

Annual Report 2020



humasol

renewable technology for all





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Preface

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Hi Humasol enthusiast, thanks for the interest in our organization and our annual report. I think 2020 does not need an introduction. Since March we have been working remotely, moving all work and cooperation to digital channels. We also had to make the hard decision to suspend all travel to our project partners in the South for safety reasons. While this entire process was absolutely not as we expected, nor as we wanted, I do keep a very positive attitude towards the coming year(s). Below you will find out why!

First and foremost, what really kept to amaze me was the continued motivation of both members and students alike, even when most of our main activities such as the projects on location and team building activities were cancelled. Everyone tapped into their intrinsic motivation and belief in the importance of our mission, to continue developing their ideas and designs and to prepare for better times in the future. It was easy to stop, give up and quit, yet our members and students persisted. Everyone involved can and should be proud of their contribution to Humasol this year and I would like to thank them once again for the energy and good times shared.

Second, while the project execution on site could not go through this summer, we quickly developed alternatives. Three new sustainability designs, aquaponics, plastic recycling and automatic phone charging, were piloted by student teams in Belgium and supervised by our team of experienced coaches. The main outcomes of these will be used during the coming years to better support local partners. Additionally, we supported our project partners remotely this summer and tweaked and adapted schedules, so that activities were either completed by local subcontractors or that we have a clear plan to execute them in 2021.

Third, there is a new board, with some familiar faces as well as with newcomers, that is fully energized to continue with new projects, fresh initiatives and bold ideas. I invite you to continue to support them in any way you can, I will without a doubt do so as well. After all, making sustainable and social change happen can still use all of our support.

- **Midas Caubergs,**
Humasol President 2019-2020



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Preface

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We are looking at an uncertain yet challenging year 2021. With our driven and motivated team of volunteers we are destined to keep working on sustainable and environmentally friendly solutions to help local communities in developing countries, in whatever way that eventually may be. It feels alienating that we can't predict what this year will bring. However, we will do everything to provide our students an interesting learning experience in safe working conditions and will keep on expanding our knowledge and know-how internally in the organization.

The cancelation of our projects abroad last summer has been very unfortunate. Yet we can proudly say that we are continuing most of our projects, which allows us to build further on already well-developed concepts and focus more on the economic viability, sustainability and long-term social impact. We are also committed in further deepening our knowledge about some newer topics for us, such as aquaponics systems for diverse food production, plastic recycling to produce functional and useful products and mushroom cultivation on waste streams of coffee bean production.

Step by step we are trying to build a better world in close cooperation with the ones in need. A world in which renewable energy, potable water and other sustainable technologies are accessible for everyone. Let's cross our fingers for a hopeful year where we can travel again over great distance to have a durable impact instead of keeping our distance. Thank you for supporting us along the way!

- Hanne Pittomvils,
Humasol President 2020-2021



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Mission

We are a non-profit organization with the goal of making renewable energy, water and sustainable technology accessible to everyone. We operate in Africa, Asia and South America.

Vision

We work closely with local partners in the South to jointly develop a reliable and clean energy supply. We carry out technical projects, such as the design and installation of solar panels, and socio-economic projects, such as setting up local management organizations that maintain and monitor installations.

Our projects are carried out by students and volunteers who, after thorough preparation in Belgium, spend several weeks or months at the project location.

Project Locations



2021 Projects

- Rwanda – Magic Mushroom
- Uganda – Ekisande
- Cameroon – Lumos
- Gambia – Gamrupa & Warme Gloed
- Malawi – Kudimba
- Kenya – Pamoja
- Ghana – FOS
- Benin - Aquaponics

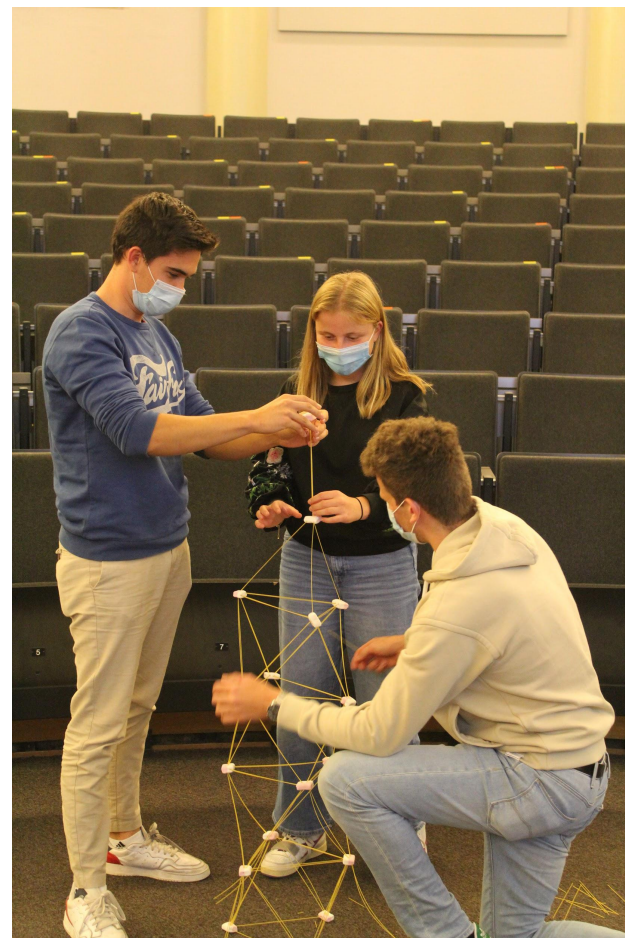


Humasol during COVID-19

Working in a virtual environment has become the new normal this year. Luckily we were able to hold our kick-off events live for the students and members in the beginning of the academic year to launch the new projects and start off the year. Wearing masks and keeping 1.5m distance is not the ideal situation to get to know your team and the organization. Yet, our HR team organized a safe team building and we tried to connect with each other as much as possible.

This situation clearly has not tempered the enthusiasm and eagerness of our students to start their projects. The same goes for our members. Even though we had to cancel some of our other events, everyone is doing their best to contribute as much as possible to a successful outcome.

We are realistic but remain optimistic!





Looking back

Humasol was, just like the rest of the world, affected by COVID-19: The 2020 projects couldn't be executed. We did not throw in the towel though, instead we challenged the students with a replacement project!





Looking back

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PV phone charging system

During the summer of 2020, I was supposed to go to Rwanda together with Toon, Liske and Louise for the cultivation of oyster mushrooms on coffee pulp. Even before our Rwanda project got cancelled officially, the project managers of the Humasol board were already searching for alternatives. I really appreciated that they offered us replacement projects and I seized this opportunity with both hands.

In July I started with a three week long replacement project about a whole new subject: “Phone charging system based on solar energy”. Key characteristics of the designed system are simplicity, robustness, cleanliness and safety. The charging station should be available at all times and be able to operate unmanned. Secondly, it should be safe so that no money or phones can be stolen. Together with Charlotte, Brecht and Simon we realized the objectives that Humasol gave us. Charlotte and I focused on the electrical circuit with the solar panel, charge controller, battery and other smaller components. Brecht and Simon focused on the payment procedure and worked out 2 methods: NFC tags and the coin acceptor. →





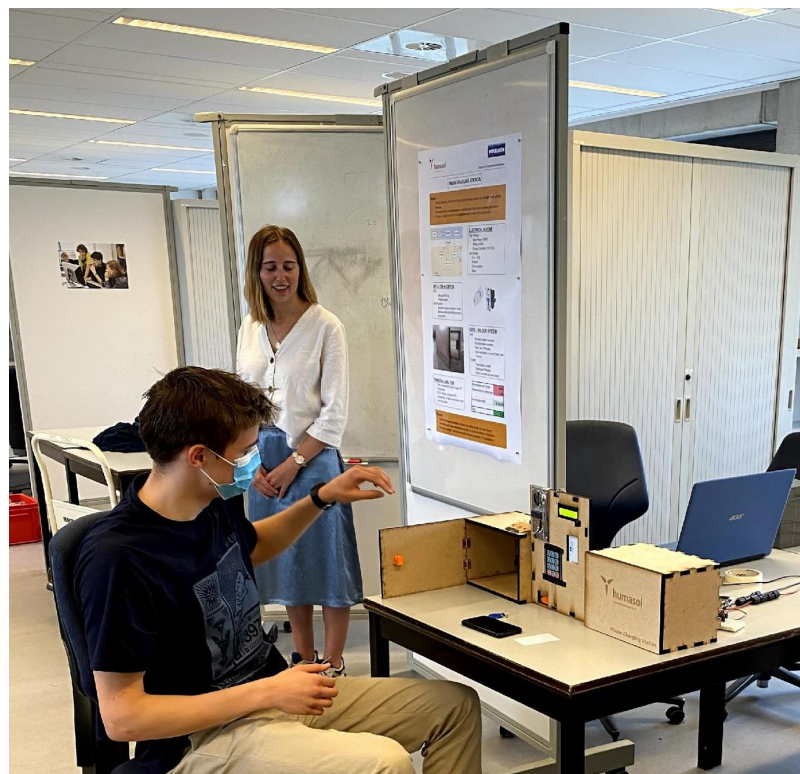
Looking back

PV phone charging system

The subjects were totally new, but very interesting to me. To achieve the designated target, I needed to apply the knowledge from mandatory courses from my studies at KULeuven: 'Semiconductors', 'Introduction to informatics', 'Electrical Circuits', etc. It was a very educational and satisfying experience.

The Humasol board joined us for the final presentation and demonstration of our replacement project. They were very happy with the results, which they believed will be implemented in the future. The guidance, the communication and the support of Humasol kept us going strong. Together we believed in the successful outcome of the replacement project, which showed in our nice and working prototype! – **Emma Lein**

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Looking back

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PV phone charging system

Normally, this summer, we would've gone to Uganda to install a PV-installation for a school and a health care center. Due to corona, this project was postponed to next summer. To still have a Humasol project this summer, Humasol organised projects that could be developed in Belgium, and could later be implemented in the South. Together with Emma and Charlotte, we developed a fully automated charging shop. The concept is that locals could charge their mobile phone/flashlight/others for a small fee. This income would then be used to maintain for example the solar panels Humasol placed there. This makes the installation sustainable. Emma and Charlotte worked on getting the solar energy into the smartphones, while we (Brecht and Simon) worked on a payment system. We developed a system with Arduino with which people can pay both with coins, or with an NFC card. We wanted the NFC system to be as modular as possible, without requiring a connection between different shops. For this, we developed an encryption method that could detect fraud in every shop. To work on this project, Humasol provided us with a workstudio from KU Leuven. Working together with the other Humasol students on this project was an enjoyable experience. After only a short yet very fun period of time, we had a working prototype. A visible result, that we could be proud of.

– Brecht & Simon

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Looking back

DIY Aquaponics system

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Our replacement project over the summer consisted of building a DIY aquaponics system in Belgium. Our initial projects were cancelled due to the covid pandemic, hence Humasol gave us the opportunity to take part in a replacement project in Belgium. We believe the replacement project was an ideal solution because we were able to complete our internships. The installation and manual we constructed are still useful as they are used this year to study the aquaponics system.

Nowadays, Foundation Hubi & Vinciane (FHV) is leading several projects in Benin for the installation of small and mid-size household Aquaponics systems. These systems are designed and fabricated in South Africa, shipped to Benin and assembled locally, rendering the know-how and business opportunities outside Benin and the cost of the installation high.

Besides, these systems require a connection to the local power grid, which is highly unreliable and a considerable economic burden on the families that use them. FHV and Humasol are convinced that in the (near) future the aquaponics systems should be produced locally to support the local economy and to minimize the ecological impact. →





Looking back

DIY Aquaponics system

Our project consisted of writing a DIY aquaponics system manual and building an aquaponics system ourselves. In July, we researched, built and wrote a manual about DIY aquaponics systems. We started with a thorough literature review on aquaponics systems to next buy and order all the needed components, taking into consideration the required availability in Benin and keeping the costs as low as possible. Thereafter, we designed and assembled the mechanical part of the aquaponics system in Zwijnaarde, until the total system worked. Finally, we transported the installation to Ann-Sofie Van Nevel's garden, reassembled the installation and introduced the biological part of the installation, the plants and the fishes.

Besides broadening our technical, economic and social knowledge and skills throughout the project, we just had a really great time working together. Teamwork makes the dream work!

– **Ann-Sofie Van Nevel, Caydie Van Brabant, Maxim De Smet, Thibault Bonne and Zeno Verboven**

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Looking ahead

Uganda - Ekisande



The students will install solar panels and batteries for a school and health care centre in the village of Kisebe in Uganda.



Weebale foundation



Simon Forrez

Brecht Geutjens

Britt Van Ostaeyen



Rwanda – Magic Mushrooms

The goal of this cooperation is to make stepwise improvements in the business chain of mushroom cultivation. The first challenge is to get familiar with the mushrooms cultivation process and get up to date with the results of the previous project. After that, new proposals for improvements can be made. These can be implemented on location after discussion with the relevant stakeholders.



Kivu Farms, Zilipa & Theo



Louise Dalle

Toon De Vil

Liske Duchamps

Emma Lein





Looking ahead

Cameroon – Lumos

The goal of the project is to provide an uninterruptible power supply (UPS) for critical appliances of a hospital in Douala. The installation will ensure power during grid outages and in the future, hopes to render the current diesel generators obsolete.



Douala. The installation will ensure power during grid outages and in the future, hopes to render the current diesel generators obsolete.



Lumos



Niels Descamps
Matthieu Jacobs
Simen Cassiman



Gambia - Gamrupa

The team aims to create a recycling centre in Sifoe. In this centre, locals can recycle and shred the plastic waste. Finally the products like plastic cups, bowls, tiles... can be sold on the market or used to improve the standard of living.



Gamrupa



Lien Loier
Soetkin Barbaix
Matthijs Coninx
Nina Claessens





Looking ahead

Malawi – Kudimba



Our project entails the installation of solar PV panels for the Kudimba project in Malawi. Kudimba is a place where older children, teenagers and young adults can maximise their potential, learn and develop skills, and lead a fulfilling life.



Ekisande

Lina Debeer



Axelle Moortgat

Jarne De Nies

Pieterjan Espeel





Looking ahead

Kenya – Pamoja



A small school of Pamoja Mission Africa in Kenya will be provided with a photovoltaic system in order to ensure stable and reliable electricity supply. Moreover, a healthy cooking system will be implemented. This project will directly benefit the vulnerable children that are supported by Pamoja Mission Africa.



Pamoja

Lara Vissers



Michiel Van Cauwelaert

Jens Lateur



Ghana – FOS

The team will contribute to installing a solar pump and piping network throughout Asubone rails in order to bring potable water closer to the villagers who currently depend on manual pumps.



FOS & COLISO



Anthony De Lille

Maxim Desmet

Caydie Van Brabant





Looking ahead

Gambia – Warme Gloed



The team is committed to providing a local community with sustainable drinking water, infrastructure and the knowledge to expand.



Warme Gloed



Robben Baetens

Senne Strobbe

Ute Naessens

Sofie Verschueren



Benin – Aquaponics

The team will build a few aquaponic systems at the farm of Sokounon in Parakou, Benin. Aquaponics is a water-efficient combination of aquaculture and hydroponics, powered by a PV system.



Village Concept



Miel Provoost

Elisabeth Depla

Emilia Liegois





Thanks To

Our sponsors



STAD Turnhout





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Hanne – Louise – Lise – Maarten – Niels – Emma – Manon – Ruben – Ryan - Willem Ve

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Willem Ve – Toon – Olivier – Caydie – Michiel – Nele – Ruben – Lara – Lars – Annelies - Michiel

Volunteers

Liske – Britt – Matthieu – Eline – Midas – Jeroen – Glenn – Jens – Laura





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