for beef fattening. This is, however, not confirmed by the survey data where only 7% of FFS households responded applying this feed. In Chandkali village in Betagi Upazila, female farmers explained that they were aware of the urea molasse mix but they do not use urea but instead mix molasse with grass and rice and lentil brims. In Basudebpur, Bhagwanpur village in Rangpur they also knew about the urea molasse mix but farmers did not have access to urea and were, therefore, not able to apply it in practice. Lack of access to urea was, therefore, a hindering factor for applying this technique in practice.

The survey findings indicate that de-worming of cattle/goats occurred in every second FFS household last year whereas deworming only occurred in 8% of non-FFS households. A similarly high number (39%) of FFS households indicated vaccinating farm animals last year (refer Table 18). Deworming and vaccinations were confirmed as having been applied by the qualitative fieldwork in Rangpur and Barisal. Vaccination services for pigs in CHT were, however, observed to be less available.

TABLE 18. OTHER TECHNIQUES FOR SMALL AND LARGE RUMINANTS APPLIED LAST YEAR *

Technologies	FFS	Non-FFS	Control
Deworming of cattle/goats	46%	8%	6%
Vaccination of farm animals	39%	8%	8%
Goat housing with ventilation	10%	0%	2%

**Non-FFS households are villages where FFS operated. Control groups are households in villages where FFS did not operate.*

A low uptake of goat housing with ventilation was found in the survey with only 10% of FFS households applying this technique. At the same time, the evaluation did not observe any goats housing during the qualitative fieldwork to Rangpur and Barisal. Contrastingly, goats would often run around without being tied up. As for cattle, there were on the other hand several examples in Rangpur of ventilated housing and cows were always tied and placed in the shade. In AFSP, managing housing for goats, cattle and pigs were applied by 54% of all FFS households.[87] This was confirmed by the qualitative field visit to CHT where the evaluation observed concrete examples of housing for goats (Borodona village in Rangamati Upazila). The AFSP evaluation also found a statistical correlation between higher milk production and better management of houses for cows and providing supplementary feed.

In Gunjar Khan Amintari village in Pigacha Upazila in Rangpur, female farmers explained how they had changed the fodder fed to the cows, how they protect cows from diseases by having them dewormed every third month and by vaccinating them, and how they monitor their growth by measuring their weight. Four out of 11 of the women took credit with NGOs to purchase cows for beef fattening. However, since women cannot themselves take their cows to the vet for vaccinations nor to the market, their husbands and sons are involved in these tasks and ultimately, they also get the money for selling the cow and decide what to do with the cash. Although women are doing most of the work of rearing cows, they do not decide over the income derived from it (see further below).

In Barisal several of the villages visited by the evaluation consisted of a mix of Hindus and Muslims and, since milk is an integrated part of Hindus traditional consumption, the focus was on milking cows in Betagi

87 End-Evaluation/Impact Assessment for Agriculture and Food Security Project (AFSP) Phase II, 2018.

Upazila. "*We have milking cows here. All are drinking milk and selling it. Hindu communities normally have milking cows. We sell the cow when it gives no more milk. But it is difficult to sell because Muslims will not buy from Hindus. They fear the cows will not be divine enough when it is reared by a Hindu*" (FGD with female farmers, Dakshin Hosnabad village). One of the Muslim women attending the FGD confirmed that Muslims are not interested in buying from Hindus and this constitutes an obstacle for Hindus and is likely part of the explanation why few Hindus are engaged in beef fattening although they were taught how to do it (five out of 14 FGD participants were fattening calves as a side activity to the milk production).

5.5 Women's empowerment

Women's empowerment has been explored by using the WEIA, as mentioned in Chapter 3, which focuses on women's access to and *decision-making power* about *agricultural production*, *resources*, *use of income*, *leadership in community* and *time allocation*.[88] Findings around these indicators will therefore be discussed in this section.

Women in FFS households have been empowered in terms of decision-making on *agricultural production* and, according to the survey, this change has been significant. Table 19 below illustrates that 60% of FFS women responded that they have become more involved in decision-making during the last five years whereas, for the control groups, 12% mentioned an improvement. This is also the case in terms of providing input into the application of new technologies in agriculture, input into use of income and selling/marketing.

TABLE 19. PERCENTAGE OF WOMEN INDICATING POSITIVE CHANGE IN DECISION-MAKING COMPARED TO FIVE YEARS AGO

	FFS	Non-FFS
Input into decision-making	60%	12%***
Input into new technology	57%	12%***
Input into use of income	61%	10%***
Input into selling/marketing	57%	13%***

****Significant at 1% level.*

88 Sabina Alkire Ruth Meinzen-Dick, Amber Peterman Agnes R. Quisumbing Greg Seymour Ana Vaz: The Women's Empowerment in Agriculture Index. IFPRI Discussion Paper 01240, December 2012.

The findings from the survey are largely supported by the qualitative interviews but with some variations. FFS has contributed to a significant improvement in women's role in household *decision-making processes* and female FFS participants are significantly more involved in taking decisions compared to non-FFS women. The opinion of married women is more valued on issues such as schooling for children but when it comes to (agricultural) production and income the husbands still have the final say. As reflected in the context section, agriculture has traditionally been associated with men's domain and it is therefore quite an achievement for women to be involved in the process, although there is still some way to go in terms of equal decision-making.

In CHT (AFSP), ethnic minority women have acquired access and partial control over income (especially poultry and income from homestead gardening). Poultry and homestead gardening are mainly conducted by women and the increased income to the family based on these activities has affected women's position in the household, leading to larger involvement in decision-making. The majority of the FFS women (80-87%) indicate having more liberty to spend the money individually than the control group (56-77%). In some cases, they even take the decision on their own without consulting their husbands, i.e. if they need to have a private tutor for children, because they do not need money from their husband. According to FFs this is a considerable change compared to 2013, when the second phase of AFSP was initiated, since both ethnic minority and ethnic Bengali women were reluctant to participate in FFS and now, they are even joining community events.

In terms of ownership and access to productive *resources*, IFMC implemented FFS has not contributed to larger female control over household assets. Female land ownership is, in general, an area with slow progress in Bangladesh. Only one example of female land ownership was found during the field visit to Rangpur and Barisal (in Betagi Upazila) where a woman, as the only child, inherited land from her parents. The survey data shows no significant difference between FFS women and control-group women in terms of female control over assets. The only exception is poultry where there is significantly more ownership control in FFS households than in control households. These findings were largely confirmed by the field observations, which showed that few women owned assets and, even if they did, it was the men who decided how to spend the profit. There were examples of females taking loans in order to purchase calves for beef fattening but since they cannot go the market to sell the calves, they rely on their husbands and sons and thereby they cannot control how to spend the profit. The evaluation found hardly any examples of women owing large ruminants, such as cows.

Poultry production is mainly the responsibility of the women, and men are often not interested in taking part in this, as the profit is relatively limited (e.g. in Uttar Kawnia in Betagi Upazila). Since men cannot keep

track of how many eggs are produced, women are able to control whether eggs are consumed by the family or sold. Eggs can easily be sold to neighbours discretely but when it comes to selling chickens the picture is more mixed and if women cannot sell them from home and access to a market is required, women need to involve their husbands which again means restricted control of the profits.

In terms of *use of income*, the survey data (Table 20) shows that FFS women had more control over income from poultry and homestead gardening, compared to women from non-FFS and control groups across all four regions (significant at the 5% level). This is, in particular, the case in Barisal where more than double as many FFS women have control over income from poultry (72%) compared to non-FFS (35%) and more than three time as many when compared to the control group (25%). This picture was also confirmed by findings from homestead gardening where four times as many FFS women in Barisal had control over income compared with non-FFS. In Rangpur, only around 40% of FFS women had control over income from poultry and homestead gardening.

TABLE 20. PERCENTAGE OF FEMALE CONTROL OVER INCOME FROM POULTRY AND HOMESTEAD GARDENING PER REGION*

	Rangpur			Rajshahi			Barisal		
	FFS	Non-FFS	Con-trol	FFS	Non-FFS	Con-trol	FFS	Non-FFS	Con-trol
Poultry	42%	32%	34%	58%	32%	24%	72%	35%	25%
Home-stead garden-ing	39%	23%	27%	38%	17%	30%	68%	15%	24%

**Non-FFS households are villages where FFS operated. Control groups are households in villages where FFS did not operate.*

Female control over household income and expenditure also shows a significant difference (at the 5% level) in FFS households. Interestingly, the control groups across the regions (except for Rajshahi) had more control over household income and expenditures than non-FFS groups. Whereas women in Barisal had considerably more control over poultry and homestead gardening, they have less control when it comes to household income, see Table 21.

TABLE 21. PERCENTAGE OF FEMALE CONTROL OVER HOUSEHOLD INCOME AND EXPENDITURE PER REGION*

	Rangpur			Rajshahi			Barisal		
	FFS	Non-FFS	Con-trol	FFS	Non-FFS	Con-trol	FFS	Non-FFS	Con-trol
Income	43%	19%	26%	51%	22%	25%	39%	9%	21%
Expendi-ture	42%	28%	32%	56%	31%	25%	52%	11%	22%

**Non-FFS households are villages where FFS operated. Control groups are households in villages where FFS did not operate.*

In terms of use of income, the evaluation of AFSP found that the majority of the women from FFS households (80-87%) had more liberty to spend the money individually than women from the control group (56-77%). These findings were supported by the evaluation's visit to FFS villages in CHT. In all the villages visited with ethnic minorities, the women could keep and spend the money they get from sale of eggs and poultry, with only limited or no interference from men.

As documented by several studies, women's lack of *mobility* is a key impediment hampering their full benefits of development processes.[89] If women do not have access to markets and cannot move around without their husbands' permission, they are not capable of participating equally in the FFS. Findings from the survey data indicate significant changes in the mobility of FFS women compared to non-FFS women, in terms of their ability to go unaccompanied to the market and visit family. Further, the survey data indicates a significant difference for FFS women in terms of going unaccompanied to collection points where FOs are collecting vegetables and other produce for further distribution and sale. Table 22 shows that 20% of surveyed FFS women have noticed a positive change during the last five years in their ability to go unaccompanied to the market, compared to 6% non-FFS women and a similar finding relates to family visits. Much fewer (8%) of FFS women responded that they can go unaccompanied to the collection point; however, it is still a significant change compared to non-FFS.

89 Evaluation of Farmers Field School Approach in the Agriculture Sector Programme Support Phase II, Bangladesh, Danida, 2011; Christine Hunter and Nasima Akter: Review of the gender activities of the Integrated Farm Management Component (IFMC) Bangladesh, April 2018.

TABLE 22. IMPROVEMENT IN WOMEN'S MOBILITY COMPARING WITH FIVE YEARS AGO

	FFS	Non-FFS
Unaccompanied to the market	20%	6%***
Unaccompanied to the collection point	8%	3%*
Unaccompanied to visit family	21%	5%***

**Significant at 10% level, ***Significant at 1% level.*

Table 23 summarises on a scale from 0 to 6 women's mobility, based on their ability to go unaccompanied to markets, collection point and visit families, in the different regions where the survey was implemented. Women's mobility in Rangpur is much better comparing to Barisal and especially Feni in Chittagong has positive results on women's mobility.

TABLE 23. WOMEN'S MOBILITY INDEX[90]

	Rangpur	Rajshahi	Barisal	Feni (Chittagong)
FFS	3.45	3.96	1.57	4.53
Non-FFS	2.67	3.47	0.89	3.12

Nevertheless, the general observations, derived from the qualitative field visit, were that female mobility among FFS participants is still very restricted. Access, especially to markets, is restricted for most of the women consulted (both FFS and non-FFS) and even more so for young women who have no access whatsoever. Older women, widowers and divorced women have slightly more access to markets, and literature confirms that it is more acceptable for women to go to the market when husbands are away and no alternative exists.[91] In Barisal, 40 women were consulted in three different villages in Betagi Upazila and only three of them could go unaccompanied to markets and none of them had husbands living in the village (widower or divorced). A similar pattern was found in Palashbari Upazila where women were restricted to errands concerning children, such as schools and medical clinics, but

90 Women mobility index (WMI) is obtained combining information from three questions: "Can you go unaccompanied to (i) markets, (ii) collection points, (iii) family members". Ranges from 0 (low mobility) to 6 (high mobility).

91 Deborah Rubin et al., Qualitative Research on Women's Empowerment and Participation in Agricultural Value Chains in Bangladesh", USAID, 2018.

were not allowed to visit families unattended. Notably, selling products at the market is not considered a female business and there were no examples of this with married women. Therefore, the significant difference found in the survey between FFS participants and the control group can perhaps be explained mainly by less restrictions among FFS women on going to the market to purchase selected items, i.e. school uniforms. This also correlates with only a few being allowed to go to the collection point, as this is where business is being done.

Lack of access to markets is a constraining factor for women's empowerment, and the assumption that women can benefit from FFS on the same terms as men does not hold. However, FOs play an important role in diminishing this constraint. To allow women to fully benefit from the FFS in terms of increased production and, subsequently, income from this production, requires that women can sell their produce and have decision-making power over how they want to spend their profits. Although, women have significantly more decision-making power over poultry and homestead gardening products (as mentioned above), the mobility constraint reduces their ability to benefit from this if they need to go through their husbands to sell the products. In addition, in general, the production of vegetables has increased and, therefore, female farmers cannot sell to their neighbours; moreover, since women cannot go to markets themselves, they need to have their husbands sell the vegetables. This was confirmed by female farmers from Purbo Gopalpur and Paschim Goalpara villages in Palshbari Upazila as well as Chandkali village in Betagi Upazila).

Here the farmers organisations/associations proved important as they bring the market to the women. There were some good examples of women who, through the collection points, could now sell their products at market prices without having to take their products to the market. In Uttar Kawnia in Betagi Upazila, for example, women have gained bargaining power and they control their own income from eggs/gardening. Although they have no access to the market, they can sell their produce through the FOs and at collection points, without paying overprices to a middleman and, to a larger extent, control the profit. This was also the case in Basudebpur, Bhagwanpur village, Palashbari Upazila, where the FO has created an opportunity for women to sell their products without physically going to the market.

In CHT, the evaluation found that mobility has improved considerably among ethnic minorities. As mentioned above, women do the work around poultry and homestead gardening; moreover, it is increasingly becoming accepted that they sell at the market themselves and decide on how to use the income. This however only applied to ethnic minorities and not to ethnic Bengali women. Literature indicates that Muslim women are less likely to venture outside the home than Hindus or ethnic

minorities, although religious differences are absent when it comes to decision-making power within households.[92]

According to survey data, FFS has contributed to an increase in women's confidence in speaking in public. The share of female FFS participants stating that they feel comfortable or very comfortable matches and even slightly surpasses the programme target of 80% (see Table 24). The data shows that the confidence of women in FFS villages has increased significantly more than among non-FFS and control village women. It is also considerably higher than findings from IFPR's WEIA survey from 2012 where only 67% of surveyed Bangladeshi women indicated being comfortable in speaking in public. Leadership in the community is measured by women's confidence in speaking in public and their qualitative participation in group dynamics in the community. As mentioned in the context section, this is one of the areas that contribute most to Bangladeshi women's empowerment and is, therefore, a key area to prioritize.

TABLE 24. WOMEN FEELING EITHER "VERY COMFORTABLE" OR "COMFORTABLE" WHEN SPEAKING IN PUBLIC

	FFS	Non-FFS***	Control***
Today	82%	44%	37%
Five years ago	49%	33%	24%

****Significant at 1% level.*

In the field, the evaluation found examples of changes in women's leadership in the communities. In some villages, men were appreciative of women's contribution and enhanced leadership while in other villages this was not the case. In Purbo Gopalpur village in Rangpur, women were in charge of organising the FO activities at the community level (such as collecting vegetables, sorting and grading them and ensuring that everything is ready for transportation). Women were buying vegetables from village farmers – members as well as non-members – and coordinated the work and employed FO members, including youth to carry out the various tasks and ensure that they were paid. Everything was done in a very transparent manner, and males and females were paid per kilo handled (sorted, grated, etc.). The male members of the FO were then in charge of transporting and selling the vegetables in

92 Sonalde Desai and Gheda Temsah: Muslim and Hindu Women's Public and Private Behaviors: Gender, Family and Communalized Politics in India, Demography, 2014 December.

the market. The profit/loss was split equally among the BFPs. Female farmers explained that their husbands were very appreciative of their efforts and that they now contribute to income generation. On the other hand, in Uttar Kawnia in Betagi Upazila, female FO members explained that their husbands were, at times, frustrated that women were included in leadership in the FO: "*Why did DAE request that women are trained and involved in the FO, they are breaking household rules.*" This indicates that women are gaining bargaining power in the FO which they also bring to the household, thus challenging husbands. It also clearly confirms findings from literature[93] that agriculture is considered a man's domain and, hence, they are frustrated to see women involved in decision-making.

As regards participation in community groups, it is mainly in the farmers' associations/organisations that group dynamics have been assessed. Leadership in FOs does comply with the guidelines and have 50% males and 50% females in the executive committees. The quantitative target of minimum 90% of FOs with a female in the executive committee is confirmed by the survey data (all 11 farmers clubs in the survey have females in their executive committee). This does, however, not reveal anything regarding women's qualitative participation and there was only one example in the FOs where female members served as president and vice-president.[94] Instead they are mainly included in the executive committees as treasurers and secretaries.

The qualitative fieldwork showed that women have increased their workload and reduced their resting time. This is the case across the regions and Upazilas. The increased number of activities with livestock, homestead gardening and support to husbands in the field has decreased women's possibility for leisure. However, work burden is not only increased due to increased agricultural activities. Legislation requesting small children to go to pre-school was mentioned by several stakeholders as a change that has increased women's burden because they must get the children ready for school, prepare food for them and take them to school early in the morning.

5.6 Farmer's organisations and marketing

The developed and applied model for FOs in IFMC and the linkages to BFPs appears not to have worked as intended and implementation has been done with insufficient testing and learning. The evaluation found that both the reasons for establishing the FOs, as well as the level

93 Deborah Rubin et al., Qualitative Research on Women's Empowerment and Participation in Agricultural Value Chains in Bangladesh", USAID, 2018.

94 One example from Basudebpur, Bhagwanpur village, Palashbari Upazila where two women used to be president and vice-president before the new committee was elected.

of functionality of these organisations, varied a lot across villages. In several cases, the FO leaders appeared to have been 'selected' by the local DAE representatives, as was the case for all BFP's. IFMC has also supported development of collection points, which are both for physical collection of the products, pick-up by the BFPs or contractors, and they also have a small office for bookkeeping and meetings.

The FO/Farmers Association in Purbo Gopalpur (Rangpur) appeared to be, by far, the most organised and successful FO observed by the evaluation. However, it should be noted that its history is long, and it was nurtured through other support since before 2008.[95] The IFM-FFS then came as an additional support. The marketing person contracted received 80% of the margin obtained between prices at their Collection Point in Purbo Gopalpur and the market where the products are sold. The processing, sorting, grading, cleaning, packing of commodities organised at the village centre was fully carried out by members, who are paid in full for their labour. The elaborate book and record keeping shows that the specific training on bookkeeping by IFMC and the support from TA staff, to help check and update the books, was useful.

Another quite well-organised FOs was found in Gunjar Khan Amintari village (Pirgacha) which had a strong focus on members' improvement based on member savings. The idea was to buy a cow for each member, one by one, from their own contributions, from where they will share re-investments into the organisation and slowly advance. The idea is innovative and centred around serving each member equally. The FO visited in Uttar Kawnia (Barisal) was found to be well organised around collection and bulking of vegetables from members, and other neighbouring non-members, to sell them mostly in the nearby Miar Haat town. Here also the BFPs were functionally playing the role of middlemen and received 80% of the obtained mark-up price. The FO at Uttar Chandipur also appeared to be heading for good results, but the credit here goes more to the GoB project SDF, which provides huge and continuing institutional support to the FO. In this case the IFMC certainly duplicates other efforts.

The DAE considers the Fakira Adarshapara IPM Krishak Shangathan to be a very successful FO and it is often used as a showcase. The evaluation found, however, that although the members have become well-organised in the business of milk collection, including arrangements for its onward sale to a commercial company in the nearby market, the profit-sharing mechanism seemed highly tilted in favour of the male BFPs who take the margin without sharing with female BFPs. Male

95 Purbo Gopalpur was a previous IPM FFS but did not form club or learn bookkeeping from the IPM FFS, and the group did not get specific support from other projects/agencies. The group is a show case group and TA staff have been careful to ensure good bookkeeping in it. This is a result of IFMC.

BFPs have managed to convince female BFPs that they are not eligible to a share of the profit as they are not able to sell at the market, so their profit is returned to the FO. Therefore, in effect, the male BFPs/FO leaders (they have dual roles) become new middlemen for the farmers. In addition, the institution-building process is not strengthened through the business, but rather through the usual slow-moving savings of the members.

The evaluation's visits to FOs in both Bhagwanpur village and Balarampur village (Palashbari Upazila) revealed that these FOs appeared to be non-functional, despite some training efforts undertaken by DAE. The motivation and incentive on the part of the FFS members appeared to be low. In one of these villages, FFS members were only persuaded to join the FO by one wealthy member who wanted to have an FFS in his village. Within two of the villages visited (Hoshnabad and Chandkali) there was no FO at all. In Uttar Chandipur village (Rangpur), the secretary of the (emerging) FO was very likely the most influential and wealthy person in the village, producing 2,000 chickens on contract to the Thai-based multinational food company Charoen Pokphand Group. It was not possible to be clearly informed how he may have participated in an FFS leading to the FO.

Overall, the evaluation found that many FFS farmers are still reluctant to use the FO for selling their products as they often have access to other, competing, middlemen, so they do not see advantages in selling through the FO collection point. In addition, the BFPs, through whom the FOs are expected to market their products, are frequently appointed/identified by DAE officers. And although the original intention was that the BFP functions would be held by different community members in order to ensure checks and balances in the organisations, the evaluation found a high degree of overlap between BFPs and leadership in the FOs.

Although the margin received by the BFPs (80% in the cases presented above) was considered high by many of the farmers, the margin has to be understood in relation to volumes of sales and time spent by the BFPs. In fact, the commission share is rather complex to fix, and require assistance to the groups to get it right and ensure a sufficient incentive to the BFPs. The FO model has included meetings with participation of all members to discuss the commission rate and full transparency on group and BFP earnings. Further, according to the model the commission should be re-assessed and developed over time according to time spent and margins earned. The model developed for the BFTs was meant to attract buyers to the collection point to ensure transparency in transactions. However, the scale was many times not sufficient to attract buyers and BFPs ended up bringing the produce to the market instead.

The IFMC regions have been assigned the task of securing quality assessment of the IFMC-FOs and maintaining a ranking system.[96] IFMC conducted specific training for FO leaders with the modules 'Leadership in organisational development and roles and responsibilities of a leader', 'Good governance, transparency and accountability', 'Collective marketing; roles and responsibilities of a FO leader', as well as 'Financial Management of the FO, linkage, networking, agreement'. The intention was to eventually include all FO members in such training sessions to ensure a common ground in the organisation; however, the evaluation only came across one case where all FO members had received training.

In both FO and BFP training, such business practices, tools and tactics are needed by producers, aiming at getting good prices and conditions. These trainings would include practices such as practical identification of markets and prices at different markets and seasonal price variations, financial understanding of running a business (beyond recordkeeping), and elements of negotiations (conditions, timing of payments, interest on outstanding debt or credit etc.) and others.

The evaluation findings show that FFS has resulted in FFS households applying more actively marketing practices than non-FFS households. In the household survey, FFS participants were asked regarding their marketing practices before and after their participation in FFS. Almost all households were already drying and cleaning products before FFS with no significant difference between FFS, non-FFS and control groups (refer Table 25). However, a significant difference was found in terms of sorting products where FFS households experienced an increase from 72% to 82%. A significant increase was also noted in terms of grading. Packaging is conversely not applied much by neither FFS nor control households and this has not changed much after attending the FFSs.

96 FO Ranking tool, in IFMC guides and tools.

TABLE 25. MARKETING PRACTICES – SHARE OF FARMERS DOING THE TASK

Drying	FFS	Non-FFS	Control
After	82%	79%	89%
Before	82%	78%	88%

Cleaning	FFS	Non-FFS	Control
After	83%	84%	87%
Before	81%	83%	86%

Sorting**	FFS	Non-FFS	Control
After	82%	67%	75%
Before	72%	61%	70%

Grading***	FFS	Non-FFS	Control
After	56%	32%	38%
Before	43%	27%	34%

Packaging	FFS	Non-FFS	Control
After	10%	4%	6%
Before	8%	4%	6%

*** Significant at 5% level, *** Significant at 1% level.*

The evaluation found large variations in perception of the market linkages training sessions and whereas some did not benefit from the training, others did. The BFPs who were interviewed all reported going through the training and learned some useful aspects. Male FO-members in one village reported having been through market training by BFPs and found it of very limited use. Three female FO members reported having received market linkage training, but no exams were attended, and this specific FO decided not to use the BFP set-up. Although, the FO model is considered rather standardized this

does indicate room for some flexibility in terms of adjusting FO rules to members' wishes and needs.

FOs in AFSP have not been an explicit focus of AFSP but group organisation have been promoted in the PDCs. They were primarily tasked to keep peace and harmony within the community and have performed well in this regard. The bearing on market linkages has been limited as this was not their main purpose. During the qualitative field visit to CHT, the evaluation did meet examples of how PDCs can play a role in market linkages. In Jogendrapara village in Naniarchar Upazila, the PDC encouraged women to rear cows collectively as a group which had an impact on the production of milk and the group's ability to sell cows at a higher cost.

5.7 Impacts from the FFS approach

INCOME AND EMPLOYMENT

The evaluation findings show that FFS has contributed to a significant increase in FFS farmers' household income compared to control households, both in IFMC and AFSP, and that the programme target of a 10% higher income increase in FFS households, compared to control households, has been fulfilled. Table 26 provides an overview of the income estimates reported in the IFMC household survey (total income as well as for main agricultural production groups) as well as a percentage increase or decrease. While the exact numbers should be interpreted with caution (due to the use of recall data), these findings from the survey data are backed up by information provided to the evaluation during the field visits.

TABLE 26. COMPARISON OF HOUSEHOLD INCOME (TAKA) FIVE YEARS AGO WITH LAST 12 MONTHS

Product category	FFS			Non-FFS			Control		
	Last 12 months	5 years ago	% increase	Last 12 months	5 years ago	% increase	Last 12 months	5 years ago	% increase
Total ***	213,065	168,104	27%	192,684	190,240	1%	196,258	187,878	4%
Field crops***	48,334	38,180	27%	45,379	43,918	3%	54,890	54,004	2%
Orchard	20,485	16,357	25%	20,125	15,730	28%	15,907	12,469	28%
Farm Animals***	22,628	21,744	4%	18,237	29,313	-38%	21,452	31,827	-33%
Poultry and eggs***	6,444	4,879	31%	3,274	4,146	-21%	3,479	4,343	-20%
Vegetable gardening***	1,885	1,196	58%	1,170	1,039	13%	1,221	1,299	-6%
Fish production***	7,108	4,305	65%	4,602	5,099	-10%	3,686	3,499	5%

****Significant at 1% level. Note: Income correlated for inflation. Other large income categories include remittances and income from wages and service delivery.*

The econometric calculation based on the survey data shows that the income increases are significantly higher for FFS households than for the non-FFS and control households for all product categories, except for orchards. In total, an increase of more than 20% has occurred and fish production has increased with 39%. This was confirmed by the qualitative interviews where the farmers engaging in fish culture experienced a quite substantial increase in income, for example in Uttar Chandipur village (Pirgacha Upazila) where farmers used to harvest 37.5 kg of carps once a year but after applying techniques from FFS, they now harvest 37.5 kg three times a year.

The only exception is income from farm animals which only increased with 4% for FFS households. However, considering the substantial decrease non-FFS and control households experienced (a decrease of 61% and 48% respectively compared to five years ago), this result seems to be a good achievement. In non-FFS and control households, a considerable increase of orchard production has occurred (22% for both groups) but several other productions have decreased significantly, such as farm animals and poultry and eggs. For non-FFS vegetable gardening has increased with 12% indicating some spill-over effect from FFS households compared with control households which experienced a decrease of 6%. On the other hand, fish production has increased with

5% for control households but decreased with 11% for non-FFS. In the qualitative fieldwork, the evaluation found that only a few farmers per village were engaged in fish culture and mainly the wealthier ones were engaged in fishery. In addition to the increase in income, the evaluation found, during fieldwork, that more children are now going to school (an indication of increased income).

A few examples were provided of FFS leading to employment creation, outside or in addition to family labour. As mentioned above, the evaluation only observed one case of employment creation in the qualitative fieldwork. The FO in Purbo Gopalpur village collected vegetables from members of the FO as well as others in the village. Before sending a representative to the market for sale, the vegetables were cleaned, sorted and grated and this process created employment for FO members and their families. There were examples of youth and women being employed. According to villagers, there were also employment spin-offs in services for livestock, such as vaccination services.

The survey findings show that income increases from FFS have been more statistically significant for less poor FFS households than for the poorest FFS households. Although survey data (see Table 27) show statistically significant income effects for all four income quartiles, the significance is stronger for income quartiles 3 and 4 (significant at the 1% level) compared to income quartile 1 and 2 (significant at the 5% and 10% level, respectively).

TABLE 27. COMPARISON OF HOUSEHOLD INCOME (PERCENTAGE CHANGE FROM LAST YEAR) FOR DIFFERENT INCOME QUARTILES

Matched	FFS	Control	Significance
Quartile 1 (lowest income)	34%	13%	5%
Quartile 2	26%	13%	10%
Quartile 3	25%	2%	1%
Quartile 4 (highest income)	29%	7%	1%

The findings from AFSP also show large income increases from FFS. The Evaluation of AFSP (2018) showed a significant income increase for FFS households compared to a control group.

While it was found that the income of the FFS households increased from a baseline level of Taka 103,167 to Taka 128,206 after FFS (almost 20% increase), compared to that of the control group which declined from a baseline level of Taka 114,461 to Taka 93,992 (decrease of 18%) during the same period. The evaluation found, from the field visit to CHT, that income had increased significantly within all the FFS villages

visited. Especially, income from homestead gardening and from poultry and eggs increased but also income from fruit production increased considerably.

TABLE 28. DIFFERENCE IN INCOME BEFORE AND AFTER FFS UNDER AFSP

	FFS	Control***
2018	128,206	93,992
Baseline	103,167	114,461
Difference (%)	20%	- 18%

**** Significant at 1% level. Note: Based on the End-Evaluation of AFSP (2018).*

FOOD SAFETY AND NUTRITION

The evaluation found large variation in demonstrated knowledge and nutrition skills but, in general, nutrition seems to have improved in FFS villages. The fieldwork showed that in Uttar Chandipur village (Pirgacha Upazila) female farmers demonstrated good knowledge of nutrition and sources of proteins, carbohydrates, the need to consume different vegetables and how to prepare food to keep the nutritive quality and ensure food safety. They were able to explain how to prepare vegetables to balance their nutrition, the importance of getting protein from eggs, chicken, beef and lentils and how to ensure hygiene while cooking, including how to wash hands and clean cooking tools. *"Before we took rice and potatoes and not any vegetables although they were within our reach. Now, we are trying to include vegetables in all our meals"* (FGD with female farmers in Uttar Chandipur Village).

Knowledge of hygiene was, however, limited in most villages and it was only in Uttar Chandipur Village where they demonstrated skills within almost all areas included in the FFS training (food classification, nutrition, safe food and proper cooking). In Jugendra Para, Naniarchar Sadar (AFSP in CHT) there were examples of female FFS participants demonstrating knowledge of hygiene and the importance of hand washing and washing vegetables before cutting them. In Paschim Goalpara village in Palshbari Upazila on the other hand, women demonstrated limited knowledge of hygiene.

In several villages, female farmers explained that they need to include more vegetables in their cooking but not all are doing so in practice. One reason for not applying knowledge in practice is that cooking habits are difficult to change, and they prefer cooking as they have always done it (FGDs with female farmers, Balarampur village, Palashbari Upazila and Gunjar Khan Amintari village, Pirgacha Upazila). In Betagi Upazila,

another explanation was lack of access to varied types of food. The women understood that they needed more protein and vegetables, but they struggled to acquire these. As for access to protein, by contrast, the enhanced production of eggs and chicken has improved the situation. "*We now have chicken to serve to guests… Before it was difficult to buy chicken, now it is not. It increased for all households"* (FGD with female farmers, Dakshin Hosnabad village). In one of the non-FFS villages in Betagi Upazila, women also demonstrated skills on nutrition and differentiated food. They fully understood that small children need protein and eggs are prioritized for babies. This information they have acquired from health workers and television shows.

The positive correlation between FFS and nutrition was also found in AFSP. The evaluation of AFSP found increased daily calorie intake and consumption of nutritious food in FFS households also compared to the control households. The evaluation's field visit to AFSP villages largely confirmed these findings.

Enhanced homestead gardening and poultry production in FFS households have a positive impact on FFS families' nutrition. There is no doubt that families are benefitting from increased access to eggs and chickens and families are reducing costs when they can provide important protein sources themselves. This has been confirmed by all villages in both Rangpur and Barisal. However, the impact seems to have been bigger on villages in Barisal where access to animal protein has been more limited in the past than in Rangpur. Opportunities for fish production have also been better in Barisal. At the same time, farmers in Barisal were more challenged here due to lack of space for gardening and an increased risk of floods. In CHT (AFSP), the evaluation found that in ethnic minority villages the enhanced poultry production has increased income but, due to cultural barriers that prevent them for slaughtering, most chickens are sold. Chickens are an important source of cash and therefore the families still do not consume much animal protein but instead rely on fish. Consumption of eggs has, however, gone up.

FFS is one of many sources providing information on nutrition in Bangladesh. In Betagi Upazila, women in both FFS and non-FFS villages explained that they receive messages on nutrition from several sources including governmental health clinics, television and from NGOs. Especially health clinics have become a key source for nutrition information and caretaking of infants and small children. Therefore, households are exposed to these messages from many sides and progress in this area cannot be attributed to a single source.

FFS has contributed to a reduction in the risk of food crises within FFS households. According to the survey data, the risk of a food crisis is significantly reduced in FFS households compared to control households (Table 29).

TABLE 29. PERCENTAGE OF HOUSEHOLDS THAT EXPERIENCED FOOD CRISIS

	FFS	Non-FFS*	Control***
Last 12 months	19%	21%	22%
Five years ago	47%	37%	37%

Significant at 10% level, * significant at 1% level. Note: Food crisis understood as a period when some members have to eat less or skip meal or eat famine food.*

While 47% of the FFS farmers in FFS villages indicated that they would experience food crises prior to FFS, this has now decreased to 19%. During the same period, the risk of a food crisis has also decreased within the control group, although at a slower pace (from 37% five years ago to 22% today). If only control households within FFS villages (Non-FFS) are taken into consideration, the difference becomes less significant, indicating that the effects from FFS within this area may also, to some extent, have spilled-over to non-FFS households within the FFS villages.

FFS has contributed to a similar reduction in the risk for food crises in AFSP households but on a smaller scale. The AFSP evaluation (2018) found that the percentage of FFS households in AFSP having food deficiency was reduced from 58% to 42%.

OTHER UNINTENDED IMPACTS

The evaluation found no indication that FFS has contributed to increased land ownership within the FFS households. Although the land size has increased significantly for FFS households, the same has happened within control households during the period (Table 30), and there is no significant effect attributable to FFS.

TABLE 30. LAND OWNERSHIP (DECIMALS OF LAND)

	FFS	Control
Today	40.5	46.2
Five years ago	37.1	42.9

According to the survey data, 13% of the FFS household stated that they engage in land-lease agreements more now than was the case five years ago. However, this increase is not significant when compared with the control group. Likewise, a small increase is noted in terms of land transactions among FFS participants, but this increase is not significantly

more than in the control group. In terms of land security,[97] both FFS and control farmers express the same level of security of their land as five years ago (respectively, 86% for FFS farmers and 90% for the control group).

The evaluation found that more children (both girls and boys) are attending school in both FFS and control households compared to the situation five years ago. Nevertheless, the evaluation also found that traditional gender stereotypes prevail, and cultural and traditional practices are difficult to change. Children – both girls and boys – are continuing in school more years than 10 years ago but families continue to raise girls to become good wives and mothers. Girls are strictly raised and if they do not obey, they are beaten which is not the case for boys. "*Girls are helping after school. Boys play with their friends. Who can afford have children in private schools, mainly boy? We beat the girls to raise them to become good mothers. This is not the case with boys"* (FGD with Female farmers in Uttar Chandipur village, Pigacha Upazila). Girls are taken out of school due to boys bullying them and the risk of them bringing shame to the family reputation. Therefore, the majority of girls still marry at the age of 14-15 years old and this applies for all the regions. Although women do know that it is illegal, and they fear to speak openly about it. However, they don't know what else to do apart from marrying them off when they start showing an interest in boys and men.

97 Security of ownership and access to the land controlled by the farmer.

6 FARMER FIELD SCHOOLS – COSTS AND ORGANISATION

Section 6.1 below includes a discussion of cost-effectiveness related to FFS interventions in both IFMC and AFSP. Sections 6.2 and 6.3 deal more explicitly with the institutional set-up and M&E system of IFMC.

6.1 Cost-effectiveness related to the FFS interventions

When trying to calculate the costs for FFS it is important first of all to consider which costs to include. The major FFS costs can be grouped into three categories: i) base costs, ii) start-up costs, and iii) recurrent costs, as the most commonly used categories used in reference literature. The level of costs also depends on the development stage: i) pilot, ii) up-scaling or iii) consolidation. The base costs will typically be high in the pilot phase, especially if new organisations have to be established or an existing one strengthened. When FFS makes use of an existing 'infrastructure' (organisation, human capacity, etc.) these costs will be substantially lower. The start-up costs will usually be high during the pilot phase when human capacity needs to be developed through training-of-trainer courses, often with assistance of national and/or international technical assistance. The actual costs will therefore also depend on availability of suitable local experts and the required level and intensity of the training.

Recurrent costs will, typically, decline over time due to more efficient management, more experienced FFs (requiring less intensive supervision), reduced financial incentives for the FFs and/or abolishing (or reduction of) incentives paid to participants. In addition, scaling-up can reduce the costs of inputs as a result of potential bulk purchases and relatively lower administration costs.

The recurrent costs for a FFS are largely determined by the costs of the trainers/facilitators (salaries and transport) and the training venue. Further on, the value attributed to these costs will be highly dependent on the specific topics, the socio-economic conditions in the country and the geographical 'density' of FFS. This will affect the costs of inputs, salaries and allowances, transport costs, etc.

FFS unit costs in IFMC, based on the actual expenditures and activities implemented during 2017/2018,[98] have been calculated as follows:

TABLE 31. COSTS RELATED TO FFS IMPLEMENTATION IN IFMC

2017/18	BDT (million)
Total expenditure (FFS implementation) *	BDT 509 million/USD 6.2 million
Total number of FFS	3,844
Total number of FFS participants	192,400
Total cost per FFS	BDT 132,500/USD 1,600
Total cost per FFS participant	BDT 2,650 Taka/USD 32

*Source: IFMC Annual Report 2017-2018. *Costs does not include: Backstopping of FFS, training of Farmer Facilitators and Departmental Trainers. BDT 100= USD 1.2.*

Cost calculations made by the evaluation show that the average cost of running one IFMC FFS was BDT 132,500 (USD 1,600) in the season 2017/2018. This is only the direct cost of FFS implementation. In comparison, the 2011 FFS Evaluation found that the costs of running an FFS in AEC and RFLDC during the period 2007-2010 were, on average, BDT 35,000, equivalent to around BDT 55,000 in 2017/2018.[99] This shows that the average costs per FFS has more than doubled from AEC/RFLDC to IFMC.[100] The main difference here is that IFMC included the technical content of both the AEC and the RFLDC FFSs.

At the same time the survey results showed an average increase in total income among FFS households of approximately BDT 50,000 over the last five-years period, or an average of BDT 10,000 per year. A similar calculation made for the control group showed an average increase in total income of approximately BDT 10,000 during the last five-years period, equivalent to BDT 2,000 per year. This give an annual average income increase for FFS participants of around BDT 8,000 attributable to IFMC FFS. With an average cost of BDT 2,650 per FFS participants (or BDT 5,300 per FFS household) this shows an impressive cost-effectiveness effect from IFMC FFS, with a pay-back time of less than a year. And that is only for the first year; the following years the FFS households can be assumed to continue to increase their income.

98 Annual Progress Report 2017/2018.

99 By using of a 6% inflation rate.

100 It must be noted that in RFLDC, the FFS were often only 25 participants.

Even if the total IFMC budget of DKK 300 million (equivalent to BDT 3.8 billion) is used as basis for the cost calculation, this does not change the overall conclusion, that FFS has been a very cost-effective investment under IFMC. With a total of 862,155 IFMC FFS participants, the total cost per participant would be BDT 4,500 (this includes all IFMC related costs, including international staff, FO and marketing activities, training of FFs, etc.). With two FFS participants per household, this would imply a cost of BDT 9,000 per FFS household. In this case the payback time would still only be slightly more than one year.

For AFSP, the End-Evaluation (2018) estimated the cost per FFS participant to BDT 14,400, or around five times the cost in IFMC. According to the survey conducted by the AFSP evaluation of the five-year AFSP implementation period, the total income of the FFS participants increased on average by BDT 83,000 (from BDT 138,500 to BDT 221,500), or BDT 16,600 per year. In the same period, the average income of the control group increased by BDT 38,500 (from BDT 106,500 to BDT 145,000), or BDT 7,700 per year. This gives an average annual income increase for FFS participants of BDT 8,900 attributable to AFSP. In this case, the payback time of the FFS investment has been around 1.5 year, which is still a very cost-effective investment.

In comparison, the 2011 FFS Evaluation also showed high cost-effectiveness from FFS. In RFLDC, the FFS households increased their income by BDT 10,000 more than control village households in the period between 2007-2010. When this figure was compared to the cost per FFS household within RFLDC, it also showed a payback period of less than a year after FFS has been completed. Somewhat similar experiences have been found from FFS experiences within other countries, where cost calculations from IPM-FFS programmes have shown cost recovery from increased production of the FFS households after one to three seasons. The studies showed that the payback period was very much dependent on the initial level of production and competency of the FFS farmers, the product category, the value of the products, the access to the market and the socio-economic context of the FFS.[101]

This brings up the importance of scale and of institutionalization for the FFS costs. Although the literature recognizes that these issues are critical to questions of unit cost and recurrent costs, there is no final answer to these questions[102] Nevertheless, given the substantial donor investment in FFS programmes since the 1990s, the issue of impact and cost-effectiveness has become more pressing, at a time where development funding for FFS is going down and, consequently, other more

101 Global Survey and Review of FFS, 2018.

102 Global Survey and Review of FFS, 2018.

sustainable FFS approaches will be needed (see discussion in Chapter 7 on Sustainability).

6.2 Efficiency related to institutional set-up and management

While the analysis above clearly shows that FFS in both IFMC and AFSP have been good investment, the evaluation has nevertheless found various "missed opportunities" as well as areas where resources have not led to the expected results.

In IFMC, part of the ambition was to help build capacity in DAE and to help enhance the wider application of the FFS approach through dialogue, sharing of knowledge and strengthening of effectiveness through coordination. While there is a clear point in working with DAE as a partner in view of the scaling-up, the approach has also entailed a range of challenges and risks. This includes: i) unclear and/or non-compliance with original mandates, roles, and responsibilities; ii) weak coordination and communication internally and with regional offices; iii) uneven staff qualifications and; (iv) unfortunate de-facto power structures both at central and regional offices. Stakeholder interviews indicated that incentive structures and power relations within DAE have been a key challenge to managing the project. This was found to have led to a situation where both central and regional level staff were demotivated and performed sub-standardly. At the same time, performance was not found to be monitored or reacted upon systematically and crucial elements of quality assurance, results monitoring and internal audit had, to various degrees, been left either uncoordinated or entirely omitted.[103]

Such a situation clearly has implications for efficiency and effectiveness. A range of steps have been taken to rectify the situation, including stronger Danish embassy oversight, and transfer/reassignment of staff, which reportedly has improved the situation.[104]

Nevertheless, the evaluation found indications that not all issues have been resolved. There still seems to be power struggles at management level, and a range of examples of non-compliance in implementation were found at the field level. While these examples may to some degree have their root in earlier decisions, for instance regarding selection of participants, it highlights that the risk of elite capture and "unholy alliances" needs to be considered when deciding on set-up, checks and balances and oversight mechanisms.

103 Danida 2017, AGEP mid-term review.

104 See Danida 2017, AGEP mid-term review and DAE IFMC Annual Progress Report 2017/18.

In AFSP, the evaluation found that the institutional arrangements had been well organised and well managed by CHTDF/UNDP. The activities seemed well implemented and supervised and the division of roles and responsibilities have been clear and in general worked well.

The major institutional challenge in AFSP seems related to ensuring sufficient capacity, coordination and collaboration in and between the three HDCs linked to the three extension line departments (DAE, DLS and DoF). As mentioned in Section 4.3, officials of these three government extension departments are transferred to HDCs in CHT. This provides a number of administrative challenges, when the government staff become administratively under CHT authority and not under their respective department. As a consequence of this, it has been very difficult to encourage government extension officials to join the HDCs and mobility of the officials across CHT and outside CHT is hardly practiced. All three HDCs are facing scarcities of manpower (often more than 50% of the staff position within the HDCs are vacant).

Previously, Planning Units had been established in the three HDCs through funding from FAO. HDC staff members found that these units contributed to better integration of the work across the HDCs. However, the units have been closed now due to end of the FAO project. It therefore seems necessary to develop another mechanism to improve coordination and collaboration of extension services with regards to the HDCs.

NATIONAL PLATFORM FOR DIALOGUE AND COORDINATION:
One of the aims of the AGEP was to strengthen the national dialogue on farmer-centred approaches by establishing a national platform. Progress has clearly been made, but the national platform is still found to be a very valid pursuit to enhance both effectiveness and efficiency.

The mid-term review indicated that The Bangladesh Agricultural Extension Network has been established under the leadership of DAE and includes membership of other government departments and institutions (notably Department of Fisheries and Department of Livestock Services), NGOs and national and international extension organisations. This is clearly an important achievement as a foundation for future dialogue.[105] The 2017-2018 IFMC progress report outlines a range of activities and outputs towards this target, and a document providing an overview of extension approaches with various "good practice" sections has been shared with the evaluation.

Nonetheless, as this evaluation has shown, guidelines and good practice documents are not enough to ensure compliance. Furthermore, as

105 Danida 2017, AGEP mid-term review.

mentioned above there are still indications that important aspects of the FFS and FO approaches are not in practice fully supported by staff of DAE. While joint visits have been carried out, it is not possible to assess whether the dialogue platform has yet led to increased coordination. Based on the impressions from the field, the evaluation finds that there clearly is still room for improvements.

In addition, there are several issues, where the evaluation has noted a need for strengthened dialogue within DAE or between Danida and DAE. Above, several examples of non-compliance or deviation from intentions have been given. This indicates that there is a need for further discussion of the key elements and drivers of change in the FFS and FO approaches, to ensure that the foundation for a continued use of the good experience from the FFS projects is in place in DAE. Moreover, the evaluation has noted that there is a need for developing internal guidelines or policies (and on following up on their implementation) regarding recruitment of women for DAE and IFMC positions. Without leadership on such issues, it will be hard to ensure representation of women in positions where their presence can enhance women's empowerment.

6.3 Monitoring and evaluation

In IFMC, the evaluation found the M&E system to be both comprehensive and systematic. However, the evaluation also found some important challenges which have been mirrored in reviews and studies of IFMC and were raised during interviews with key stakeholders, including: i) the M&E Officers within the regions have not been reporting to the M&E National Adviser at HQ, but to Regional IFMC Coordinators, who appeared to be deputed government officers and the de facto authority in the regional IFMC offices (this has created an obvious risk of conflict of interest and trying to make their region 'look good'); ii) some M&E Officers were known to have relatives at high levels within the DAE system, protecting them independently of their performance; iii) the positive numbers generated in the M&E unit did not correspond to scenarios observed during field visits, especially not from unannounced field visits, which could tally with the former observations; iv) the M&E Officers were rarely asked to physically verify any information given by farmers; v) some M&E Officers have been asked to adjust their findings in a positive direction.

Other threats to the accuracy and validity of monitoring data include: i) all 12 M&E Officers were men, which for example constitutes a barrier towards interaction with female farmers; ii) a lot of monitoring was done through mobile phone, not by physical presence, according to information from the M&E staff and; iii) although capacity building takes place, the M&E National Adviser does not systematically train, coach and control M&E Officers in the field to make sure they asked questions

in the right way and collected data correctly. Furthermore, not all M&E Officers had an M&E background.

In addition, the evaluation found indications of lack of compliance with procedures as well as quality issues that have either not been flagged by the internal monitoring system nor acted upon, for instance in relation to selection of participants that fit target group criteria. The monitoring manual explicitly mentions "*proper process followed in selection of FFS farmers*" as a performance question.[106] This is linked to monitoring for backstopping on FFS management, but the checklist related only to procedural steps and not to whether the selection is in line with the target group and criteria. The serious shortcomings related to the selection process (discussed in previous sections of this report) underlines the need for validation within this particular area. In addition, the monitoring data on adoption of new techniques presents a more impressive picture than the results from the household survey. There may be several reasons for this, but a key explanatory factor seems to be the operationalisation of this key indicators.[107]

Finally, the IFMC Baseline Study is seen as a laudable attempt to follow the results from the various cycles of FFS, including by inclusion of a control group, but to make full use of the baseline data collected it should be linked to conducting an end-line/impact survey. Therefore, if there is a real wish to include this type of results monitoring, there will be a need to devote sufficient resources to sampling, data collection and analysis. If this is not deemed feasible, it should be considered to change the effort from gathering additional control group observations and instead collect additional information on FFS participants and enhance the reliability of the data gathered.

The investigation of the AFSP M&E set-up has not had the same depth and broadness of scope to allow for a more specific assessment, but the qualitative field visit to CHT to a large degree confirmed results presented in the internal reporting and the end evaluation results. The evaluation found that the M&E mechanisms seemed well-planned and executed. However, challenges to overcome linguistic and physiographic barrier were identified. Likewise, the lack of coordinated supervision of the monitoring activities by the line extension departments had made

106 DAE 2015, Monitoring and Evaluation Manual, 3rd draft, p. 22.

107 The degree to which farmers actually adopt the promoted technologies is a key outcome indicator and is included in the results monitoring system. However, the operationalisation of this key result area is based on a criterion as to whether specific technologies have been applied "at least once", according to information from the M&E team. This would mean that, in a case where an FFS participant attempted to implement a new technology but encountered problems (could not manage or did not find it worthwhile to repeat), this will still count positively in the assessment of difference in use of technology.

the monitoring less effective. More joint supervision could accommodate this, for instance by establishing of a monitoring committee with representatives from all line extension departments (DAE, DLS and DoF).

7 THE FUTURE FOR FFS IN BANGLADESH

7.1 Sustainable practices

HIGH VALUE CROPS

An objective of FFS in AGEP has been to shift training support much more towards high-value crops. While positive results were demonstrated in AFSP, this has only been partly implemented in IFMC. High-value crops often become high-input crops, and high-risk productions, because of these inputs. Most of these crops are more vulnerable to pests and diseases than rice is, and the usual response is to use pesticides to 'protect' the young crop. This has a high risk of eventually leading to similar problems that previously caused food security threats in rice: emergence of 'secondary pests', which become gradually more resistant to the pesticides, which then induce even more pesticide use, which eventually may make the pest somewhat or completely unmanageable. In vegetables and other high-value crops the threat is not so much to food security but more to income. Investments in these crops are quite high, and failure or part-failure can severely damage the resources of a household.

While AFSP has developed FFS training modules for high value crops, this is not the case for IMFC, although the demand among farmers is clearly there. Only a few sessions in the guidebook talk about pest management and include some observation exercises. Those modules are in homestead gardening and hence they are more likely to reach women and not men who are in charge of high value crops. In homestead gardening the risks, as outlined above, are smaller, because of the diversity of the area, and the smaller scale. However, for large-scale production of e.g. vegetables, the risk is very real. In e.g. Thailand and Malaysia, but also in North Africa, some productions of vegetables have experienced so severe problems because of this issue that they have had to be re-established in other locations or shift to non-chemical pest and disease management.

In AFSP, the majority of the beneficiary farmers consulted mentioned that their knowledge and capacity on sustainable ecosystem management, adaptations to climate change and risk mitigation had improved. Knowledge on IPM helped them to learn on beneficial insects and benefits of protecting the ecosystem and biodiversity through reducing

application on pesticides and adopting environment friendly pest management techniques.

In IFMC, the lack of intensive training in management of pests and diseases in these high-value crops (vegetables, potatoes, fruits, etc.) has put the farmers and their production in some level of risk. The long-term Danida support and application of in-depth exploratory methods in DAE should be applied to develop modules for high-value crops. Likewise, application of exploratory learning in developing market understanding is a real opportunity to strengthen farmers' skills in this area, and hence their possibilities of benefiting from the markets, as individuals or groups/associations/organisation. There is however a risk that the introduction of more subjects into FFS compromises the possibility of applying explorative learning. This affects the quality of the learning and the sustainability of the FFS intervention. The engagement in high value crops increases the risk of pesticide use and thereby the risk of 'secondary pests' to the point where production may have to cease in some areas.[108] The effects may be damaging to future production of these crops in the area, which of course would be detrimental to farmers' livelihoods.

Progress in women's empowerment has been observed in both IFMC and AFSP as an effect of FFS as analysed above. These results are likely to be sustainable as women gain increasingly stronger bargaining power in the communities and in the households and, when first acquired, it is unlikely that they will take a step back. Increased income has provided women with the ability to pay for school fees and to expand production activities. Although progress has been noted in terms of mobility, there is still a long way to go and this is indeed an obstacle challenging women's full benefit from the FFS. Such constraints need to be further addressed in order to ensure women's full benefit of FFS and the sustainability of results. On the other hand, in IFMC the challenges related to selection and training of female FFs (see Section 5.1) are threatening the potential for FFS' contribution to longer-term changes in women empowerment.

7.2 Financial and institutional sustainability

As shown in the preceding chapters, the FFS approach is found to deliver highly relevant results in a cost-effective manner, with pay-back times of approximately 1-1.5 years. At the same time, the IFMC and AFSP are highly aligned with GoB policies. Taken together, this is seen to create a positive foundation for continued investment in FFS. However, when

108 https://www.growingproduce.com/vegetables/3-ways-to-save-your-vegetable-crops-from-diamondback-moths/

working with large-scale FFS support, the required resources are substantial. Thus, financial and institutional sustainability are main concerns for FFS implementers at a time when development assistance to FFS programmes is on a decreasing trend globally. Therefore, other financial and institutional arrangements for FFS need to be tested in order to develop new and more viable business models for the FFS approach in the future.

Institutionally, many FFS programmes around the world are beginning to work more directly through community-based organisations and are training and supporting local farmers as FFS facilitators, rather than relying on NGOs and professional extension agents that are highly reliant on external funding sources. This has, at the same time, led to the exploration of self-financing mechanisms, where the operation of the FFS covers the costs of facilitation. Cost reductions during the scaling-up and consolidation phase are generally achieved by making more use of local Farmer Facilitators, who receive limited fees and do not require transport costs (in Kenya a reduction of 50% for farmer-led FFS compared to extension-led FFS was reported). In Ecuador, some IPM-FFS graduates are linking up with supermarket chains as recognised producers of preferred traditional crop varieties, with the supermarkets beginning to invest in expansion of IPM-FFSs in order to secure guaranteed volume purchases. Also, in Eastern and Southern Africa (Kenya, Tanzania and Uganda) considerable progress has been made in recent years in supporting farmers to run semi-self-financed and self-financed FFSs.

In the self-financed model, the FFS includes a commercial plot for production. The proceeds are sold and re-invested using the group's own bank account. The money can then be used to finance farmer-led FFS. This self-financing model works based on revolving funds. The operational costs are pre-financed, and the group retrieves the costs in the form of an operating fee at the end of the season from funds generated by the sales from the group study plot and education fees levied on the participants. Problems of "leakage" of funds, crises brought about by failure of the rains, drought or flood, and the lack of physical security for money-holders in some areas are problematic issues but they are not unique to FFS.[109]

Other institutional and financing modalities for FFS are also continuously being tested and experiences are being collected. In Bangladesh, there are still few experiences with alternative financial and institutional FFS models. However, as development assistance for FFS programmes is also on the decrease here, it will be necessary to look more closely at experiences with self-financed models from other countries and consider whether these could be re-calibrated to the Bangladeshi context.

109 Global Survey and Review of FFS, 2018.

In terms of the institutional models, the evaluation findings show that both a number of the hoped-for strengths and envisioned challenges of working with a more DAE-led model, with regional offices playing a key role, have materialized. The FFS approach has indeed been scaled up, and while issues regarding quality, fidelity, etc., have been encountered, substantial results have been delivered. In a situation where the future of Danish support to Bangladesh under debate, the fact that additional capacity building and more practical experience with the IFMC FFS approach has been gained by the DAE is seen as steps forward towards larger institutionalisation.

At the same time, a range of the challenges and risks foreseen at the time of programme design are found to have influenced performance and have led to "missed opportunities", for instance in relation to recruitment of female FFs, ensuring that selection processes are fully supportive of programme priorities and on maximizing the effect of training in, for instance, IPM. The evaluation findings indicate that if a continued Danida presence is relevant there is a need to continue dialogue on DAE internal policies, including governance issues, such as elaborating a gender strategy, as indicated in Section 5.1, provide technical assistance for capacity building and curriculum development, adjustment of modules, etc., to support further development of the FFS approach.

The experience from AFSP may further point to a way forward: while the AFSP FFS component has had much higher costs, this is seen as, at least partially, related to the different context. The set-up has the AFSP component being implemented by the UNDP-managed CHTDF under the MoCHTA, with GoB line departments, including DAE, being engaged in the form of trainers, technical backstopping and some monitoring of FFS activities. In addition, partner NGOs were involved in providing follow-up technical support and training to the FFS in new target Upazilas. While it cannot simply be assumed that such a multi-actor model would be effective or efficient if simply transferred to other parts of Bangladesh, the different forms of partnerships may be explored. Incorporating other actors, such as relevant and experienced NGOs or INGOs, with sufficient oversight and backstopping from MoA and DAE, could both be relevant in relation to overcoming limited DAE resources and capacity in relation to, for instance, FO training. Further, including NGOs in various aspects of the FFS process may be relevant if testing how to work with more local FFs, in line with the experience briefly outlined above.

While the backstopping and ultimate support of the DAE is crucial, involvement of other actors may help provide additional checks and balances while making the process less dependent on one specific organisational incentive structure and capability. It is also important to note that DAE is, first of all, a "crops" organisation. The IFMC FFS included fish and livestock, which are not the normal topics to work on for DAE staff. This justifies working with other partners (government or NGOs)

who are more experienced in these technical topics. On the other hand, involvement of more actors comes with its own set of problems, challenges and extra costs. Thus, the issue of how to ensure sustainability comes with clear dilemmas and trade-offs.

8 CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

The relevance of applying a FFS approach has remained high within the Bangladeshi context over the period of evaluation in support to the country's efforts to become a Lower Middle-Income country and graduate from a Least Developed Country (LDC) to a developing country. However, more support seems needed at the policy level.

The FFS approach fits well within the Vision 2021 and the 7th FYP (which is aligned to the SDGs), where focus is on increasing the pace of poverty reduction and reducing income inequality. Nevertheless, recent trends in Bangladesh show that the pace of poverty reduction is decreasing, and income inequality is increasing. Therefore, more support and efforts may be needed to bring the positive experiences from use of the FFS approach into national policy development and implementation processes. Although the evaluation found less uptake of technologies in IFMC compared to AFSP and earlier phases, the relevance of these technologies was still found to be high. The reduced uptake is mostly a result of the change in training approach and quality, compared to previous phases (see Conclusion 6).

The FFS approach, as implemented in both IFMC and AFSP, has delivered several positive short-term results along the lines of the hoped-for changes in AGEP.

Since 2013, almost one million poor people (representing close to half a million households) in rural Bangladesh have benefitted directly from new knowledge and techniques related to agricultural production and nutrition introduced through FFS in AGEP. The impact from FFS on household income (around BDT 10,000 annually, equivalent to an average monthly household income), food security, diversification of agricultural production, women's empowerment and nutrition is highly significant. FFS households have reduced their vulnerability and increased their intake of most food items significantly more than control village households. Although it has not been possible to specifically assess job creation, it should be noted that other studies have found that a 10%

rise in farm incomes generates a 6% rise in non-farm incomes,[110] thus indicating that increase in income resulting from learning through FFS is linked to broader effects.

The scaling-up of FFS in IFMC, and especially the combination of many training modules into one package, has led to reduced quality of the FFS training.

The approach of exploratory learning has been diluted in most FFS training in IFMC and is the main reason for the decline in quality. The training has still been of sufficient quality to lead to positive results in production and income, albeit not as good as in earlier phases.[111] Many of the FFs conducting the training had limited experience as facilitators and, due to the many different modules in the FFS, the FFs also had to deal with topics outside their own experience and "comfort zone".[112] On top of that, the FFs have been supervised and guided by DAE staff, who are actually "crop" people, with limited knowledge on fish, livestock, poultry, nutrition and women empowerment topics. All this has contributed to lowering the quality of the FFS. In AFSP the results related to increased production and access to extension appeared more impressive and could be augmented further by increased use of systematized farmer-to-farmer extension. This could also serve to reduce training costs.

Favouritism and clientelism in the process of selection of FFS villages and participants have to some extent led to exclusion of the power-poor from participating.

While the upscaling of FFS has made it possible to support a large group of farmers who would not have been reached through DAE's mainstreaming approach, the support has, at the same time, been less pro-poor oriented compared to previous programme phases. Although the group of landless, marginal and small farmers has been well represented in the FFS groups, in many cases it has not been the poorest segments of these groups that have been reached, but the relatively wealthier. As an explanatory factor, the evaluation found indications of favouritism and clientelism in the process of selection of FFS villages and participants in IFMC. This is supported by recent studies, showing that in rural areas in Bangladesh local elites are now increasingly diversifying their power base beyond landownership and money lending into

110 WB 2016; Gautam et al. "Dynamics of rural growth in Bangladesh : sustaining poverty reduction";https://www.worldbank.org/en/news/feature/2016/05/17/bangladeshs-agriculture-a-poverty-reducer-in-need-of-modernization.

111 See the 2011 Evaluation Report.

112 E.g. a FF giving training on fish culture would not necessarily have any practical experience from cultivation of fish, or a female FF giving training on rice, would never have grown rice herself.

multiple and often flexible party-political affiliations. In this way, political attachments have become an important determinant in maintaining power relationships, often resulting in exclusion of the power-poor from wider benefits.

AGEP has contributed to a significant enhancement of women's empowerment within FFS households, however intra-household issues need to be addressed more explicitly to challenge existing barriers for women's mobility and decision-making power in relation to farm management.

The income of women from FFS households increased significantly compared to women in control groups, mainly due to enhanced production of poultry and vegetables from homestead gardening. Income from eggs and vegetables are largely controlled by the women. Assets such as chickens and cattle are still sold by men and, therefore, women have less control over profit. This also applies for Bengali women in CHT, but ethnic minority women have acquired more control over income from their own activities. Women who have participated in FFS have become significantly more involved in the process around decision-making but the final decision, still lies with the men. In addition, the workload on women has increased with the number of activities, although lack of mobility still limits women's full participation and benefit from FFS and larger income sources continue to be controlled by men. These issues form part of rural livelihood and farming systems, where farming is seen as a family business and gender inequalities addressed in a co-operative manner with women and men. Some improvement in mobility of ethnic minority women in CHT has however occurred. Women in all the regions are gaining bargaining power in communities and in their households. The involvement in FFS and FOs have contributed to this development.

The decision to implement the FO model and market-oriented activities through a government institution (DAE) has lowered the quality.

The implementation of the model developed in IFMC for FOs and their linkages to BFPs has not been working well and has been decided upon with insufficient testing and learning. However, women have gained access to markets through FOs with the establishment of collection points. Although IFMC has contributed to establishing FOs, the evaluation found that these were often not operating as intended, mainly due to political interference, elite capture and power relationships. In addition, the programme target of forming more than one thousand FOs has been too ambitious. The complex context, large geographical coverage, insufficient financial and human resources, implementing market-oriented activities through a government institution, etc., has lowered the quality. However, some good examples of better-functioning FOs and their market linkages were identified and are of use as a source for inspiration. Well-functioning FOs have proven instrumental for women's

empowerment, as they provide a space for women to sell their produce without involving husbands and sons.

FFS as implemented in IFMC has shown signs of institutional weaknesses and management challenges at various levels affecting the efficiency of the interventions.

The evaluation found clear indications of institutional weaknesses at various intervention levels and, moreover, that the dual and decentralised management structure applied for programme implementation has not worked as intended. The established M&E system has only been partly functional in support of managerial and operational activities while the set-up for backstopping and quality assurance included inherent risks for inefficiencies. However, the fact that it has not been possible to fully mitigate/avoid the risks does not imply "failure", but rather that achieving the full potential benefits of the FFS has been hampered, for instance when the ability to detect, act and follow up on weaknesses or problems has been limited. Some risks have been the price paid for working in partnership with a large governmental institution to institutionalise processes and approaches, rather than having independent implementation units with a short-term implementation focus. The AFSP institutional set-up seems to have included less inherent risks and better captures the possibilities for check and balances than IFMC, as it has operated at a smaller scale as a project modality.

Despite high cost-effectiveness from the supported interventions, the evaluation of the FFS approach raises critical questions about the future, not least in relation to IPM, finance and institutional partnerships.

Despite a number of overall positive results from the FFS approach, including a high cost-effectiveness with a pay-back time of less than a year, it is worrying that important areas such as IPM, in relation to high value crops, has not been sufficiently covered by the supported interventions. In IFMC, the absence of a dedicated curriculum and an adequate exploratory training approach is an important missed opportunity and puts at risk a longer-term sustainability. Institutional arrangements and finance for future FFS support are still unclear and, while it is unlikely that DAE will have the capacity and capability to continue with the FFS approach on its own, alternative institutional and financial modalities for FFS have not been tested as part of IFMC. AFSP has experiences with another division of labour between line departments and implementing partners (not just UNDP but also NGOs) and both the costs and quality of the support has been higher than in IFMC. Although the evaluation found indication of some spill-over effects from FFS farmers to non-FFS farmers within FFS villages, there seems to be potential for larger impact here.

8.2 Recommendations

RECOMMENDATION 1:
Future development interventions in Bangladesh, aiming at reducing vulnerability and improving food security, nutrition and livelihoods among poor rural households, should continue making use of the FFS approach, incorporating the recommendations given below to address current weaknesses and opportunities.

This should also include concerns about bearing the costs of adaptation to climate change in Bangladesh, which have major implications for the most vulnerable. In view of a recent slowdown in the pace in poverty reduction and an increased inequality in Bangladesh, a properly designed FFS approach with an explicit pro-poor focus could contribute to a reversing of these trends, as it will be able to foster a rise in income and improved food security and nutrition amongst poor farmers.

RECOMMENDATION 2:
The season-long exploratory learning should be brought back as the heart of the FFS approach in Bangladesh.

Future FFS' should become more flexible and focused (fewer modules and participants in one FFS and use of explorative learning). It is crucial that the exploratory learning aspect is brought back as the heart of the FFS approach in Bangladesh. This is needed to ensure that not only technologies are introduced but also that FFS will stimulate, encourage and empower farmers to develop problem-solving skills and have the confidence to apply them on other innovative and developing practices. This will make them more resilient for dealing with challenges caused by e.g. climate change. It should be ensured that the experience-based learning will also be used in the establishment of FOs. In each FFS the participants should have more influence on selection of modules, based on their needs and priorities. Depending on the location and the interest of the participants there could be a fish FFS in one area, a poultry/homestead vegetables FFS in another area, and a potato or rice FFS somewhere else. Each of these should also pay attention to gender and FO formation, but focus should be on season-long experiential learning of the main topics. A more flexible household approach, where a couple (husband and wife) could split up and attend different FFS sessions, could be explored.

In addition, ***facilitators should have practical experience in the topic they teach*** (e.g. an experienced fish farmer should be used as FF for fish, etc.). Nevertheless, the FFs will need to be retrained to make the main modules participatory and experiential. The different FFS modules will have different timing (depending on the topics) and different budgets. This will be a complex task to manage but will most probably end up with higher quality FFSs. Furthermore, in view of the general trend

towards the production of more high-value crops, it appears important to develop FFS curricula for these crops and to ensure that IPM is adequately addressed. Finally, the FFS modules should also be adjusted with a view to promoting larger spill-over effects, including encouraging FFS farmers to share information with others.

RECOMMENDATION 3:
Current guidelines and procedures for selection of FFS/FO participants and group composition should be reviewed and more clearly defined, emphasising inclusion and focusing on the poorest and most vulnerable farmers.

This will imply some clear choices in a future Danish country programme, including: i) more narrow definition and targets for inclusion of the poorest and most vulnerable farmers (e.g. more clear definition of vulnerability, more strict requirement to land access and ownership, specific targets for participation of female-headed and other vulnerable household groups); ii) a stronger supervision of the selection process at a time when changes in rural power structures in Bangladesh are observed and are making it more difficult for the power-poor to be included in development projects such as FFS.

RECOMMENDATION 4:
Future FFS interventions should include a broader definition of women's empowerment as well as inclusion of more specific goals and targets.

While AGEP basically has focused on women's participation and income, other relevant parameters to include in a women's empowerment definition would be time consumption; decision-making; mobility and control of assets; etc. These and other intra-household issues form part of rural livelihood and farming systems and would need to be addressed more explicitly to challenge existing barriers for women's mobility and decision-making power in relation to farm management. One of the already proven methodologies in this area is the Gender Action Learning System (GALS), where farming is seen as a family business and gender inequalities addressed in a cooperative manner with women and men. Close cooperation should be ensured with other programmes working in this field in Bangladesh (such as IFPRI). Finally, the current approach for identification and employment of FFs should be revisited to ensure a more equal gender balance with a particular view to strengthening women's participation in FF.

RECOMMENDATION 5:
The approach to establishing and training of FOs should be reconsidered.

This should include an assessment of alternative partnerships to DAE, which appears not to be the right partner for this activity. The approach to training should be based on the principles and praxis of exploratory learning and could well focus on farmers' clubs (and similar groups) already developed in previous Danida supported programmes. Topics could include identification of markets and their demands; how to operate on a market; how to assess prices and other conditions (down payment, delayed payment, timing of payments, interests on outstanding payments, quality issues); and how to agree on a deal. Exploratory group learning is highly suitable for such subjects by applying direct investigations (e.g. of markets), followed by group assessments and agreed, common actions. Any new model should be well piloted and tested before scaling up.

RECOMMENDATION 6:
A more effective management information and monitoring system should be established for subsequent FFS programmes/phases

It is recommended for subsequent FFS programmes/phases that this will include: i) a Baseline Study that should be designed, conducted and preserved to make it as useful as possible for ex-post evaluation (due to the complexity of this process, an expert with required skills and expertise should be consulted); ii) a performance monitoring system for FOs should be established based on a few, easily collected indicators; and iii) the monitoring system should include specific targets and indicators for measurement of women empowerment and qualitative participation (see Recommendation 5), spill-over effects from FFS as well as the direct and indirect employment effects from FFS and FOs.

RECOMMENDATION 7:
Continued support should be provided to the Bangladesh Agricultural Extension Network as a platform for national dialogue on farmer-centred approaches and multi-actor consultation.

This could ultimately lead to involvement of a broader group of key stakeholders in planning and implementation of FFS. By implication, there is a need to continue the process of establishing and strengthening the national dialogue, and to ensure that Danida continues to engage in advocacy for the various important aspects of the FFS approach. This includes support to policy development, such as development of a Gender Policy in DAE.

RECOMMENDATION 8:
Alternative "FFS models" should be piloted to make the support as self-financing and best practice oriented as possible (such as establishing of FFS networks and commercialization of services and income-generating activities).

Strengthening of peer training networks should also be considered a key element for development of a more sustainability approach, including with a view to promote larger spill-over effects and encourage FFS farmers to share information with others. Here it will be important to build further on the combined experiences from IFMC and AFSP (working with national partners, NGOs, project unit vs. GoB management, the role of GoB line departments; use of different approaches for selection and use of trainers/facilitators etc.).

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