SAMS-NEWSLETTER

www.sams-project.eu

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@SAMS_EU_H2020

PROJECT ACTIVITIES

UPCOMING EVENTS

DEAR SAMS COMMUNITY,

Smart Apiculture Management Services

We would like to inform you with this quarterly update about news and upcoming events on our project activities.

Project activities from April to June 2020

STILL LOOKING FOR BUSINESS PARTNERS – INTERNATIONAL SAMS PROJECT

The development of three international SAMS partnership networks is progressing as first cooperations are being established. The aim of the partnerships is to foster international cooperation and knowledge exchange between Asia, Africa and the EU in the long term as well as to ensure sustainability of the SAMS technology and concept and its impact. Therefore, we are looking for interested beekeepers, start-ups, researchers, data management associations and experts! Main activities of the partnerships comprise:

1.) Partnership on Business Development: mutual learning, knowledge exchange on modern beekeeping and business development as well as trade of SAMS products.

2.) Partnership on Data Management and Utilization: research and mainstreaming of the SAMS Decision Support System and knowledge exchange on beekeeping:

- Data Warehouse (DW): receive support in accessing and using the SAMS DW with your own monitoring device and exchange knowledge on data management and utilization issues and mainstreaming of the SAMS System.
- SAMSwiki: knowledge exchange on issues of bee health and bee productivity through SAMSwiki content creation and management as well as development of the platform.

3.) Partnership on Technology and Services: testing and development of the SAMS technology for bee-management and health services.

For more information on the partnerships and for finding a way to collaborate, visit the SAMS website and contact us through the Partnership Application Form.

By GIZ

SAMS AND THE GLOBAL COVID-19 CRISIS

Even in an international project like SAMS, where regular meetings via video conferencing and digital work are daily business, the effects of the corona-related circumstances are strongly felt.

Picture: Virtual SAMS-meeting on all work packages on June 3, 2020.

Curfews and limited infrastructure are hampering the regular inspection of the hives and the automatic transfer of data. The latter problem has now been remedied by local data storage. However, with this strategy, the project is dependent on more frequent visits to the test areas for data collection and hive monitoring - which is difficult to implement in times of corona curfews.

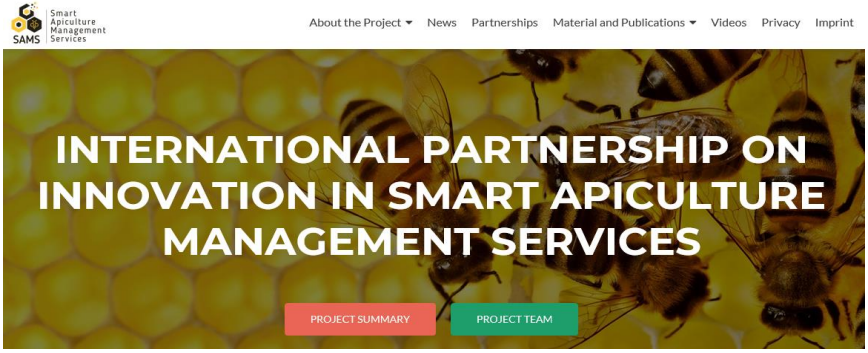
The planned training measures in bee management, bee health and business design in the honey value chain, had to be suspended, are held online or open-air due to corona restrictions. While on the hardware and training side, logistical problems are exacerbated by the corona measures, the development of the software continues. The project benefits from the digital international cooperation in the development of the Decision Support System (DSS), which provides beekeepers with information on the current health of their bee colonies and suggestions for optimizing bee management. Based on the first data sets of monitored bee colonies, a data processing model was developed that provides beekeepers with the relevant information on their hives. A first version of the Decision Support System is now available online to the participating beekeepers. According to the digital principle "Design with the user", the test version is being tested by Ethiopian and Indonesian beekeepers. After this test, the Decision Support System will be adapted again according to the needs of the users on site.

By GIZ

SAMS Homepage

NEW MENU STRUCTURE ON THE SAMS HOMEPAGE

For a better usability and a faster overview for the website's visitor, the menu structure of the SAMS homepage was streamlined. In the new version, the number of riders is reduced to seven and some riders were renamed. The newly named riders "About the Project" and "Material and Publications" are main categories, under which many riders of the old structure group now as sub categories. For example, the SAMS Newletter, "Sams on media" and all project reports are now available via the category "Material and Publications". Information about funding providers and open-access capacity building material will be soon available under the same category.



Picture: SAMS website.

By GIZ

NEW REPORTS AVAILABLE ON THE WEBSITE:

- **Deliverable N° 4.3: Evaluation of Responses and Support Services**
  Authors: Zacepins, A., Komasilovs, V., Kviesis, A., Komasilova, O. (UNILV).

  Summary: All bee colony monitoring data coming from the SAMS monitoring devices is accessible globally using a web-based application – the SAMS Data Warehouse. Deliverable N° 4.3 describes the new web user interface for the SAMS Data Warehouse (DW) and the clickable version of the front-end for mobile devices. Issues related to the bee colony monitoring data transfer and system installations are addressed, as well. The sustainability aspect of the SAMS data warehouse is described and DW deployment process is summarized. The response and support actions are elaborated for different regional settings in the target countries.

- **Deliverable N° 2.3: Results of Market Surveys**
  Authors: Purnomo, D., Bunyamin, A., Nawawi, M., Sukri, N., Danuwidjaja, T.G., Al Faizah, N. (UNPAD), Alemayehu, Y., (ICEADDIS), Kviesis, A. (UNILV).

  Summary: Deliverable N° 2.3 gives an overview on findings of the current honey and apiculture market in Indonesia and Ethiopia. Next to honey and other bee products, the market results target especially SAMS related fields like data usability and SAMS technology modules. An overview is provided on the following aspects:

  - Target market
  - Bee product landscape
  - Competition
  - Pricing and forecast

Picture: Results of Market Survey – Overview.

By GIZ

SAMS Hardware, Software and Data Warehouse Updates …

PROGRESS IN PROTOTYPE DEVELOPMENT

At the University of Kassel, the development of the final prototype as well as the sensor case continued under difficult conditions during the Covid-19 lockdown. For the sensor case, different printing materials as well as wire mesh and printed plastic grid were tested. This resulted in the latest prototype, which is currently used in the bee colonies for data collection at the bee experimental site of University Kassel.

Pictures: 3D printing the sensorcase, (Printer: ZMorph VX, Material: ABS; left); Insert sensor honeycomb in hive (centre); Mounted components SPH0645, DHT22, DS18B20 (right).

By UNIKAS

ALTERNATIVE CASE FOR THE MONITORING SYSTEM BY UNILV

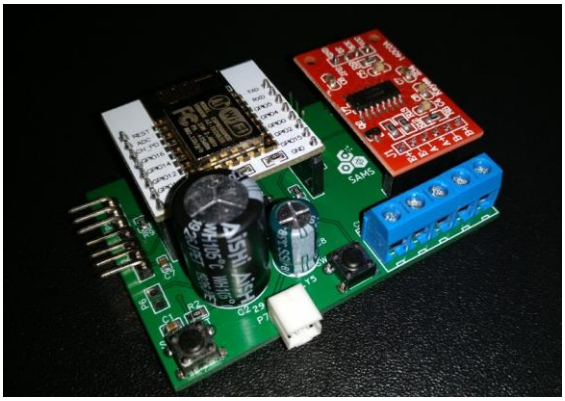
LLU team created a 3D model of the case to safely use the SAMS monitoring system in the open environment.
All the details and dimensions of the case will be available on the SAMS website in near future.

Design and assembling of the casing for the SAMS bee colony monitoring system is in progress to test it in the real environment.

Pictures: Vitalijs Komasilovs working on the sensor case (left); 3D printed sensor case (right).

By UNILV

ESP8266 BASED MONITORING SYSTEM



Picture: ESP8266 based monitoring system.

Considering the user needs, the SAMS team is constantly upgrading and improving the SAMS bee colony monitoring hardware.

Now, an energy efficient system based on ESP8266 Wi-Fi microchip is developed, which can be used for individual colony weight, temperature and humidity monitoring. It is possible also to add additional temperature sensors for ambient temperature monitoring.

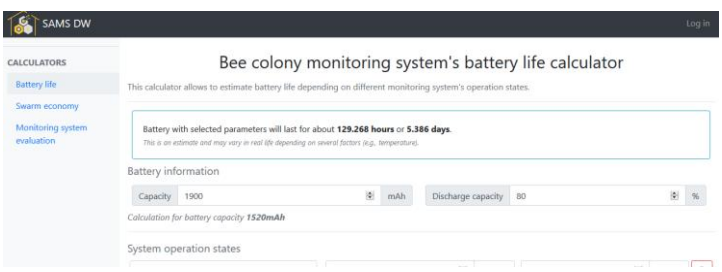
This module can be powered from rechargeable standard AA batteries and depending on measuring intervals system can operate for several months.

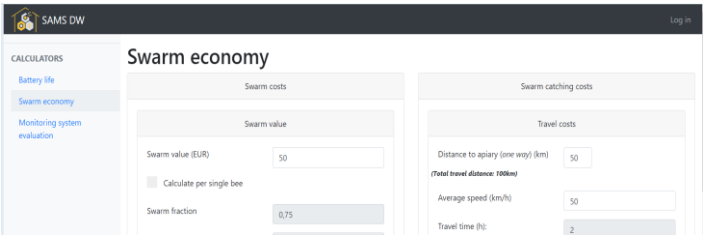
By UNILV

BEE COLONY MONITORING SYSTEM'S BATTERY LIFE CALCULATOR, SWARM ECONOMY CALCULATOR AND ECONOMIC EVALUATION OF REMOTE MONITORING SYSTEMS

UNILV developed three calculation models and implemented them in the SAMS DW. The calculators are publicly available on our website.

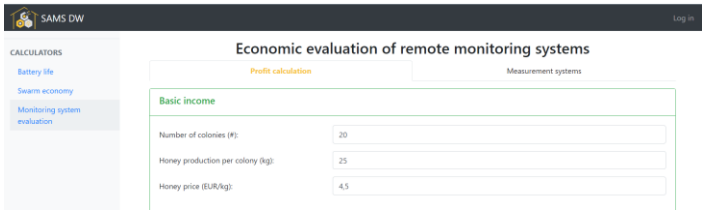
Bee colony monitoring systems`s battery life calculator allows to estimate battery life depending on different monitoring system´s operation states.





The swarm economy calculator calculates the costs of catching an absconded or swarmed bee swarm.

The economic evaluation of remote monitoring systems calculates the profit when using a monitoring system.



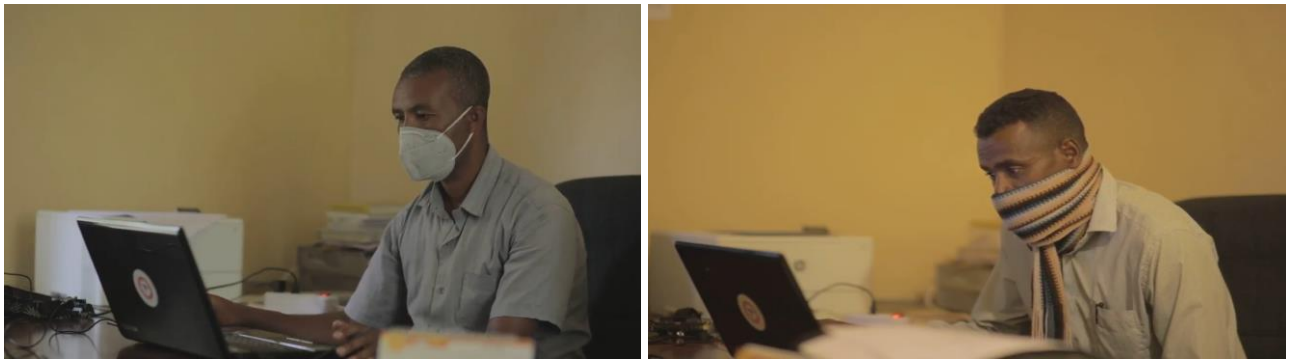
By UNILV

SAMS DSS implementation tests in Ethiopia and Indonesia

IMPLEMENTATION AND DSS USABILITY TESTS - ETHIOPIA

The last couple of months we were focused on how to implement the SAMS system in five new locations, giving the usability test for beekeepers and maintaining the existing SAMS prototypes in Holeta and Menagesha site back to a fully working condition. Yet the epidemic has become the number one challenge all around the world and also here in Ethiopia, putting us in a certain delay. Traveling in and out of Addis Ababa and other places in Ethiopia were banned by the government for some time to stop the spreading of Covid-19. When we got the chance to be mobile, with great precaution we managed to give the DSS usability test for beekeepers for those that have access to the internet and for those which use smartphones. We are working on retrieving old data logs offline and updating the SAMS prototype system in Holeta and Menagesha site.

Iceaddis executed the DSS UI test on 4 experienced beekeepers at Holeta on Jun 4 and 6. Four of the beekeepers are closely working with Holeta institution and have at least one year experience in beekeeping practice.



Pictures: Iceaddis team working in times of corona.

By iceaddis

RESEARCH AND IMPLEMENTATION AMIDST COVID-19 PANDEMIC - INDONESIA

Since the first case was announced in early March, cases of Covid-19 transmission have continued to increase exponentially in Indonesia. The Government of West Java has launched large scale social restrictions; people are encouraged to stay at home, traveling across regions is not permitted, this situation certainly forces us to think creatively. There are actually three agendas that need to be done from last March up to these months. They are user research, DSS usability testing, and SAMS monitoring system's implementation. Up to this date, we've done user research remotely and usability tests are on its way. Our interview sessions are mediated using tools such as WhatsApp Video Call and

Lookback. Luckily for the user research, there are no significant challenges. Our beekeeper respondents were already quite familiar with smartphones and Whatsapp Video Call. The DSS interface usability testing will take place this week (3rd week of June 2020), we hope there will be no significant challenges. The biggest challenge is certainly on the monitoring system's implementation plan. Currently we are still strategizing on how to carry our systems to the apiary site without the potential to transmit or contract the risk of Covid-19. There are 2 NodeMCU systems and 8 RasPi systems waiting to be implemented.

By CVPI (+ Labtekindie)

Partnership Activities

SAMS PARTNERSHIP NEWS BY HOLETA

The SAMS consortium is developing International Partnership on business development, data management and utilization and technology and services for sustaining the results and ideas developed within the project. The major intent is to ensure that the developed technologies, knowledge and gained experience are changed into business and usable ideas that can help achieving sustainable economic development. Research institutes, universities, startups, scientists, private companies, public organizations and ministries already showed great interests to join at least one of the partnerships in support of creating an international platform for networking and foster dialogue on development of the beekeeping sector.

Among the consortium members, HOLETA, UNPAD and CVPI (+Labtekindie) already committed to join the international network of SAMS business development partnership to play a mentorship role, promoting the SAMS system, facilitating knowledge exchange between partners, support research and capacity building activities on bee-related issues and share research results with the community groups that are involved in the apiculture sector including beehive manufacturing.

UNILV and UNIGRAZ will be involved in the international partnership on data management and utilization. The focus of this partnership will include knowledge exchange and research on issues of data management and usability, refinement and promotion of the SAMS Data Warehouse and management of the SAMSwiki platform in collaboration with other bee-management system providers. This partnership also includes optimization/mainstreaming of the Decision Support System for bee-management and health issues. Apiculture and related sectors, scientists from various disciplines, economic communities, and policies are among the beneficiaries of this partnership.

UNIKAS and HOLETA discussed to engage the international partnership on technology and services by focusing on knowledge exchange and research on issues of bee-management and -health services, refinement of the SAMS technology for bee monitoring and optimization of the HIVE system and conduction of research to optimise honey bee selection to improve bee health and productivity.

By Holeta

SAMS Capacity Building Activities

06.2020 – CB ACTIVITIES IN ETHIOPIA

A capacity building (CB) training was conducted from 12-13 June 2020 by dividing the participants into two groups due to Corona. This CB training was planned to be conducted in April 2020 but due to the coronavirus pandemic, the training was postponed. However, through discussions with the district and zonal administrations, an agreement was reached to conduct the training open air with only limited numbers of participants.

The CB training was conducted to introduce participants to the SAMS monitoring system and to increase the knowledge of the participants on the ten bee management rules and bee health related issues. The feedback collected from both groups of participants indicated that the system fits perfectly their needs, if the price of the monitoring system fit their

economic status to afford the services. Besides, we focused on some beekeeping topics. For example, how to increase production and productivity, the use of the SAMS monitoring system in different disciplines of beekeeping (queen breading, honey yield improvement, pollination services) during the training. However, the trainees underlined the need for future capacity buildings to raise knowledge and awareness of beekeepers, extension agents and all groups were concerned on how to get more practical knowledge on the application of the beehive monitoring system and how to integrate the utilization in to different beekeeping systems.

Picture: Talk about bee health and management (left) and about the SAMS beehive monitoring system to the splitted groups of participants (right).

By Holeta

05.2020 - BUSINESS MODEL WORKSHOP

Saturday, May 13, 2020, the Webinar activity with the theme "Maintaining Momentum of Honey Bees Business and Beekeeping Products Post Covid-19 with an Innovative Business Model" was carried out by the UNPAD team. The activity of this webinar was attended by around 60 participants. Dr. Dwi Purnomo, STP., M.T., was the speaker in this webinar and explained the importance of maintaining the momentum of honey demand that increased during the Covid-19 period. One way is to understand the business model being run and the development that needs to be done. Innovation can be done on products offered, business models, or marketing.

In addition to providing knowledge on the importance of understanding BMC in business development, this webinar also aims to find and screen beekeeping business owners who are interested in becoming part of the 20 SAMS business plans from Indonesia. Later, interested participants will be selected and given mentoring regarding a deeper understanding of BMC as one form of the benefit provided.

Pictures: Webinar in Indonesia during the Covid-19 pandemic.

By UNPAD

05.2020 - Bee breeding and health in the light of SAMS

Brodschneider Robert from UNIGRA conducted a CB-activity with biology teachers in Vienna. Covered topics were bee breeding and health in the light of SAMS. A total of 16 participants learnt about practical tools used for beekeeping and bee breeding, bee health and bee breeding basics and possibilities of monitoring systems for queen breeding. Corona measurements were taken seriously by wearing masks throughout the whole event.


Pictures: Participants of the course learned about bee breeding and health in the light of SAMS. Corona measures demand mouth/nose protection.

By UNIGRA

Other Exciting News and Project Activities

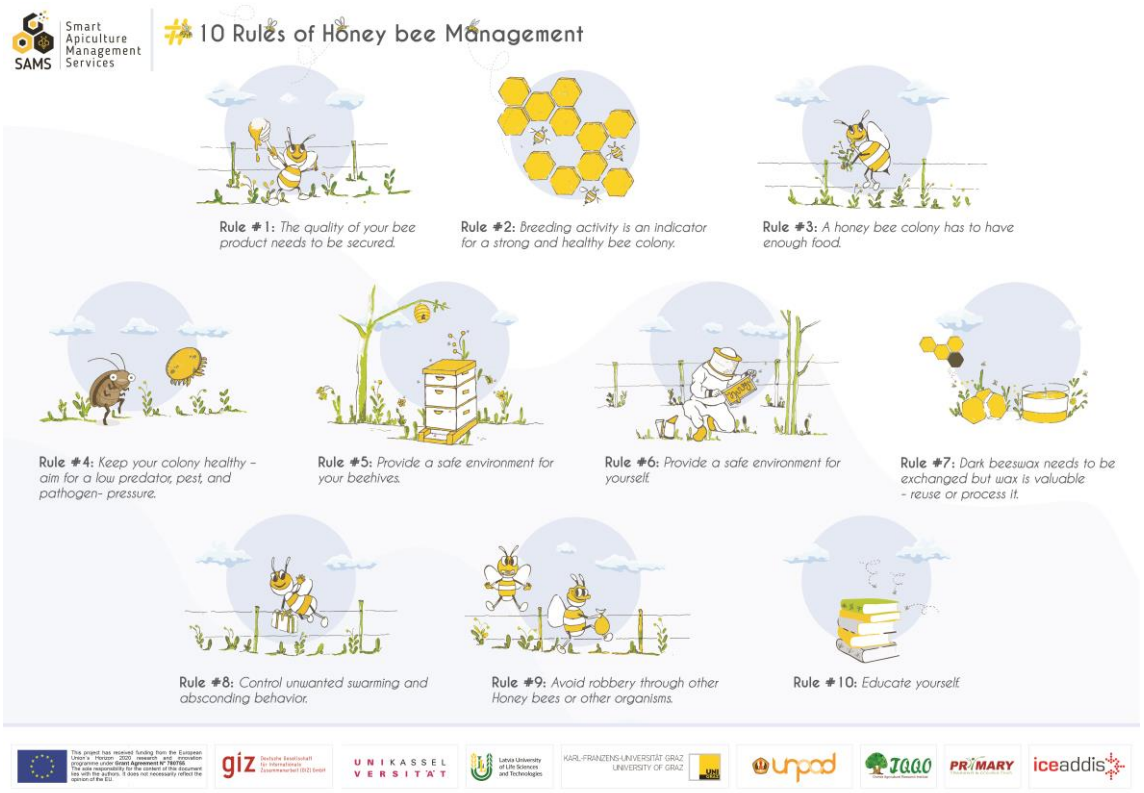
FINAL SAMS CONFERENCE IS PLANNED FOR NOVEMBER 2020

Since SAMS is coming to its end we would like to announce our final conference planned for end of November. As you all know under current circumstances it's hard to say which format will be possible. Therefore, the project team plans currently to conduct the conference physically with an on-line stream to ensure access to the interested audience world-wide – especially in the project regions Indonesia and Ethiopia.

By GIZ

10 RULES OF HONEY BEE MANAGEMENT WERE ILLUSTRATED (DRAFT)

Iceaddis beautifully illustrated the 10 rules of honey bee management. The illustration can now be found on the SAMSwiki.



Picture: Illustration of 10 rules for honey bee management.

By iceaddis

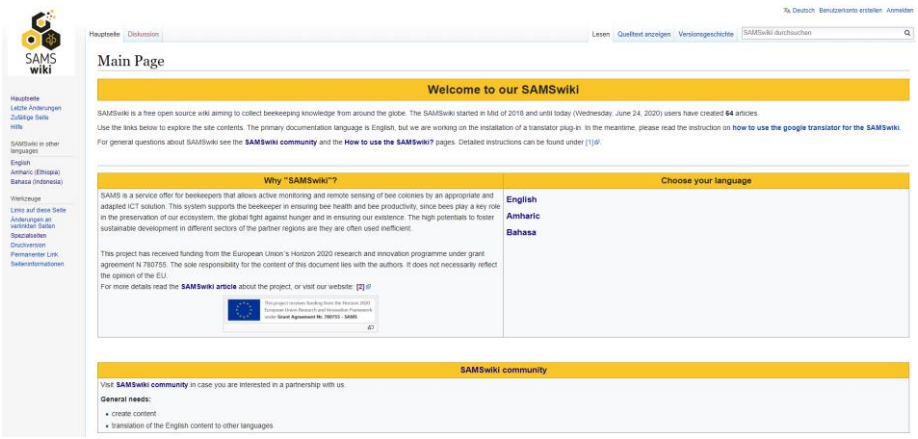
NEW VIDEOS ON YOUTUBE - INDONESIA

The SAMS video, shot at the Bandung Bee Sanctuary (BBS) launch event is available on the SAMS-Indonesia YouTube channel. The launching of the Bandung Bee Sanctuary (BBS) was carried out by Universitas Padjadjaran in January 2020 in Bandung, Indonesia. This video can be found at URL: https://youtu.be/rKC0oy1FVkw

By UNPAD

SAMSWIKI MAIN PAGE WAS RESTRUCTURED

In addition to the SAMS website, the SAMSwiki was restructured once again to improve usability. Visitors are able to click on the preferred language and they have quick access to important pages, for example “how to use the SAMSwiki?” and the “SAMSwiki” community.



By UNIGRA

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