Impact Evaluation of the Sustainable Water Fund (FDW) Integrated Water Management and Knowledge Transfer in Sisili Kulpawn Basin (FDW/12/GH/02) in the Northern Region of Ghana

Executive Summary of the Final Evaluation Report

Quantitative Impact Study:

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Institutional assessment

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Introduction

Ghana is, according to the World Bank country classification, a low middle-income country. Despite the prospering economic situation, large disparities exist within the country, especially from north to south. About 46% of the population lives in rural areas and most of the people are engaged in agriculture as smallholder or subsistence farmers. Two aspects that have a direct influence on poor agricultural performance require urgent attention: Farmers rely on rain-fed farming and have adopted modern agricultural techniques on a limited basis; this in turn constrains the growth of agricultural productivity. In addition, with limited support, food crop farmers face market and price instability with regard to their farm produce, are subject to income instability and are, because of this, vulnerable to adverse external shocks. (UNDP, 2015).

The Sisili Kulpawn project introduced irrigation techniques and conservation agriculture (CA) along with the targeted application of chemicals as a strategy to sustainably increase the agricultural productivity of smallholder farmers in Sisili Kulpwan Basin. The project was executed as a Public Private Partnership (PPP) with the private entity, Integrated Water and Agricultural Development (IWAD) Ghana Ltd. coordinating and operating the activities of the partnership.

This executive summary provides the results of the impact evaluation of the content of the project and the institutional assessment of the Public Private Partnership (PPP) which were done to assess the effectiveness of the interventions and the added value of the PPP to achieve this result.

The objective of the impact evaluation was to analyse the direct and indirect impacts of the irrigation scheme and Farmer Field Schools (FFSs), which focus on CA and water management practices in the project area. The evaluation detailed a Theory of Change (ToC) framework to analyse the outcomes and impact of the project. The objective of the institutional assessment was to evaluate the relationship between the partners, to analyse the contribution of this relationship to the outcomes of the project and to ascertain the added value of the PPP.

A mixed-methods approach was used to underline the main quantitative findings resulting from a difference-in-difference approach with results from qualitative interviews with experts and stakeholders involved in the institutional PPP structure and beneficiaries in Focus Group Discussions.

The set up and establishment of the Public Private Partnership

Wienco (Ghana)[3] Limited (WGL), a joint venture Ghana-Dutch company involved in businesses in the agricultural sector, specialized in the importation and distribution of fertilizers and crop protection agro-chemicals including insecticides, pesticides, herbicides and fungicides, primarily for the cocoa, maize and cotton sectors in Ghana (RMG Concept SA/ Wienco sites)[4.] The organisation approached the Government of Ghana, represented by the Savannah Accelerated Development Authority (SADA, now referred to as the Northern Development Authority, the NDA), to take part in a PPP promoting sustainable agricultural practices in the Northern Region. As a governmental institution, SADA's mandate is to develop the local economy and the agricultural sector in Northern Ghana and to provide an environment conducive for private agricultural investment. Wienco saw this project as attractive as it fit into SADA's mandate. Wienco took the lead in submitting the proposal and approached several other partners. For the purpose of the project, Wienco Ltd. established a legal entity, a branch named Integrated Water and Agricultural Development (IWAD) Ghana Ltd. Wienco transferred parts of its rights and obligations for the project to

[3] Owned at that time by Africa Tiger Holding. Ltd.

[4] http://www.wienco.com/ accessed 18 December 2015 and http://www.afigfunds.com/rmg-concept-ltd-announces-partnership-with-wienco-ghana/ accessed 18 December 2015.

IWAD. IWAD Ghana Ltd joined the PPP as a separate company for the coordination and operational aspects at field and local level. Two of the original partners stepped out, but the partners that ultimately took part in the PPP were:

Partner	**Sector**	**Strategic role**
Wienco Ghana Ltd.	Private	Coordinator
Integrated Water and Agricultural Development Ltd. (IWAD)	Private	Coordinator and Implementation
Savannah Accelerated Development Authority (SADA)	Public	Governmental representation, facilitation of processes
Wageningen University and Research Centre – Alterra	Research	Capacity building, training and research, knowledge development
RebelGroup International BV	Private	Transaction advice and scaling up of the project

The *Integrated Water Management and Knowledge Transfer in the SK Basin Project* was approved in April 2013. On 31 March 2014, the partners signed a Partnership Agreement which defined the organization of the project, the roles and responsibility of the partner, communication flows, the governance structure, distribution of finance and subsidies, the rights to knowledge and project results, conditions for termination and liabilities, etc. (Partnership Agreement, 2014). In the original set up, all partners were to have shares in the venture. The duration of the agreement was to be from April 2013 to December 2017 and included the flagship-phase from 2013 to 2017 and the start of the scaling up phase from 2015 onwards[5].

In the proposal, the total project costs were calculated at EURO 11.7 million; the subsidy was to contribute 60% of the total budget (EURO 6.9 million). The remaining 40% of the budget was to be covered by the partners.[6] SADA was to invest funds (€800,000) and as such had an important stake in the project.

The project proposal states the following about the goal of the project: The purpose of the project is to "foster smallholder and private sector led growth through the promotion of integrated water management practices and the development of irrigation in the Savannah agro - ecological zone in the North of Ghana, with emphasis on partnership, investment, capacity development, profitable crop value chains, and accountability." (pg. 2)[7]

In the eye of the partners, the Sisili Kulpawn scheme provided a unique opportunity to combine commercial and development goals. There was an interest on the part of the partners to develop a business model for sustainable and socially responsible agriculture. As is indicated above, this project not only was intended to support large scale farming, but also (and specifically) the small farmers, helping

[5] The Ministry of Foreign Affairs defines a PPP as follows: "A form of cooperation between government and business (in many cases also involving NGOs, trade unions and/or knowledge institutions) in which they agree to work together to reach a common goal or carry out a specific task, jointly assuming the risks and responsibility and sharing their resources and competences" (see IOB, *Public-Private Partnerships in Developing Countries*).
[6] Please note, that the final information on the financial status of the project will be made available in June 2019.
[7] Appendix I: Project Plan Sustainable Water Fund (October 2012). Title: Integrated Water Management and Knowledge Transfer in Sisili Kulpawn Basin (FDW/12/GH/02)

them grow and use more advanced farming practices. The project also, linked to the mandate of SADA, aimed to contribute to economic growth and to achieve a variety of spin offs.

The Intervention

The intervention introduced effective water management practices and CA into an area which was traditionally characterized by dry-land, rain-fed farming. Through providing a reliable source for irrigation water, introducing water conservation measures through improved crop and land management and offering knowledge transfer to smallholder farmers, the project envisaged an improvement of living conditions (see Theory of Change below).

The project employed two parallel interventions, an investment in technology, in the form of irrigation infrastructure and capacity building through the FFSs.

The project built irrigation infrastructure; an irrigation dam, and bulk water infrastructure, and provided input supplies and market access for smallholder farmers. The irrigation block scheme involved the construction of four different systems: pivot irrigation, overhead sprinklers, furrow irrigation and drip irrigation. The irrigation systems could be used for an additional harvest in the dry season and as a supplement in case of a drought or low rainfall in the rainy season.

Through the FFSs, the project trained the farmers on the cultivation of different crops using improved farming inputs (seeds and chemicals) and conservation farming methods, primarily during the rainy season, the main farming season. CA practices included three major, simultaneously applied principles: 1) Continuous minimum mechanical soil disturbance or minimum tillage, 2) Permanent organic soil cover or mulching and 3) Diversification of crop species grown in sequences or associations, i.e. crop rotation instead of mono-cropping (FAO, 2015).

Theory of Change

Three main output categories were identified: (i) farmers have received training on CA, chemicals and improved market access; (ii) farmers have received access to irrigation infrastructure (iii) outputs on the institutional level. These outputs were to lead to outcomes on the farmer or household level of farmers participating in the FFS assuming that farmers would eventually i) adopt new farming behaviour and technologies, ii) use improved seeds and chemical inputs and iii) practice CA. The intervention's outcomes influenced farmers in three dimensions: farming, household and generally in living conditions (health and education).

Evaluation Methodology

A mixed-method approach combined findings from the institutional, stakeholder and beneficiary dimensions. Several data collection and research tools were applied to analyse the output, outcome and impact indicators based on the TOC.

A non-randomized difference-in-difference (DiD) approach was used to observe the impact indicators over time with baseline (2015) and follow-up (2018) data. The advantage of the study design was that it could measure both the intention to treat (ITT) and average treatment effect on the treated (ATE). The *Treatment Group* was represented by a sample of farmer groups using irrigation and farmers receiving training in FFSs and later inputs for credit. The *Control Group* was not part of the programme but might benefit in the future. However, all communities were located in an area that had the potential to be selected for the scaling up of the program.

Stakeholder analysis

IWAD, the private company now owned by African Tiger Holding Ltd., took a very central role in the PPP, as the body coordinating all activities of the project, and through which all communication occurred. In the long run, the project partners were bound contractually, but in contrast to the original set up in the proposal, did not have a share ownership in the company.

Various national government agencies[8] played a distant but important and influential role in the project. SADA took a key role in facilitating relations with these bodies, project activities, supporting documents, letters, and provided infrastructure on the ground: sanitation, water, power and electricity.

The Alterra Research Institute managed the capacity development component of the project and provided capacity building services to IWAD staff and the farmers. Alterra worked closely with University for Development Studies (UDS) and the Savannah Research Institute (SARI), two local institutions subcontracted as knowledge institutions. Over time IWAD started working more closely with Damongo Agricultural Training College that provided skill development in farming technology. RebelGroup provided advice on the set up of the partnership, the financial structuring and analysis with a special view to the future scaling up of the project.

The traditional authorities, farmers and the farmers' associations were the beneficiaries of the project. By the end of the project, a new district authority had been established and had grown into a key actor in the project. By the end of the project, relations had shifted: the contractual, PPP partners interacted less frequently, while the local bodies became the key focus in the interaction with IWAD.

Relations and interactions were complex; in addition to the internal PPP governance structure, the project and its outcomes were also affected by a series of players outside of the contractual relationship.

Was the project a developmental PPP?

The literature argues that PPPs (partners working together) potentially provide greater efficiencies, better quality and improved outcomes: in effect, value for money (Savas 2000, Hodge and Greve 2005, Hodge et al. 2010)[9]. The Netherland's Policy and Operations Evaluation Department, IOB (2013:17) developed 5 criteria for developmental PPPs; the argument being that 1) to be a partnership, the relationship has to meet these criteria and 2) if a partnership meets these criteria, it will potentially provide improved outcomes and added value, in comparison to when parties work separately.

Looking at the structure of the partnership and the elements outlined in the Partnership Agreement and the Project Plan, this partnership appears to have met the 5 criteria of developmental PPPs as defined by IOB (2013:17). The partnership had both public and private partners (criterion 1), there was a clear agreement on the goals of the PPP (criterion 2), the project was financed by a mix of public and private

[8] Ministry of Fisheries and Agriculture, Ghana Irrigation and Development Authority, Environmental Policy Agency, Water Resources Commissions, etc.

[9] Savas, E. S. (2000). Privatization and Public-Private Partnerships (New York: Chatham House).
Hodge, G. A. and C. Greve (2005). *The Challenge of Public-Private Partnerships: Learning from International Experience* (Cheltenham: Edward Elgar).
Hodge, G. A., C. Greve and A. E. Boardman (2010). *International Handbook on Public Private Partnerships* (Cheltenham: Edward Elgar).

funds (criterion 3), there was a clear agreement on the sharing of resources and tasks (criterion 4), and there was a distribution of risks between the public and private partners (criterion 5).[10]

The partners from the public and private sector were present, with IWAD and SADA playing essential roles (with IWAD clearly in the lead), and the other partners providing the inputs as set out in the project documents. Partners agreed upon the goals and objectives of the partnership and the project, as signed off in the partnership agreement. In addition, the PPP partners agreed on how the project's resources and tasks would be shared and made a division of labour by defining which partner was primarily responsible for different activities. There were however, in the execution, some differences in the expectations amongst partners of the roles and the tasks to be taken in the project. These had to be worked out during the project and the partnership.

The finance came primarily from the Dutch Government, IWAD and SADA, though funding from the public (Ghanaian) partner was delayed over the entire length of the project. The project defined 32 risks, most of them project related risks, as well as some political (external) risks. Perhaps less well defined were the political risks that influenced SADA's participation as well as the financial risks, and how these would be shared. This was the subject of much discussion, as IWAD took the lion share of the risk when public funding allocations were not provided as planned and cash flow was affected. The project ran into other financial risks, such a high irrigation costs, and IWAD took the lead in mitigating these. In this respect the project did not meet criterion 5 to the extent it might have.

Survey Results

Measuring Output

As stated before, the project had two parallel interventions, a technical component focused on the construction of the irrigation infrastructure, and a capacity building component executed via the FFSs. The development of irrigation infrastructure was finished in summer 2015, during the rainy season, for the first trial crops. The knowledge transfer programme began in the 2014 farming season. Eight treatment villages were added in the 2015 farming season.

Certain aspects of the project design affected the quantitative impact evaluation. Over the length of the project, changes were made in the strategy and roll out of the CA: IWAD decided to stop the promotion of different crops (rice, maize, soya, sorghum and cotton) and to focus only on rice farming. This decision was a result of better prospects in local and national markets. This effectively eliminated the use of conservation farming, namely the diversification of crops and crop rotation. In 2015 and 2016, CA farmers grew maize and rice, but in 2016, the production of maize was handed over to Masara N'arziki, and IWAD specialized in promoting rice cultivation among CA farmers. Additionally, the project was active in fewer villages than planned but treated more farmers per village. The total number of 810 IWAD farmers treated was far from the goal of benefitting 3000 farmers.

Attending the training was a condition for taking part in the input programme. However, the FFSs were open to anyone. Some farmers that did not take part in the input programme, attended the FFSs in 2014 and 2015 and were able to put this knowledge to use in growing corps in their fields. This implies that measuring the treatment effect by village (intention to treat =ITT) was reasonable for maize and rice because both crops were promoted in the first years. Additionally, the analysis measured the impact on

[10] *Public-Private Partnerships in Developing countries. A systematic literature review*. IOB Study no. 378. Ministry of Foreign Affairs of the Netherlands. April 2013.

the farmers actually treated (average treatment effect on the treated =ATE). These farmers followed the training and received inputs for credit to be paid back in form of produce.

There were considerable differences between households that signed up for the programme (CA and irrigation) and those who did not.

Measuring Outcomes

Farm characteristics and farming practices

Farmers farming maize or rice in the project seemed not to change cultivation practices (number of crops planted or harvested). Concerning land holdings in general and land allocated to maize and rice, there was an increase in land used for maize cultivation in treatment villages but not for treatment households specifically. There was an increase in the use of higher quality seeds and the use of fertilizer. There were no significant effects for herbicides. Often farmers used chemicals but not the appropriate ones. In treatment villages, farmers reduced the use of other pesticides but started using pesticides recommended by the project. This held for the treated villages and the treated farmers, respectively. The use of any other pesticides decreased in treatment villages in general. There was a positive and significant effect on the use of fertilizer for maize cultivation. For rice, farmers used higher quality seeds, and thus reduced the use of traditional seeds. Bushfires were a huge environmental problem in the area and information on the topic was included in the FFSs. However, more than 80 percent of farmers saw `pile and burn´ as the appropriate method to clear the fields after harvest. Only 17 percent of farmers in treatment villages saw mulching as the adequate method. This value did not change over time.

Production

There was a positive impact of the project on the total value of the harvested crops, maize and rice.[11] The amount of rice kept for home consumption increased for CA farmers, but sales did not increase for contracted farmers, because of labour payments. Farmers had to employ workers on their other fields. Farmers repaid inputs to IWAD in the form of produce. In 2017, farmers had to repay 24 small 50 kg bags equal to 920 GH₵, i.e. one bag was worth 38 GH₵. As reported in the focus group discussions, farmers did not produce enough on the IWAD contracted fields to repay the credit. In this case, IWAD set up a buffer account. Farmers started with a deficit in the next season.

The 38 GH₵ paid by IWAD per small bag of rice was a lower price than the market price for a small bag of rice of 50 to 60 GH₵ (depending on which market at which it was sold, e.g. the prices in Tamale are around 60 GH₵ but transport costs are also higher). As could be expected, farmers were not happy with the price offered by IWAD but sold to the organisation anyway because they were satisfied with their work. In the focus group discussions, farmers indicated that they sold to IWAD because they felt an obligation: IWAD also *"did something for them"*, i.e. provided knowledge and input support.

Expenditure and Wealth

There were no effects of the project on expenditure and wealth because there were no effects of the project on sales of harvest. Without additional income from the harvest, households could not improve their wealth position; the main source of household income was farming.

Nutrition and Anthropometrics

[11] Results are presented as self-reported values of farmers (the average price for a 100 kg bag of maize was GH₵ 77 in 2015 and GH₵ 102 in 2018; the price for a 100 kg bag of rice was GH₵ 70 in 2015 and GH₵ 94 in 2018).

There was a drop in food scarcity in the treated villages and an increase in the number of meals a household had in the last two days. This effect could have been the result of the increased amount of rice kept for home consumption. On the child anthropometric measures, there were no significant impacts, but an improvement in all scores could be seen over time. Food expenditure in the last week stayed more or less constant over time.

Intra-household decision making and female roles

From the beginning, the project supported women to become part of the contracted CA farmers. A social worker employed for this purpose encouraged women to become IWAD farmers and to strengthen their roles in general. The social worker visited treatment villages on a regular basis and supported women in forming female farmer groups and other associations.

This strategy was effective as the number of women whose major or secondary working activity was farming increased significantly. With regard to intra-household decision-making in the land, crop and nutrition dimension, a reduction in the husbands' decision-making power towards more family collective decision-making could be seen. The project was effective in making social changes. However, strengthening gender roles is a long process and will most likely not change after a short period of three years.

Irrigation Villages

In general, farmers had a positive opinion about irrigation and saw it as interesting new technology and as an opportunity. Farmers working on the irrigation scheme appreciated the training and new information on farming they got from IWAD. However, the analysis was descriptive here because the sample size was too small to make robust estimates

In general, there were no differences in the number of crops planted (avg. 3 crops) but irrigation farmers had fewer failing crops when harvesting. While almost all farmers used chemicals for production, the use of fertilizer, herbicides and pesticides was more often practiced by irrigation farmers especially when growing rice. With regard to the amounts in tons of maize and rice harvested, there were clear increases of the output of maize and rice farming. Irrigation farmers had a higher value of maize harvested, maize sales and kept more maize for home consumption. In terms of sales, IWAD farmers made fewer profits from rice sales compared to other farmers. This was also reported by farmers in the focus group discussions. Most farmers had to give all the remaining harvest to IWAD to pay for inputs and it was nothing left to sell or keep for home consumption. Having this result in mind it is clear why there were no differences in income and wealth between irrigation and non-irrigation farmers.

A higher burden of Malaria was found among all households in irrigation villages compared to the control group of the sample. In particular, irrigation farmers reported more symptoms related to water-borne diseases, such as eye infections, vomiting or having a fever.

Female work force survey

A small survey was collected among female casual farmers on IWAD's nucleus farm. Since the start of the project, IWAD struggled to find reliable casual workers. After a while it turned out that women, instead of men, were much more reliable and willing to work on a more permanent base for IWAD. In total, more than 500 casual workers were registered with IWAD, but men turned out to show up less steadily, also because they were responsible for their own fields. In the 2017/2018 farming season, IWAD employed approximately 200 casual workers per day of which 98 percent were women.

All casual workers received a signed contract explaining the working situation. Workers had a day of 8 working hours and received GH₵ 10 per day, slightly higher than the national daily minimum wage (GH₵ 8 in 2017). Attendance, checking in and out of workers, was recorded on a daily base. In most cases payment was made onto an account at the Builsa Community Bank (BOCU), which recently opened up in Yagaba. This was easier and more secure for IWAD than dealing with cash amounts each day.

Working for IWAD brought considerable changes to these women. All women interviewed opened a bank account and receive the salary directly to the account. Women earned on average a total of GH₵ 400 during the months November 2017 to April 2018. Women reported they used the money to buy cloths, agricultural inputs (fertilizer, herbicides or pesticides) and pay for school fees of their children. 75 percent of women were not able to save any of the earnings, but 25 percent of women report that they accumulated savings. These savings are mainly kept to pay for possible household shocks (agricultural or social) or to a lesser extent to buy clothes, pay school fees or for funerals and ceremonies.

Concluding Remarks

IWAD and the partners of the PPP made a great effort to implement the project with its technical and social components and to find a commercial model for agriculture in the Norther Region of Ghana that could also survive economically. There were many challenges during the planning and implementation of the project and IWAD had to find innovative ways of building infrastructure and social relations with the population. Many aspects had to be adapted to reality once difficulties were encountered and project activities were not implemented as planned.

In general, there were positive changes initiated by the project concerning improved farming practices, such as the use of chemicals and irrigation; these then also converted into higher yields of maize and rice. Especially rice output increased by more than 50 up to 400 percent, maize output almost doubled. This was especially true for irrigation farmers who achieved higher maize and rice yields. When it came to sales and profits as an income generating activity for farming households, the results were rather modest. Irrigation farmers increased sales of maize but not of rice. This was quite similar for CA farmers who had a higher production of maize and rice, and also improved productivity in rice cultivation, but showed no increases in sales of crops. The payment for inputs and prices below the market prices for produce offered by IWAD reduced the farmers' profits.

In terms of food security, farmers had a higher production of rice and maize and also kept more rice for home consumption. Although there was no direct impact of the intervention on income and poverty, food scarcity decreased and availability of food in terms of number of meals per day increased slightly towards three meals per day. The nutrition effect did not (yet) transform into anthropometric effects on children's development.

For the future, IWAD needs to develop a (re-)payment scheme that allows farmers to be more successful in terms of profit making. Currently farmers repay in form of produce and if production is low, farmers give the whole harvest yields to IWAD. In this way, farmers are demotivated, and the system may fail. Distributing invoices at the beginning of the season to farmers is not transparent in an environment where most of the adults cannot read and write. The (re-)payment scheme must be made understandable to everyone, and this will clearly be time consuming. The irrigation scheme with large scale infrastructure will clearly not be an outlet for single smallholder farmers to cultivate crops because the financial contribution and risk is too high. But this system has the potential to hire local farmers and give employment opportunities in an area which is characterized by subsistence farming, especially to women.

Women in the project area, especially in the four irrigation villages, gained from the project's effort to strengthen the role of women. More women work in agriculture and are more engaged in the intra-household decision making process, especially when they get the chance to work on IWAD's nucleus farm as casual workers with a family-independent income.

Added value of the PPP (the institutional component)

In the end, the results of the assessment underlined the argument that PPPs produce synergies: that by working together, partners are able to bring complementary knowledge, skills and resources to the relationship, thereby also producing positive outcomes and achieving developmental objectives. The perception of the partners was that this project would not have been possible without cooperating on making their respective inputs, in effect without the partnership.

Of note, however, is how the partners worked in the PPP. They worked 'together but separately'. This was a private sector driven PPP. IWAD was clearly the central figure and 'linking pin', coordinating all the partners. IWAD was result oriented, focused on the sustainability of the venture. Partners were loosely bound, working individually to fulfil their roles as defined in the contract. Communication was on a need basis through IWAD, and there were no bilateral relations. There were no 'partners meetings' as these were not deemed necessary. This implies an interdependence between partners and their contributions, but without the consistent interaction between partners that one often finds in partnerships.

There was a recognition of this interdependence and the added value of working together to achieve the outcomes of the project. This was evident in different dimensions.

- A common understanding on the part of the partners of the importance of their involvement and the common benefit to be derived from this involvement;
- The commitment on the part of the partners to share in the risk (in-kind contribution);
- SADA's role in the implementation that altered the normal arm's length processes with which a private sector organization might normally have to deal, as well as the political risks (and one can argue, the transaction costs). The project would never have been implemented at its current pace without the positive influence in all bureaucratic concerns, e.g. Land Authority.

There were some criticisms of SADA and the attention it gave to the project as well as the delays it caused in allocating finance to the project. Still, putting things in perspective, the last bullet above on SADA is a particularly salient one: respondents described an alternative scenario (one where the public agency acted only as a traditional approval agency or neglected to facilitate as promised), and commented on the fact that, had this been the case, the project would have been extremely difficult to implement.

Though there were different perspectives on this, one argument used was that the added value of the relationship related, in this case, to SADA's role in reducing time and transaction costs but NOT interfering in the implementation of the project because it accepted that the expertise was with other partners. Effectively, the statutory power that lies within the public body was essential for the PPP.

Regarding an added value commonly mentioned, namely the sharing of risks and returns, the partners were more critical. IWAD took a disproportionate amount of the risk, and the project has not yet shown returns. The contribution of the PPP to this will be more evident in the coming years, also with upscaling.

On the other hand, it was the bundling of finance (including the additional investment generated) that made the project possible, no one partner could have taken on this initiative on its own. Partners also accepted that the project could not have been done without the support of the grant. The grant was seen

as leverage funding, allowing the commercial parties to undertake non-profit oriented bits in the project to make it operational.

When looking at the results of the interviews and the results of a short questionnaire testing added value, the conclusions is that the benefits revolve around the bundling and sharing of expertise, the interdependence between partners, the amount of additional and unexpected investments made, as well as certain innovations (thought the perception was that there could have been more). More mixed responses related to improvements in coordination / cooperation, and reduction of transaction costs as a result of the PPP.

Views on sustainability

It is unclear if the partnership will be sustainable, as it is unclear after project completion and in scaling up, whether partners will continue to work together. IWAD's interest is to work more closely with will local partners and it is unclear if the same partners will work in the scaling up of activities.

With regard to the sustainability of the project, though not financially viable during the project period, the position of IWAD and its commitment to developing and continuing with this endeavour over the longer term, to test out different models (rice production) as well as innovations (solar) in reducing input prices to the production process, have contributed to the potential, future financial sustainability of the project. The role of the project partners, in capacity building and knowledge development as well as strategies to scale up have also contributed to creating a model that will function in the future. Ecological and technical sustainability have both been key elements of the project design and execution. This should continue to be case. This is also true for the social sustainability: the project was strong on gender and participation and was concerned with the social-economic wellbeing of its beneficiaries. However, interviews confirm that social change, acceptance and commitment have been a challenge to date, and still remain so. What is of interest however is the ability of the project to find a balance between commercial interests and the community interests (the expectation of non-commercial contributions, such as schools and clinics).