**Improving nutrition and income generating opportunities for refugees and host communities in Western Uganda**

1. **Objective and relevance**

1.1 The main purpose of the intervention, including challenges that need to be addressed.

The overall objective of the proposed intervention is ***“Improved nutrition and income generation among refugees and host communities in Uganda through production of edible insects for food and feed.”*** The intervention aims to address challenges of malnutrition and lack of income-generating opportunities among both refugees and host communities of the Kyaka II refugee settlement in Western Uganda. This is done by strengthening local farmers associations to better organise and support their members, and by introducing new business models based on the production of edible insects for food and feed.

As of February 2021, Uganda is host to approximately 1.5 million refugees. Despite the government of Uganda welcoming refugees and providing them with small plots of land, refugees in Uganda in reality have very limited access to land and resources, suffer from inadequate access to nutritious food and have very limited income-generating opportunities. The vast majority of refugees depend on WFP rations for their survival. However, because of funding shortages, WFP has had to reduce rations several times within the last year, most recently in February 2021, when rations were cut to 60 percent of the normal amount.[[1]](#footnote-1) The latest food insecurity assessment, from August 2020, found that 1.5 million people in 14 refugee settlements and 11 hosting districts (32% of refugees and 23% of the host community population surveyed) are facing high levels of acute food insecurity and are in urgent need of assistance.[[2]](#footnote-2) Most refugees are living in extreme poverty, with almost 80 per cent of the refugees surviving on about US$1.68 or less per day, below the internationally recognized extreme poverty line of US$1.90 per day.[[3]](#footnote-3)

During 2020, Impact Designs and Mothers Against Malnutrition and Hunger (MAMAH) implemented the CISU-funded intervention *“Supporting refugee and host community farmers in Uganda to increase production of new sources of nutritious food and generate income”.* This was a pilot project aimed at demonstrating the feasibility of producing edible insects in and around the Kyaka II refugee settlement, as a cheap source of protein and income. The project included two distinct components: a) production of the yellow mealworm (Tenebrio Molitor) in two schools with the aim to add a protein source to school meals; b) production of black soldier fly larvae (BSFL) for animal feed with the aim of providing refugees and host community farmers with an additional source of income from selling the BSFL as a source of protein for animal feed. A third component included activities to strengthen the capacity of local farmers associations to support the production of BSFL. In July 2020, activities were expanded to an additional 200 farmers and 6 schools with a 12-month DKK 1,000,000 grant from the Novo Nordisk Foundation. These livelihood opportunities now need to be scaled up through additional support to farmers associations and schools to increase the ability of refugees to not only thrive but also be able to be more resilient to future shocks.

1.2. Results achieved so far, remaining challenges and new strategic approach

**Results so far:** The activities implemented during 2020 have demonstrated the feasibility of producing mealworm and the Black Soldier Fly Larvae (BSFL) in the refugee settlement, and that there is popular demand for participating in trainings among both refugees and host community members. The pilot projects have, as of February 2021, achieved the following results:

* *Demonstrated the feasibility and relevance of producing BSFL in and around the Kyaka II refugee settlement:*So far, we have trained 265 farmers on BSFL production and equipped them with production kits, and have successfully harvested the mature larvae.
* *Strengthened capacity of farmers associations:*Ten farmers associations were supported to: a) streamline the management of the groups (with clearer definition of roles and responsibilities and lines of accountability); b) develop constitutions and other forms of internal regulations; c) Register with the sub-county authorities.
* *Piloting production of mealworm in schools:* activities during 2020 were challenged by the closure of schools as a result of COVID-19. However, the pilot project still managed to train teachers and students in mealworm production, and establish mealworm production, managed by students in ‘mealworm clubs’ in a total of 8 schools in and around the settlement. ‘Science corners’ have been established, where the mealworm rearing is being used to teach students about science and nutrition. The school-based activities included 260 teachers and approximately 16,500 students in 8 schools, 5 inside the settlement and 3 outside.

**Remaining challenges:**

***Challenges related to BSFL production:*** The main challenges at the moment are to a) boost production of BSFL eggs in Kyegegwa District, and expand productive capacity with both existing and additional farmers; b) link BSFL farmers with buyers. The trained farmers currently experience difficulties receiving sufficient young larvae from the project to support a full harvest and keep up with growing demand. There is a need to enable local production of BSFL eggs. However, this is a more technical process than merely fattening hatchlings into mature larvae, and it will require trainings, as well as the establishment of an organisational structure in Kyegegwa District to manage egg production.

***Challenges related to mealworm production in schools:*** Due to Covid-19, the schools have been closed since March 2020. As a result, the school-based programmes have been implemented as “Mealworm Clubs”, where each school received a rearing kit to start rearing mealworms, constructed “Science Corners” and identified a teacher who was trained together with the children as the club patron. Because schools were closed, the pilot intervention was not able to achieve the integration of mealworm production into the local curriculum and were not able to start adding mealworm to school meals.

***Challenges related to the capacity of farmers associations:*** Associations are still challenged by limited leadership skills and weak organizational capacity. Leaders still need more training and coaching, so they can effectively and proactively lead, exploit opportunities and meaningfully engage external parties for the benefit of their members. Further, farmers are faced with low productivity and production, poor post-harvest handling, limited access to credit to expand their production, and limited access to sustainable output markets. Associations are still poorly resourced, with few or no group assets, most not even having a bank account, and are thus in need of sustained support for several years to reach the desired level.Farmers associations need to strengthen their voice for articulating their needs, for lobbying, as well as their capacity for bulking and joint marketing of products.

**To what extent do this intervention include new objectives, a new strategic approach or new target groups?** While the overall objective of the intervention remains the same as during the pilot phase, we will adopt a new strategic approach, as well as reaching new target groups. The proposed activities will in particular focus on ensuring the sustainability of the results achieved during the pilot project. We will therefore emphasize capacity development activities for both farmers associations involved in BSFL, and schools involved in mealworm production. MAMAH will provide training to increase the organizational capacities of the farmers’ associations and farmer associations will be supported to form a union, which will manage a local egg laying facility, spearheading the market linkages and coordination with stakeholders in the region.Regarding the school-based intervention, we have supported the formation of a “*district mealworm club”* comprising head teachers of the eight supported schools which will steer the promotion and use of the yellow mealworm in schools and oversee a number of activities to ensure the sustainability of the established science corners. Activities of the club will include; (i) supporting the development of learning materials and nutritional educational messages for the science corners, (ii) support the development of school time tables that include lessons at the science corners. They will support the school leadership to ensure teachers allocate out-door lessons at the science corners for each class at least once a week and with proper lesson plans. (iii) Organize science fairs at the district level, inter-school science competitions including debates and in school science weeks. These science events will help leaders and educational practitioners appreciate the importance of science corners, setting a trend for the use of new and innovative educative ways and supporting the scale up to other schools, and (iv) Community sensitization through radio talk shows where the club will talk about nutrition in schools and the use of the yellow mealworm.

***1.3.*** ***The context of the intervention***

Kyaka II settlement is located in Western Uganda, in the district of Kyegegwa, about 200 kilometres west of the capital Kampala. The settlement received a large new influx of Congolese refugees in 2019 with the population increasing from around 50,000 to about 124,000 as of January 2021, and the settlement is now at full capacity. The new influx of refugees has meant that farmers no longer have access to sufficient land to feed their families. At the same time, WFP food assistance has been phased out for those refugees that have been in the country for several years, and have been reduced for the new arrivals. There is therefore an urgent need for new produce, which can be produced without much land or need for capital investment, and which can provide both income and nutrition.

Uganda is characterized by the OECD as a fragile context, with ‘high fragility’ on the economic dimension, ‘severe fragility’ on the environmental dimension, and ‘high fragility’ in the societal dimension.[[4]](#footnote-4) The context of the refugee settlements and their surroundings is however even more fragile than other parts of Uganda in several ways: **Politically,** the governance context in the refugee settlements is characterized by very limited participation and influence of refugees in decision-making processes. In practice the settlements are controlled in a top-down manner by the Settlement Commandant who is appointed by the Office of the Prime Minister. **Socially,** the population in the settlement comprise different ethnic groups, some of which are at war on the other side of the border in DRC. Social cohesion and trust is low among the refugees and there is high risk of violence and conflict from across the border spilling over into the settlements. **Economically,** the economic opportunities in and around the settlements are few, and most refugees do not have the necessary resources to take at advantage of the opportunities that does exist. Most refugees have very limited or no assets or savings, and no access to capital. **Environmentally,** the influx of a large refugee population into the refugee hosting districts put pressure on the natural environment. In addition, both host communities and refugees depend on rain-fed agriculture, which is becoming more risky as a result of changing weather patterns, with less predictable rainfall. **Security** in the refugee settlements is poor. **Nexus between humanitarian and development intervention:** Our approach is an example of a long-term development approach in a humanitarian setting. Since most observers expect refugees to remain in Uganda for many years, if not decades, it is clear that there is a need for more long-term strategies for improving incomes. Our work aims to do this by supporting refugees to integrate into the Ugandan economy and society.

* 1. ***How the intervention will strengthen civil society organising to advance social justice***

A main focus of the proposed project is to strengthen the capacity of local farmers’ associations to better support both refugees and host community farmers to improve their situation. In Kyegegwa District, the associations will be supported to organise a union that will serve as the apex body for farmer empowerment and improved livelihoods. Our aim is to support the creation of a farmer organization that is able, motivated, and sufficiently independent to effectively represent farmers’ interests. The process will include:

* Assess each association to identify individual success and failure factors, market demand, market prices, and other market forces. Support the establishment of strong linkages among the associations themselves and with external players including actors in the food value chain like poultry and pig farmers.
* Training the leaders of the union in the management of the BSFL breeding unit that will be established in the settlement. Equip leaders of the union and of the individual farmer associations with skills in governance. Organize exchange of experience visits for farmer leaders for inspiration and vision casting.
* Facilitate linkage with commercial credit services for the associations. These associations need funds to set up viable commodity value chains but access to funding in form of credit and other forms is usually a major stumbling block. Many banks do not want to deal with smallholder farmers for fear of high transaction costs and heavy follow up for repayments. Enhancing access to credit will enable increased production and bigger returns through partnership with SACCOs.
* Mainstreaming gender. The low levels of participation of women in farmer associations is a big challenge. Usually, women come together as a group but are less prominent in mixed groups like cooperatives and farmer associations, as they are constrained by social, cultural and institutional conditions. In the selection of farmers and the leadership of farmer associations we have dedicated at least 50% composition for women and our continued follow up will ensure continued engagement to increase the position of women in division of resources and responsibilities, benefits and rights, powers and privileges.

These activities will enhance the farmers’ individual and collective assets and capabilities – such as a strong voice and representation, an improved sense of identity and social belonging. In a similar way, we will strengthen the capacity of the district Mealworm Club, the School Management Committees (SMCs) and Parent Teacher Associations(PTAs) to support the nutrition activities in their schools as well as the integration of the science corner into the school curriculum.

* 1. ***Climate- and environmental conditions***

BSFL and mealworm production is a way to produce more proteins for animal and human consumption with less resources – space, water, and energy – as the larvae are mainly fed organic waste materials. They thus serve as sustainable alternatives to the conventional protein sources such as soy meal and fishmeal whose continued production puts pressure on natural resources. Farmers will utilize the BSF larvae to convert organic waste into livestock feeds and mealworm for human nutrition in a circular green economic approach while at the same time contributing to solving sanitary issues of organic waste in the communities.

1. The partnership
	1. ***Experiences, capacities and resources of participant partners and other actors***

**Impact Designs:** Impact Designs is a non-profit organization based in Aarhus Denmark. The organization was established in 2018 and now has about 60 members and a group of dedicated volunteers in Aarhus. Our focus is the development of sustainable business models with and for refugees in low- and middle-income countries. Impact Design’s Chairman, Rasmus Schjødt, will be the Project Coordinator of the proposed intervention. Rasmus has ten years’ experience working professionally in international development, including in the refugee settlements in Uganda. Throughout 2019 and 2020, he has been working closely with MAMAH and Bobo Eco Farm in Uganda on designing and implementing the pilot and ongoing projects.

**Mothers Against Malnutrition and Hunger (MAMAH):** Mothers Against Malnutrition and Hunger (MAMAH)is the lead civil society partner in Uganda, with responsibility for programme and financial reporting to Impact Designs. MAMAH is a Ugandan non-profit, which aims to improve food and nutrition security for the most vulnerable groups in communities as well as fight gender-based poverty. MAMAH has 9 years’ experience running community-based interventions in Western Uganda and currently supports over 967 smallholder farmer families with various interventions in food and nutrition security as well as income generation. Starting 2019, MAMAH has coordinated the implementation of pilot and ongoing project activities in the Kyaka II refugee settlement including the liaison with the various stakeholders, and surveys that have enabled a clearer definition of the context of implementation. The project will be led by director of MAMAH, Dr Violet Gwokyalya, a Public Health specialist with over 15 years’ experience in nutrition, food security interventions.

**Other actors involved in the intervention**:

**Bobo Eco Farm** is a demonstration farm located in Mityana, Western Uganda, that develops innovative solutions to support smallholder farmers to increase production efficiency and incomes, without compromising environmental sustainability. Bobo Eco Farm is a leading proponent of ‘eco-smart’ farming, and a major player in supporting the livelihoods of the surrounding communities. The farm has a long-standing partnership with MAMAH. It is registered as a private company. The farm has 12 years’ experience piloting innovative agricultural interventions, including an ongoing production of Black Soldier Fly Larvae (BSFL). With support from Impact Designs, Bobo Eco Farm has in 2019 established the first ever professional production of mealworm in Uganda. The collaboration with Bobo Eco Farm has provided the intervention with the technical resources to equip and train refugees in insect production, and the company will continue to provide technical support to the project.

* 1. ***Previous acquaintance or cooperation between the partners***

Impact Designs, MAMAH and Bobo Eco Farm worked closely together to prepare for the pilot project in 2018 and 2019, and on implementation of activities throughout 2020. Three of Impact Designs’ four board members visited Uganda in November 2020, staying at Bobo Eco Farm for four days to discuss experiences from the pilot project and design the present proposal for the next phase.

* 1. ***Describe the contributions, roles and responsibilities of the partners and other actors.***

**Impact Designs:** Impact Designs is overall responsible for the implementation of the project. The Project Coordinator will be responsible for monitoring project implementation and ensuring that activities and spending are within the plans. The Project Coordinator will also approve any substantial changes, with major changes approved by the entire board, as well as CISU. The Project Coordinator will communicate regularly with the partners in Uganda, and ensure ongoing monitoring through regular virtual meetings as well as one in-country visit halfway through the project. Impact Designs will also be responsible for reporting to CISU. On a technical level, Impact Designs also play a role in connecting the partners in Uganda with technical support from e.g. Danish insect producers and international researchers.

**MAMAH:** Mothers Against Malnutrition and Hunger (MAMAH)is the lead civil society partner in Uganda, with responsibility for coordination between the other involved actors, and for programme and financial reporting to Impact Designs. Dr. Violet Gwokyalya, the founder and CEO of MAMAH, is a nutritionist, and will provide technical quality assurance of the school-based component of the project, focusing on the production of mealworms to improve child nutrition. Violet will be responsible for the overall coordination of the project in Uganda. In addition, MAMAH will have a Project Officer working on the project, who will organize trainings, carry out continuous monitoring and be responsible for financial documentation and reporting. A Finance Officer will administer the financial monitoring and reporting according to international accounting standards and best practice. Two Field Assistants, one based in the Kyaka II settlement and one based in the host community, will monitor the breeding and rearing on a continuous basis.

**Bobo Eco Farm:** Edward Ssebbombo, the proprietor of the farm, is the developer of the BSFL breeding technology at Bobo Eco Farm; he will be responsible for monitoring and providing technical support to the BSFL and mealworm production in the project on a part time basis. The farm will provide technical backstopping to the intervention especially during the farmer trainings, construction of BSFL breeding facilities and follow-up of trained farmers.

* 1. ***How the intervention will contribute to developing the relationship between the partners.***

The proposed intervention will continue to enable cross learning between the partners, and will continue to strengthen the organizational systems of MAMAH in addition to creating more collaborations at local and national level and increase the visibility of the work of the partners at national and international levels.

1. Target groups, objectives, strategy, and expected results (the intervention)
	1. ***Target groups***

***100 farmers***, out of which at least 50% are women, will be trained in BSFL production and formally organized in farmers associations. The majority will be Congolese refugees, but in line with Government of Uganda policies the project will also include at least 30% host community members. The farmers will represent approximately ***14 farmers’ associations*** (including four new farmer associations and the ten farmer groups that were supported during the pilot phase). ***260 teachers and approximately 16,500 students in 10 schools*** will benefit from mealworm production. Besides the 8 schools where nutrition and science interventions are already underway, 2 additional schools will be selected, based on interest from school management and teachers, considering whether they have the necessary time and resources. Students will be selected based on interest together with teachers and management. The secondary target groups will include; (i) about ***1,825 household members*** of the trained farmers who will benefit from the improved incomes and available sources of improved nutrition, (ii) the community that will benefit from the capacity built in the farmers and access to the insect products and, (iii) the parents of the children of the 10 schools.

* 1. ***How the target groups will participate in- and benefit from the intervention.***

**Farmers:** Farmers will participate as individuals as well as members of farmer associations. They will undergo a 2-day training in BSFL rearing, comprising mostly practical demonstrations and participatory discussions. BSFL training will mainly focus on how to care for / feed the BSFL – fattening and harvest as well as post-harvest processing and marketing. A BSFL breeding unit will be established within or near the Kyaka II refugee settlement to provide farmers easy access to eggs/young larvae. Farmer associations will form a union that will own / run the BSFL breeding facility. The union will second personnel for training in advanced BSFL breeding techniques at Bobo Eco Farm. followed by onsite coaching and technical backstopping to ensure the establishment of technically sound practices and standards. Lead farmers together with the leaders of the union will have exchange of experience visits to Bobo Eco Farm to further improve their skills. We will then support them in developing market linkages. Benefits to farmers will include acquisition of skills for production of insect protein for their own use and for sale, increased incomes and improved livelihoods. Through their associations they will gain access to better markets. Farmer Associations will be stronger, dynamic and networked with ability to champion the cause of their members.

**Schoolchildren:** children will be organized into mealworm clubs of 50 students each and trained in mealworm production. The club will run the mealworm rearing facility (established in each school) and will officially represent the student body in mealworm production and consumption. The clubs will also be supported to establish school gardens (that utilize the spent substrate/frass of the mealworms as fertiliser and provide vegetable cuttings for the mealworm) adjacent to the mealworm facility that will further supplement the nutrition of the schoolchildren. Children will benefit from improved nutrition, improved health and performance in their studies due to their improved mental and physical health. They will also benefit from the science corners where they are re able to learn science concepts in a practical way.

**School teachers:** Teachers will be trained as trainers to continue training students in mealworm production. Among them, one will be chosen as the club patron to support and oversee the work of the mealworm clubs. Teachers will lead the drafting of nutritional/ educational messages raised around the science corners and lead the integration of the science corners in the school curriculum. As such they will also benefit from the new approach of the practical teaching that will improve the interest, concentration and performance of the students.

* 1. ***The strategy of the intervention***

We are working in a very fragile context within the Kyaka II refugee settlement, with very weak local civil society organisations and limited avenues for advocacy. In addition, refugees have very few assets and limited access to capital, meaning that more tangible investments are required than would be the case in a more stable context. The strategy of the intervention is therefore based on strategic investments in equipment, combined with capacity development efforts to ensure sustainability. For the production of BSFL by the farmer communities, the intervention combines the establishment of an egg production facility with capacity development of farmers associations. We will invest in a BSFL breeding/egg production facility in or near the Kyaka II settlement, which is a strategic investment in the sense that a farmers’ union will be established to manage the facility and provide support to the BSFL producers in a sustainable manner. For the mealworm production for improved nutrition in schools, the intervention will involve the strategic investment in mealworm production materials and the establishment of Science Corners in each of the two new schools. This will be combined with trainings and awareness raising, to ensure that all relevant stakeholders take ownership of the intervention, and commit to carry on the activities in the future. The combination of tangible assets with trainings will therefore lead to improved capacity of schools to teach science and nutrition to students, as well as providing an additional source of protein and nutrition in the form of the mealworm produced.

* 1. ***Objectives, activities, expected results and indicators of the intervention.***

The overall objective of the proposed intervention is *“Improved nutrition and income generation among refugees and host communities in Uganda through production of edible insects for food and feed”.* The objective will be achieved through three outcomes, focusing on: 1) Strengthened capacity of schools to produce mealworm to improve nutrition of schoolchildren; 2) Strengthened capacity of farmers to produce BSFL for sale as animal feed; 3) Strengthened organisational capacity of farmers associations to support their members with inputs, technical support and marketing of insect-based products.

***General activities***

* 1. *Baseline and endline studies:* MAMAH will be responsible for ongoing data collection and final evaluation. The project includes a rapid assessment at baseline and an endline assessment to gather data for evaluation.
	2. *Project inception meetings:* Inception meetings will be carried out with local leaders and stakeholders from the district level, sub-county and parish levels as well as village levels in the localities where selected farmers are based.
	3. *Workshop to evaluate findings:* We shall hold a workshop at district level for key stakeholders in which we shall share the findings of the survey and project results and seek input into the strategies for further improvements for future follow-on interventions.

***Outcome 1: By end of project, children in 10 schools in and around Kyaka II have improved nutrition, through production of mealworm in school ‘science corners’.***

The yellow mealworm provides an excellent source of protein and essential vitamins and minerals. They can be easily produced in schools, similarly to vegetable production in school gardens. As part of the pilot activities implemented in 2020, culturally appropriate and context-specific teaching modules were developed, covering topics such as the mealworm life cycle (from eggs, through larvae, pupae and beetles), to teach biology, nutrition and the construction of production kits for science classes. The proposed intervention will add an additional 2 schools, for a total of 10, and implement a range of activities to ensure the sustainability of the already established Science Corners and Mealworm Clubs.

**Activities**

* 1. *Introduction workshops and sensitisation meeting with managers, teachers, students and parents:* MAMAH staff will visit schools to introduce the project mission and clarify roles and expectations. This will include project introduction workshops to sensitize school leaders of two additional schools, follow-up visits with a broader group of both teachers and students, sensitization of parents, introduction of the yellow mealworms and baseline anthropometry.
	2. *Training of teachers and students.* MAMAH staff will train about 30 teachers and 50 students in each of the two schools in mealworm production.
	3. *Construction of “Science Corners” and mealworm production kits in two schools.* Small, simple, shelters will be constructed at the two schools to protect the mealworm production kits from weather and animals.
	4. *Visibility initiatives.* The project will design and distribute T-shirts to students and teachers to ensure visibility and project promotion.
	5. *Routine follow-up of trained students in all 10 schools.* During the pilot phase of the project, simple mealworm production has started in each of the supported schools. However, there is a need to refine the production techniques and improve the production set-up to allow schools to produce larger quantities of mealworm. MAMAH will support schools to improve their set-ups with more efficient production tools. MAMAH staff will carry out follow-up visits to the supported schools twice a month.
	6. *Workshops with teachers, senior management team members (SMTs), district mealworm club and PTA’ to enhance the understanding of the benefits of the project activities and ensure their support of the programme.* MAMAH staff will organize workshops with teachers, SMT and PTA members of all the ten target schools.
	7. *Work with the district education department to strengthen mealworm production in schools.* We have incorporated activities to support district wide involvement, scale up and sustainability of mealworm integration including organizing science fairs and science week in each school, and inter-school debates. Head teachers have formed the district mealworm club that will work with the district education office to spearhead these activities.
	8. *Inter-school annual review meetings.* MAMAH will facilitate review meetings three times during the project, once every quarter with the last held towards the end of the project, with key stakeholders, including school management, district and OPM representatives.

**Outcome indicators:** By end of the project:

* 10 schools provide meals fortified with insect protein from mealworms produced in schools.
* 10 schools utilize the established Science Corners for science and nutrition training, as part of regular teaching activities.

***Outcome 2: By end of project, at least 365 refugee and host community farmers, supporting approximately 1,825 family members, generate income from production of black soldier fly larvae for sale as feed.***

Based on the experiences of Bobo Eco Farm with the production of BSFL, the project will support farmers’ associations in and around Kyaka II settlements to produce BSFL as an income-generation strategy. In order to decentralise all aspects of production, an egg-production facility will be established in or close to Kyaka II settlement (described below under outcome 3). Until the local egg production is established, refugee and host community farmers will receive BSFL eggs and training in how to rear BSFL from Bobo Eco Farm. Bobo Eco Farm will supply simple and cheap production kits. 100 additional farmers, representing 3 or 4 farmers’ associations, will be trained, of which at least 50% will be women. In order to ensure that host communities are benefiting from the project, in line with GoU policies, at least 30% of participants will be from host communities. The on-going follow-up support will also include all the farmers trained during the pilot phase (365 in total). The produced BSFL will be marketed to local fish and piggery farms and chicken producers.

**Activities**

* 1. *Training of 100 additional farmers in Kyaka II settlement on BSFL production.* Bobo Eco Farm staff will train about 100 lead farmers from 4 farmers associations in BSFL production, including at least 30% host community farmers and at least 50% women. The training will take 8 days in total, with 25 farmers in each cohort (small groups due to COVID-19 SOPs) each cohort trained for 2 days. So, training for 70 farmers will take place in the settlement for 6 days and for the 2 cohorts from the host community will take place in their localities over 2 days.
	2. *Introductory visits of lead farmers to Bobo Eco Farm.* The trained farmers will spend a day at Bobo Eco Farm to see how the BSFL production works at the farm.
	3. *Visibility initiatives.* The project will design and distribute T-shirts to the participating farmers to ensure visibility and project promotion.
	4. *Routine follow up of trained farmers.* Bobo Eco Farm staff will provide ongoing technical support to the trained farmers.
	5. *Training of extension workers.* Staff from Bobo Eco Farm will provide a 2-day training for about (10) government and NGO extension workers on BSFL production to enable them to assist with monitoring and support to trained farmers in the future.
	6. *Exchange of experience visit for lead BSFL farmers to Bobo Eco Farm.* The trained farmers will spend a day at Bobo Eco Farm to exchange experiences and gain inspiration and encouragement. The day will also be used for vision casting for future expanded production. About 25 lead farmers will participate in the visit.
	7. *Review meetings with stakeholders.* Three review meetings will be held with key stakeholders.

**Outcome indicators:** By end of the project:

* At least 292 (80%) of the participating farmers have generated at least UGX 20,000 per month in income from the sale of BSFL for at least 2 months.

***Outcome 3: By end of project, 14 (4 new) farmer associations in and around the Kyaka II refugee settlement support members to effectively demand inputs and supply products for insect larvae and improve their incomes***

MAMAH has supported the formal registration of 10 farmer associations during the pilot project. During focus group discussions with farmers to evaluate the pilot project, there was a call for support to organize more groups around the production of insects. The project will strengthen the capacity of the 10 existing farmers’ associations (comprising 30 farmers each) and 4 new groups to be able to support the production of BSFL. In the initial phase, the associations will focus on production, but as their capacity grows, they will be able to take over responsibilities for inputs (production of insect eggs) and outputs. The intervention will work with the farmers’ associations to strengthen leadership structures and enable them to oversee the organization of the facilities. Stronger farmers’ associations will also be able to better represent the interests of smallholder farmers in decision making processes in and around the settlement, and can contribute to building networks and cooperation between refugee and host community farmers. Capacity development activities will be tailored to the needs of each organization. These activities will be led by MAMAH, building on their experience working with and supporting the farmers’ associations in Kyaka II.

**Activities**

* 1. *Construction of breeding facility close to Kyaka II settlement.* A piece of land has been set aside for the construction of a breeding facility close to the Kyaka II settlement. The proposed activities will allow the farmers to become self-sustaining and be empowered to manage the breeding facility on their own.
	2. *Support formalization and registration of the four new farmers’ associations.* MAMAH staff will carry out at least ten visits to the settlement during the project to establish relations with representatives of the farmers associations involved in the BSFL production, and support them to strengthen their organizations, including by helping them establish by-laws and register officially with local authorities. The project will also provide financial support to cover registration fees. Four new farmer associations (with an average of 25 farmers each) will be supported in Kyaka II settlement.
	3. *Train members of farmers’ associations on market literacy, group dynamics and governance.* MAMAH staff will carry out trainings for the leaders of the 4 new farmers associations (and the existing 10 farmer associations) on topics such as market literacy, group dynamics and association governance. The specific topics will be decided based on the needs of the associations. This will be three 1-day trainings for a group of approximately 33 participants (7 leaders from each association, a total of 98 leaders from 14 associations).
	4. *Establish farmers union for managing BSFL breeding facility.* Farmer associations will form a ‘Union’ which will be the custodian of the insect breeding facility. The union will second personnel to be trained in advanced insect breeding techniques at Bobo Eco Farm, so they can run the breeding facility. It will be run on a not-for-profit basis but members will obtain eggs / hatchlings (young larvae) at a fee so as to cover the running costs. The Insect Farmers’ Union will be a membership organization of the insect farmers’ associations in Kyegegwa district. To facilitate the formation and functionality of the union, we will support the insect rearing farmers associations to: Come together to articulate their needs for a stronger and common voice; develop and agree on a common set of values, goals, and rules that bind them together as insect farmers; elect leaders of the Insect Farmers’ Union in the district; register the Insect Farmers Union with Kyegegwa district local government; register the Insect Farmers Union with the Uganda National Farmers Federation; train union leaders in governance, group dynamism and market linkages; provide the union with technical support to master the running of the egg laying facility and coordination of the associations including exchange of experience visits and participation in agricultural fairs; support the union to form input or output market linkages.
	5. *Exchange of experience visits for union leaders to Bobo Eco Farm.* The objective of the exchange visit is to enable the leadership of the insect farmers’ union to contribute to the improvement of program quality and effectiveness for insect farmers and their associations by learning from the industry leader and role model.
	6. *Support union leaders to participate in agricultural trade fairs.* The project will support insect farmers’ union leaders to participate in agricultural trade fairs and shows at the national and regional level.

**Outcome indicators:** By end of the project:

* 14 farmers associations support their members in market identification and price negotiation.
* A Farmers Union has been established which manages a BSFL breeding centre in Kyegegwa District.
	1. Strategy to ensure sustainability of the intervention after the end of the project

This project will equip the target group with both the skills and tools to sustainably engage in insect rearing for improved incomes and nutrition. We shall establish a BSFL egg-laying facility near/in the settlement that will be run and owned by the farmer associations. The facility will enable continued access to the eggs which was a challenge in our pilot intervention (involving transportation costs from Bobo Eco Farm). Although the facility will be run as a not-for profit, farmers will contribute a user fee that will help to meet the running costs and thus enable the continued management of the facility and continued access to eggs/young larvae. Moreover, the input to both BSFL and mealworm rearing is waste that is freely available. Both the farmers and students will be equipped with skills in insect rearing but we are supporting structures that will provide ongoing support i.e. we will train government extension workers and partner NGO workers that will continually support the farmers, while for the schools we will train the teachers that will continue to train students in mealworm rearing. Further, we have planned to integrate the yellow mealworm rearing into the school curriculum through the Science Corners. This will ensure the continued use of the mealworm both for meals and as a learning tool. The formation of the District Mealworm Club and the Farmers Union are key sustainability strategies; (i) for coaching and mentoring, (ii) monitoring progress of individual associations and schools, (iii) creating linkages and exploiting opportunities including markets; and (iv) driving expansion and continued scale-up. The intervention is based on local ownership and locally appropriate technology.

1. Intervention-related information work in Denmark

Impact Designs will disseminate information about the project in order to increase awareness about the refugee situation in Uganda and the potential for production of edible insects. We will organise at least one main event in Aarhus, to enable particularly students interested in international development to learn about the challenges facing refugees in developing countries and local initiatives to support them.

1. https://www.wfp.org/news/wfp-cuts-refugees-food-rations-uganda-funding-declines [↑](#footnote-ref-1)
2. https://reliefweb.int/report/uganda/uganda-acute-food-insecurity-situation-june-august-2020-and-projection-september-2020 [↑](#footnote-ref-2)
3. https://www.developmentpathways.co.uk/publications/analysis-of-refugee-vulnerability-in-uganda/ [↑](#footnote-ref-3)
4. http://www3.compareyourcountry.org/states-of-fragility/countries/UGA/ [↑](#footnote-ref-4)