Czech-UNDP Challenge Fund
Final Report

Project Title: Biogas for Sustainable Livelihoods and Green Youth Entrepreneurship (BLESGY).

Milestone number		**4**
Innovator		**VYSOKÁ ŠKOLA CHEMICKO-TECHNOLOGICKÁ V PRAZE** **Ústav Ekonomiky a Managementu**
Local Partner		**HYSPER ENTERPRISE (YOUTH-LED SME)**
Project Locations		**KAPYANGA SETTLEMENT SCHEME (ZAMBIA)**
Start date – End Date		**30 October 2022 - 30 October 2023**
Funding (total USD)	**UNDP Award**	**Co-Funding**
50 064,00	**39 975,50**	**10 088,50**

I. SUMMARY

The executive summary is a concise brief on the progress towards the expected results during the reporting period. The section should include context and key developments of the project; progress against expected results; key challenges and risks faced in the implementation (and what has been done to mitigate them); lessons learned as appropriate; utilization update - mention the total project budget (as proposed in the application); report on cumulative utilization (indicating the % utilization in brackets) on utilization during the reporting period; key recommendations. Suggested length – 1 page maximum

The BLESGY project is implemented by United Nations Development Programme (UNDP) with the financial support of the Ministry of Foreign Affairs of the Czech Republic.

University of Chemistry and Technology Prague (UCT) - School of Business is the Contractor. A youth organisation called HYSPER Youth Enterprise is the local beneficiary.

BLESGY is addressing energy and fertilizer needs for rural communities and promoting better livelihoods through youth entrepreneurships in Zambia.

Charcoal is the main source of energy for cooking for over 90% of the Zambian population. Charcoal production has been identified as the main driver of deforestation and land degradation in Zambia. This is negatively impacting the climate. This proposed project of Biogas production and by-product utilisation is one of the solutions to this deforestation and land degradation problem.

The digestate, which is a biogas production by-product, is fertiliser that contains all nutrients and micronutrients necessary for modern farming, including nitrogen, phosphorus and potassium. The projected use of the digestate will minimise the land degrading Nomadic farming that is being practiced in most rural areas in Zambia; and it will help in reducing the overreliance on imported artificial fertiliser, which is currently a burden on the coffers of the nation. The belief is that setting up a biogas production plant with a view of replicating it in rural households will have a positive impact on the environment by:

1) making the gas available for household uses - to reduce deforestation and do away with the unsustainable energy dependence,

2) improving income generation,

3) using the gas to generate electricity which will require training for the youth and skills acquisition by the youth thus, addressing unemployment among the local youths and promoting some farm value addition and manufacturing,

4) using the digestate both as irrigation slurry and solid digestate fertilizers to mitigate the negative impacts of nomadic agriculture on the area environment.

The budget use was in line with the agreement. However, due to high inflation and due to the fact that the local partner was not able to contribute to co-financing, the costs reported are higher than the total award as stated in the agreement between the United Nations Development Programme and VYSOKÁ ŠKOLA CHEMICKO-TECHNOLOGICKÁ V PRAZE under the Czech-UNDP Partnership for SDGs.

The contractor is aware of the fact that the award cannot be increased. Therefore, after receiving the final payment and its conversion into CZK, the project will cover all additional costs by own accounts.

Currency exchanges (CZK/USD/ZMW) have been made according to internal rules. Exchange losses and gains are considered ineligible costs and are not included in the amounts reported. The differences between costs awarded and costs reported might result from exchange rate differences.

Due to internal processes, costs incurred by the project are reflected in the accounts belatedly. Therefore, there are differences between the amounts reported in the Milestone report 3 and Milestone report 4. The amounts reported herein reflect the actual incurred costs. Moreover, adjustments have been made in order to conform to the rules and guidelines as stipulated by the contract (up to 10% differences in the major budget categories and minimum 20.15% co-financing).

II. BACKGROUND

This section should provide a short introductory of the project, including an overview of the situation analysis, objectives and changes in the context/situation. It should be kept brief, expand only on key changes that might affect implementation. This part should include brief background of project and its rationale; context including linkage to other ongoing projects/programs; Project Approach, including Project Set up and management and coordination arrangements; listing of the main responsible parties. Suggested length - half a page maximum

The project aims to mitigate land degradation and deforestation through the provision of affordable slurry based organic fertilizers to poor rural farmers and renewable energy in the form of biogas; and enhancing youth and village sustainable start -ups for better livelihoods. The project envisages achieving the aforementioned objectives through the construction and installations of a biodigester, inception of sustainable agricultural practices, developing biogas generation by-products and their respective market linkages. It also includes the setting up of pig production and the value addition abattoir processing as the employment creation driver and the source of funds for replication to community.

This project has been finally established at KAPYANGA VILLAGE – SHIBUYUNJI District, Central Province. In January this year, the project was to be located at Chongwe. Apart from the issue of not having suitable land in the area, the question of community impact also arose. It was established that Chongwe would mainly address the energy use and the project economic aspect of generating funds for replication via the abattoir value addition. The Kapyanga area answers the key issues in the objectives of the project namely, land degradation and forest depletion. Kapyanga is one of the producers of charcoal that depletes the environment but supplies energy for cooking and heating to Lusaka. The remoteness of this area means poor employment opportunities and is a home to poor practices of agriculture that negatively affects the land, degrading it. This is giving rise to the nomadic agricultural practices.

The Project has had an overwhelming response from the community.

Despite the positives of moving to Kapyanga, the training of future management team has suffered. The reason being that the graduate members of HYSPER are based in Lusaka. There had been several attempts to reconstitute the team that was trained.

The other downside is the loss of the collaboration with UNDP Zambia on SCRALR project. It was not possible for BLESGY to participate on SCARLAR because the Kapyanga area lies outside the projects (SCRALR) zones of application. In this project, we had earlier found commonalities - BLESGY was to share HYDRPONICS knowledge and train farmers, SCRALR Project, in growing hydroponic fodder and its utilisation.

III. MAIN ACTIVITIES AND KEY RESULTS

This section should focus on results backed by evidence of achievements. Give an overall and clear sense of the 'before-and-after' of the project intervention. Describe and analyse activities but emphasis on linking them more solidly to expected results by also including references and evidencing how the total number of activities helped to reach the results within reporting period. Suggested length – 1-3 pages.

i. A 75 m deep borehole has been drilled and the water pumping system has been installed. The BLESGY Project center and the community are using the water.



And water for feeding the biodigester, and production of organic fertilizer and hydroponics.



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ii. A **32m³** biodigester has been built. Gas is being produced. Gas harvesting is yet to begin. Hysper is working on the appliance and connection logistics. A portable gasbag was sourced from Germany and delivered to BLESGY center.

iii. The original piggery structure has been adapted for Poultry Production. Poultry production, to generate income to self-sustain BLESGY Center, has commenced. The first batch of 100 chickens were sold in October.


iv. The production of organic fertiliser has commenced on experimental basis.



v. Napier field has been established at the center. The community will acquire seed to propagate their own folder.

vi. Horticultural activities have commenced. The Center and the community will be utilising the water and bio-slurry for gardening activities.

vii. The hammer mill has been installed for income generation to self-sustain the center; and feed making for poultry.

IV. PARTNERSHIP AND SUSTAINABILITY

Briefly describe all partnerships, including new ones built in the course of the reporting period. Report on the major impact that these partnerships have on results. How stakeholders, counterparts and/or local communities are/were engaged in implementation of the project to ensure sustainability of the project. Suggested length – half a page

Supportive grounds for this project:

- Meeting with the traditional leadership

Organic fertilizer production: This has full support from the political establishment of the area (Shibujunji district). HYSPER has managed to get a buy-in from the District coordinators office. BLESGY is in the Zambian public domain thanks to the coverage of the center officiating by the Shibujunji District Coordinator.

- ZARI is on board. They have praised the project for establishing collaboration with them. ZARI has agreed to help BLESGY Center develop organic fertilizer products. (ZARI contact person: Mr. Brian Gondwe). What BLESGY has embarked on is part of the government's work on Integrated Soil Fertility Management which happens to be ZARI's mandate - promotion of organic fertiliser use.

- Kasisi Agricultural Training Center (KATC), an organisation that has gone into organic farming has offered to work with BLESGY. KATC has also got vast experience in working with small scale farmers in promoting organic farming – zero use of artificial fertilizers. In a meeting, the executive director, Father Claus Recktenwald, called upon BLESGY to go into organic farming and offered their help in product marketing.

- Technology Development and Advisory Center Unit (TDAU) at the UNIVERSITY OF ZAMBIA: BLESGY met the manager, Eng. Leonard Simukoko and his team in August. TDU is willing to help BLESGY with the modification of some biogas appliances. They have a certified workshop which can offer this service.

- The last promising opportunity is collaboration with the National Technology Business Center (NTBC). BLESGY's project leader, Dr. Kapila, had the opportunity to meet with the Center's director, Dr. Chitundu Kasase. NTBC is willing to collaborate with the BLESGY center on organic fertiliser product development.

In addition NTBC wishes to work with the University of Chemistry and Technology Prague (UCT) to implement the same project at Chikankata (Southern Province, Zambia) where they are building the enter of excellence in green technology.

V. KEY CHALLENGES LESSONS LEARNED AND RECOMENDATIONS

Mention key challenges encountered during implementation period and lessons learned as well as the way forward. For each of them, describe successful approaches taken to address challenges and highlight recommendations for future consideration in implementing the Project. This should include any modifications that needed or need to be made to proposed targets as well data collection and monitoring to track progress. Suggested length –1 page

Challenges

i. Managing conflicting interests of the traditional leadership, community and the youths at Kapyanga settlement. Each is fighting for control instead of collective control of this opportunity-creating center. Village leadership, community and village youth dynamics have conflicting interest that negatively affect community projects. The BLESGY implementation team has been encouraging and promoting dialogue.

ii. Lack of respect to and departing from the agreed terms of the contract especially on co-financing and schedules in the work plan. UCT had no option but to cover this budget shortfall whilst calling on HYSPER to honour their obligation. Further, the innovator had to be with local partner longer than planned to ensure the delivery of all the construction works on schedule.

iii. Tendency to focus on short term gains while neglecting the long-term objectives of the project. In this case learning towards poultry and hammer mill other than learning the skills of piggery and abattoir. The innovator took measures to complete the installation of the all components at the center.

iv. Working with a poorly organised structure that in addition is not willing to learn how to proactively organise themselves to better manage a new base for opportunities. The search for a remedy to this challenge is an ongoing process. The factors involved are multi-origin in nature. It needs time.

Lessons learnt

i. To implement a community project of this nature requires a thorough preparation process – identify and acquire communal land through community leadership, establish a supervisory board for the project with the full representation of interested stakeholders from the community and local civic leadership, the hosting local partner and the supervisory board establish a management team that is accountable to the supervisory board. Unfortunately, BLESGY is running this process in reverse because there was no communal land allocated to the project. The land was given to HYSPER.

ii. The comprehensiveness of BLESGY as a system requires staff with vested knowledge in its connectivity (capacity to understand what is required in terms of knowledge and skills to make each component of BLESGY function).

iii. The biogas and organic fertiliser components are likely to have more positive impacts when targeted to selected individual household – using on average 9 m^3 biodigesters to cater for energy and organic fertilizer needs. These should be households which are able to co-finance (show individual commitments).

iv. Microscope-zooming into the abilities of a sampled young developmental organisation in the name of HYSPER. BLESGY has come to understand that young organisations in Zambia are used to donor handouts without sweating for them. As a result, the donor funded

ventures that they undertake collapse when the funding schedules end. Therefore, the inclusion of additional "fast" income generation ventures will help in self-sustainment of BLESGY. Realisation of income from the sales Biogas and Organic fertiliser is a long-term process.

v. Remotely located places have higher costs for infrastructure development.

Recommendations

This opens with a request for funding to promote the BLESGY project. If some funds were to be awarded to the innovator, they will be used for the following recommendations:

i. Build on the established work with the traditional leadership in order for them to work cordially with the HYSPER. They are a strong stakeholder group in this community project. BLESGY should nature their interest in this community project by upgrading it from self-interest to community interest. This could be done through leadership and governance workshops.

ii. Motivate the Kapyanga School to work with HYSPER by opening up agricultural based production unit activities at BLESGY center. This will help spread awareness.

iii. Host workshops for local trades school with a view to initiate production of biogas appliances; including the safe modification of appliances that use pressurised gas.

iv. Ensure that BLESGY builds a strong network of mutual benefits with the University of Zambia – school of agriculture and the Technology Development and Advisory Unit (TDAU), Kasisi Agricultural training center and the School of business at UCT. This should help address the lack of skills and know-how to operate the components of the BLESGY system.

v. Host roadshows in order to initiate conversations on subsidies towards biogas appliances. The target institutions are the ministry of Green Economy, the National Technology Business Centre (NTBC) and Ministry of Energy and Zambia Development Agency (ZDA). In Norway subsidies have encouraged uptake of Electrical Vehicles in the country. Zambian communities should be motivated to move away from charcoal and wood that is causing deforestation and land degradation. It is the innovators view that subsides or pro-renewable energy policies could help. This is in line with what the Zambian President said at the Paris conference in June "Poverty exacerbates climate change. If you are asking your poor people to switch energy sources, can they afford? From charcoal to cleaner energy. We need a mechanism to support the already stressed poor to pull through and support cleaner energy sources". And the Czech – UNDP partnership has just been contributing towards this appeal. Funding the promotion of the BLESGY center activities will be in line with the Zambian National Executive's call for support.

VI. MEDIA COVERAGE AND PUBLIC OUTREACH

(Please summarize the media coverage and public outreach; include links to relevant articles and media)

i. BLESGY is in the domain of the Zambian community. Zambia was informed on 12.05.2023 - https://www.youtube.com/watch?v=wEyroxuVr7Q (from 18:04 to 21:08).
ii. It was aired on Zambia National Broadcasting Corporation – Environmental news on 12.05.2023.
iii. Press release on the following website and face book and linked https://kem.vscht.cz/novinky?force&jazyk=cs#novinka_detail26995708074122 https://www.facebook.com/businessUCTPrague/posts/pfbid025neMgucxYTMpTZgkQPDY3x1t42X3ie482v29XpZDs46f4E5kvunMuxvzA42Sx2vol
iv. We linked from our website to the interview on the UNDP website: https://undp.cz/how-to-use-biogas-for-sustainable-development-in-zambia/

VII. PROJECT'S FINANCIAL PERFORMANCE

Please attach original budget sheet and add report current utilization of budget to the email.

VIII. DELIVERABLES AND ANNEXES

Please include (attach to the email or share via online storage) deliverables listed in the Contract.

Please include any additional information such as articles, leaflets, publications, reports and drafts of studies developed during the project implementation.

Please include up to 3 photos relevant to the project implementation relevant for the current milestone.

IX. CHECKLIST

☒ *Deliverables described in the Contract included/attached*

☒ *Photos attached*

☒ *Budget sheet attached*

☐ *Invoice attached*

PREPARED BY:

Date: 14/11/2023

Name of the responsible person: Ing. Patrick Francis Kapila, Ph.D.

Signature: