

SAMS- NEWSLETTER

www.sams-project.eu

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@SAMS_EU_H2020

PROJECT ACTIVITIES

7th SCM (VIRTUAL)

NodeMCU AND SOFTWARE IMPROVED

CORONA INFLUENCES SAMS

NEW SENSOR CASE PROTOTYPES

USABILITY TESTS

UNRESTS IN ETHIOPIA AFFECTS SAMS

IMPLEMENTATIONS IN INDONESIA

CB-ACTIVITIES

BUSINESS DEVELOPMENT IN
PROGRESS

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FINAL CONFERENCE IN NOV.2020

FINAL PROJECT ACTIVITIES

UCD GLOSSARY

DSS INTERFACE AUGMENTATION

BUSINESS IDEAS

PUBLICATIONS

CONFERENCES

FAO TALK

8th SCM (VIRTUAL)

REPORTING PHASE

DEAR SAMS COMMUNITY,



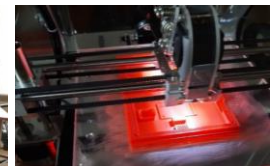
Smart
Apiculture
Management
Services

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

Project activities from July to September 2020

EVERY PROJECT MUST COME TO AN END

The SAMS project hit its last quarter and will officially end in **December 2020**. With this last project newsletter, we want to say thank you to all of our readers and supporters and we want to share some SAMS-project impressions with you:



We were able to develop our SAMS-system from scratch to a functioning and already implemented bee monitoring system. This took us some intermediate steps.

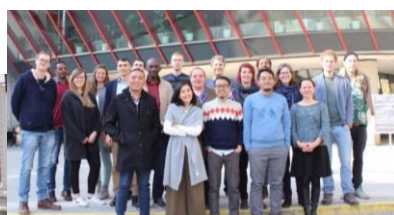
We conducted 28 capacity building events, which were attended by 613 people from Europe, Ethiopia and Indonesia.



Last but not least, during the past 2.5 years, the project partners grew into a community. We think that this team spirit made the SAMS project to something very special and facilitated the development and pursuing of new ideas.

We did a lot of UCD research and further developed 54 business models and evaluated the most promising 11.

We visited 23 conferences and exhibitions. We published 8 articles in scientific as well as popular journals.

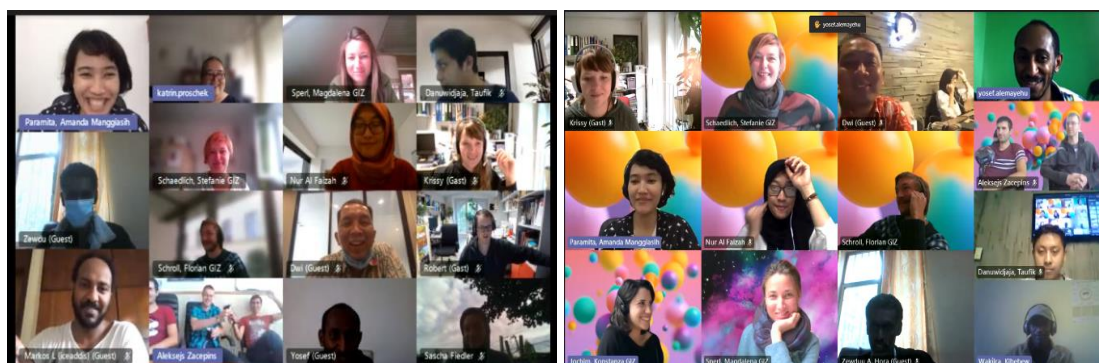


By UNIGRA

09.2020 - 7TH STEERING COMMITTEE MEETING – unfortunately this time as virtual meeting

The 7th SAMS Steering Committee Meeting took place as virtual meeting from September 23 – 25, 2020. As some of our readers may know, the SAMS team had to face some barriers in the previous month, not only due to COVID-19, but also due to unrest and internet shutdowns in Ethiopia. Therefore, it was even more a wonderful surprise that the meeting worked out very well without any bigger technical issues. As SAMS reaches now its last quarter of the project the consortium intensively discussed the progress of the last 6 month which were in all countries hardly influenced by COVID-19, such as the SAMS system implementations. Nevertheless, the consortium were able to define approaches to overcome barriers and further implement SAMS systems, ensure support for generated SAMS Business Models, develop more processing models as use of generated [SAMS data](#), continuously update and integrate important content to the [SAMSwiki](#), discuss the signing procedure of [SAMS Partnership](#) agreements and the SAMS Final Conference, to which all of our readers are invited. Please [register on our SAMS website](#) for the Final Conference, which will take place Nov 25-26,2020 as online event.

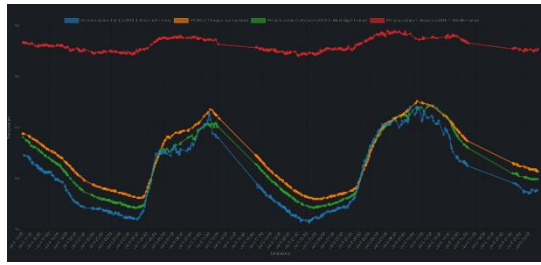
Finally, let´s all cross fingers that Covid 19 does not hits us all hardly again and that drawn plans are possible.



By GIZ

NodeMCU AND SOFTWARE IMPROVED

Partners from CV.PI continued to locally assemble two monitoring systems based on the NodeMCU platform. Together with the UNILV partner the systems were constantly improved and tested. All the necessary parts for such systems are affordable and available at the local Indonesian market. The power-saving architecture of the NodeMCU platform allows it to enter a deep sleep mode to conserve power, therefore it is energy efficient and perfect to be used for battery powered applications. Two NodeMCU based monitoring systems equipped with multiple temperature sensors, a humidity sensor and a load cell for weight measurements were implemented in Maribaya, Indonesia for two *Apis cerana* colony monitoring. Three sensors in total were placed inside the hive in order to monitor temperature in different places of the hive in order to determine the optimal sensor location. As tests proved, the sensor placed in the middle provided the most reliable temperature measurements. Such tests also proved the flexibility of the SAMS data warehouse - connections from different monitoring systems.



Pictures: Top: data from a monitored *Apis cerana* hive (left), monitoring system based on NodeMCU (right); Bottom: Monitoring system in a *A. cerana* hive. Pictures by CV.PI.

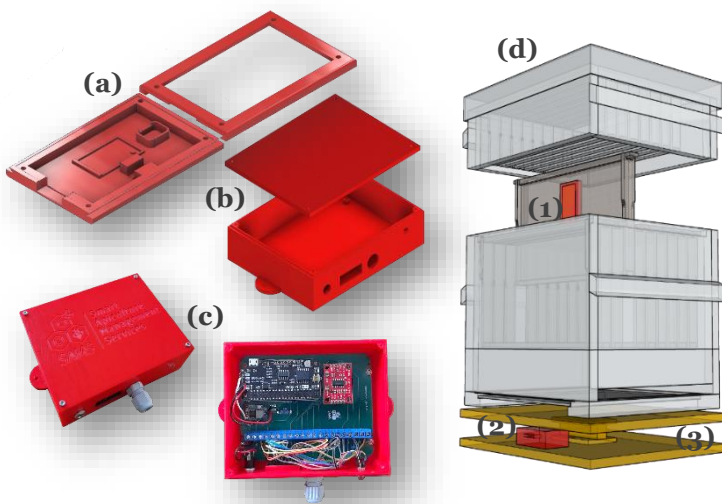
By LLU

MANUAL ON HIVE CONSTRUCTION AND OPERATION

The official instructions for the construction and operation of the SAMS HIVE system and the alternative based on NodeMCU have been published for [download](#) and can be found on our [website](#) in the Reports section. Additionally, the latest software image version 2.47 for the SAMS HIVE system based on Raspberry Pi as well as a Quick Start manual are also available on the [SAMS Github page](#).

By UNIKAS

CASE MODELS



The latest versions of the CAD 3D models for the sensor case (Figure 1) and the case for PCB and computer (Figure 2) have been completed. Figure 3 and Figure 4 show a sketch of the respective installation positions of the SAMS HIVE main components as well as the computer case in the original, equipped with a SAMS PCB. The 3D models can be downloaded as STL files from the [Github page](#) of the SAMS project.

By UNIKAS

Pictures: SAMS HIVE system sensor case (a) and computer case (b), computer case with PCB (c) and SAMS HIVE system installation positions (d): sensor frame (1), Computer (2), Scale (3; right)

DATA COMMUNICATION (D6.3)

In August 2020, the report on Data Communication was submitted. This report covers information on the data communication process within the implementation phase of the SAMS HIVE monitoring system. Several options regarding network and coverage to maintain the data communication process are also identified, including options for data package types despite regulations and conditions applied in each country (prepaid, postpaid, Machine to Human data package, or Machine to Machine data package). Challenges that are encountered regarding the data communication process in Ethiopia and Indonesia are:

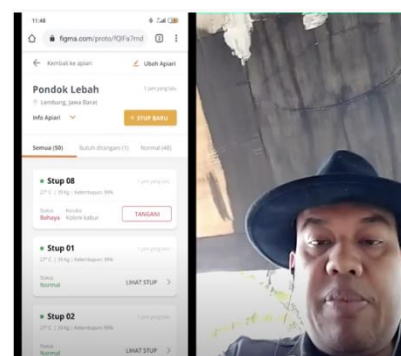
- ✂ Network stability in Ethiopia (router with 2G capabilities)
- ✂ Lack of IT expertise for the application of a quick solution/fixing of problems at the installation sites of Holeta and Gedo, causing that the systems in Ethiopia are not operating
- ✂ Availability of healthy bee colonies during the dry season
- ✂ Instability of the firmware, which will be approved

By CVPI (+ Labtekindie)

USABILITY TESTING DSS INTERFACE (INDONESIA)

The DSS interface usability testing was conducted in June 2020. Due to the pandemic, we initiated the usability testing remotely. Our researchers interacted with the respondents, mediated by a usability testing app, namely Lookback. In total, 5 beekeepers participated. We selected the respondents carefully from various beekeeper spectrums; young beekeepers who practice certain beekeeping activities as part of the beekeepers' community, experienced beekeepers, and grassroots beekeepers. Usability testing was conducted to investigate how beekeepers from different backgrounds use and understand the DSS interface's design as well as solutions provided by SAMS technology. Some of the major findings were:

- ✂ Beekeepers are unfamiliar with certain terms in the copywriting
- ✂ Beekeepers were unable to see the difference between the in-app guidance page and the real page
- ✂ Beekeepers are doubting the advice feature of the DSS interface, many of them see that the advice provided is unfit with the beekeeping method they used to do



Picture: Beekeepers test the DSS interface.

Recently, it was decided to iterate the DSS interface design once again.

By CVPI (+ Labtekindie)

SAMS DSS implementation tests in Ethiopia and Indonesia

IMPACTS OF CURRENT UNRESTS IN ETHIOPIA ON SAMS PROJECT IMPLEMENTATION

Ethiopia is dealing with unrests since October 2019. Especially, the unrest happened after the killing of the famous singer Hachalu Hundessa at the end of June 2020 have led to shock waves of anger, resentment, and frustration throughout Ethiopia. This unrest caused a serious challenge to the SAMS project implementation due to internet shutdowns to disrupt online communications by the government to prevent the circulation of unwanted news. This condition has lasted for about a month causing break-offs in communication between our international and national partners. On top of this, the unrest preceded by many small-scale conflicts in various areas and made movements very difficult, which impacts project implementation. Coupled with the unrests, the surging state of the COVID-19 pandemic, caused the stacking of outdoor project works and resulted in delayed field implementation of beehive monitoring systems, preventing conduction of capacity building trainings planned in the last four months and activities like honey market value chain analysis surveys and advisory board meeting activities in Ethiopia.

By Holeta

SAMS BEEHIVE MONITORING IMPLEMENTATION ACTIVITIES - ETHIOPIA

Even though new SAMS beehive monitoring systems couldn't be implemented, 13 SAMS monitoring systems that stopped the data upload due to an old image failure were re-implemented by replacing the old image with the new one (version 2.47). The systems are located at three places, namely Holeta, Menagesha and Bako. The new beehive monitoring system implementation is planned to be conducted in Addis in the month of **September** in collaboration with the team from iceaddis. A total of six monitoring systems in Addis Ababa is planned. As Internet coverage and security issues in Addis is better than in the other areas, we decided to start field implementation first in the capital to get more data uploaded to the SAMS data warehouse for the prototype validation works. If the situation allows it, Holeta together with iceaddis intend to extend the implementation locations further to areas like Bonga, Horo, Wolmera and Ginchi. We already selected beekeepers and prepared to implement 37 beehive monitoring systems. So far, lots of beekeepers showed interest to use the monitoring systems and collaborate in future partnership in providing data to develop SAMS in Ethiopia.

By Holeta

IMPLEMENTATION AND MODERN BEEHIVE WORKSHOP - INDONESIA

During the past months, we implemented 2 NodeMCU systems at Mr. Koswara's apiary in Maribaya, Bandung. Despite the COVID-19 pandemic, we decided to keep going as long as we are able to follow the health protocols. We see that the implementation itself was rather safe since it was conducted in an outdoor location and only three persons were involved. In terms of implementation, CV.PI intended to go forward. We are planning to scout more participating beekeepers and apiaries for the next implementation of 35 systems. So far, we have encountered Mr. Wanto as a prospective beekeeper who shows interest in modern and innovative ways of beekeeping. Mr. Wanto is an experienced beekeeper, who owns hundreds of *Apis cerana* in his apiary in Ciamis, West Java (more or less 116 km from Bandung). Currently, he has cooperated with the Provincial Forestry Agency to develop a *Trigona* Breeding Centre. We have established communication with Mr. Wanto and planned to organize a modern beehive workshop in his apiary in Ciamis, along with Mr. Koswara in Lembang, and Mr. Aep in Dago. We hope that this workshop could provide a mutual way of implementation, as well as a session to co-create a modern beehive that fits the needs of local beekeepers.



Picture: Implementation workshop.

By CVPI (+ Labtekindie)

Transfer Studies

CROSS REGIONAL TRANSFER STUDY

HOLETA Team is currently working on a Cross Regional transfer study, which deals with the transferability of SAMS related technologies and businesses into 10 other regional settings within Sub-Saharan Africa, 10 within ASEAN regions as well as 1 for the EU. In this study, the process in which technologies and innovation obtained from research studies, experiences, knowledge sharing and information about specific settings and established partnerships, developed business ideas and scenarios communicated to the potential stakeholders, settings and target groups will be assessed. SAMS as a whole, as well as all SAMS modules are separately under investigation regarding their effects, need for potential adaptability in different regions and the possible impacts due to use within different user groups in these regions. Analysis on how SAMS benefits different stakeholder groups such as beekeepers, political conditions, environmental preconditions, future potential, user community etc. are the major focus of this study. Moreover, the study examines potential of the transfer countries and regions for the use of the SAMS system.

By Holeta

ESTABLISHMENT OF SAMS PARTNERSHIPS

To ensure long-term impact of the project achievements, SAMS is establishing three international partnership networks between stakeholders from the EU, Asia and Africa. The partnerships are developed in the spirit of promoting international collaboration and knowledge exchange within the apiculture sector and scientific society. The partnerships aim to foster modern and precision beekeeping and to sustain, refine and disseminate SAMS products and ideas with the objective is to support small-hold beekeepers in managing bee health and bee productivity. Several stakeholders from the international and national apiculture and scientific society have already expressed interest in collaboration within the partnerships. In order to formalize the partnerships, a Declaration of Intent (DoI) has been developed by the SAMS consortium and will be signed by members of each partnerships' steering boards during a signature ceremony at the SAMS Final Conference in November 2020. The steering boards include stakeholders from Europe, Asia and Africa and will represent the management structure of each partnership.

By GIZ

CALL FOR PARTNERS

The International Partnership on Bee Colony and Knowledge Exchange is currently looking for partners. The partnership aims to foster research on bee -colony data and international knowledge exchange on bee- colonies, the SAMS system and beekeeping. Activities will focus on (1) data research and mainstreaming of the SAMS Data Warehouse (DW), and on (2) development of the SAMSwiki platform:

- ✿ SAMS DW: knowledge exchange and research on data management and utilization issues and mainstreaming of the SAMS Decision Support System (DSS) and DW, as well as support in accessing and using the SAMS Data Warehouse with your monitoring device
- ✿ SAMSwiki: knowledge exchange on issues of bees, bee health and bee productivity through SAMSwiki content creation and management as well as development of the platform. To foster international knowledge exchange on beekeeping, the partnership is developing a [SAMSwiki Community](#).

For more information on the partnership and to contact the consortium for cooperation on bee data research, connecting your bee monitoring device to the SAMS DW or to collaborate within the SAMSwiki community, please contact us via the SAMS partnership application form [SAMS partnership application form](#). Partnership applications for the International Partnership on SAMS Business Development (PS1) and the International Partnership on Technology and Services (PS2) are closed.

By GIZ

INTERNATIONAL PARTNERSHIP ON SAMS BUSINESS DEVELOPMENT

The SAMS consortium establishes an International Partnership on Business Development to ensure the sustainability of the SAMS project ideas. The partnership aims to foster business development in the apiculture sector and to promote the SAMS technology. Activities will focus on supporting apiculture business development through mutual learning and knowledge exchange on issues of modern and precision beekeeping as well as on trade and marketing of SAMS products. The major intent is to provide accessibility to the technologies, knowledge and experience gained during SAMS project time to foster smart apiculture business development, hence promoting sustainable economic development. Research institutes, universities, start-ups, scientists, private companies, public organizations and any stakeholders of the apiculture society are invited to join the partnership to join forces for the development of an international network of professionals in this field and to foster the dialogue on development of the beekeeping sector. Until August 2020, about 50 stakeholders showed interest in cooperation and applied to join the program. Main partners are: Agricultural Research Institute Holeta Bee Research Centre ("HOLETA"), University of Padjadjaran ("UNPAD") and Sacita Muda Indonesia Elaborasi ("Local Enablers"). They will soon sign the Declaration of Intend to formalize their role as steering board members of the partnership. They express intent to act as mentors for apiculture businesses, 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 involved in the apiculture sector.

By Holeta

BUSINESS DEVELOPMENT

54 SAMS Business Models have been developed by start-ups, SMEs and students in different business development activities supported by UNPAD and ICEADDIS as well as UNILV, UNIKAS and UNIGRA. The SAMS Business Models range from honey reselling, digital market places, beekeeping supply, beekeeping products for health and beauty to tourism, education and technology incl. remote monitoring beehives, DSS, PCB, data warehouse etc.

In order to identify the five most promising SAMS Business Models per country and one for EU, the UCD group set-up an evaluation and rating process in three steps: Step 1 cross-country evaluation, Step 2 virtual discussion within the UCD team, Step 3 evaluation and rating by experts. The most promising SAMS Business Models are:

Ethiopia:

- ☛ Anabi by Anabi - Smart beehives with monitoring system and DSS
- ☛ Daemat by Daemat - Digital Market Platform for agricultural products
- ☛ Birzz by Yiblu - Honey healthy energy product
- ☛ MbeeHive by MbeeHive - Modern beehives
- ☛ Kekros by Kekros Ethiopia - Beehives with monitoring systems

Indonesia:

- ☛ Masagi by Masagi - Production and sale of honey derivative products
- ☛ Madu Cantik (MaCan) by Herbal Khansa - Production and sale of honey beauty/cosmetic products
- ☛ Laduni Mutiara by Apiary Laduni Mutiara - Developing of *Apis mellifera* apiaries and selling genuine honey
- ☛ Madu Hanjuang by Madu Hanjuang - Reselling pure, good-quality honey
- ☛ Bandung Bee Sanctuary by Bandung Bee Sanctuary - Beekeeping educational center and beekeeping research and community empowerment in Bandung/Indonesia

Europe:

- ☛ Remote Monitoring System (for beehive observation, for monitoring of bee colonies for queen breeding, for selling and renting)

The most promising ones will be supported in funding, licencing and certification in association with the business partnership network. All SAMS Business Models will be available soon on the website and on SAMSwiki.

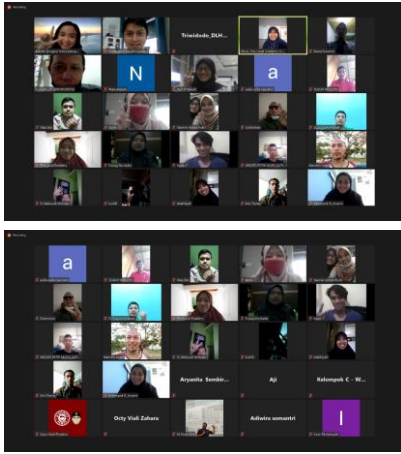
By GIZ

SAMS BUSINESS MODELS – ETHIOPIA

Between Jun/2020 - Aug/2020, iceaddis contacted SME's and startups to involve their business concepts in the SAMS business development process. Afterwards, 10 business concepts were developed through one on one follow ups with the business teams. In total, 21 individuals were directly involved in the process. Among those, 7 of them were female and 19 belong to youth. The 10 developed business concepts were rated by the SAMS partners and the most promising 5 were selected for further follow-up with the startups.

By iceaddis

SAMS BUSINESS MODELS – INDONESIA



Picture: Zoom meeting participants.

In July 2020, the UNPAD team carried out the final drafting and reporting activities on 24 SAMS Business Models from Indonesia. These 24 business models were produced by the UNPAD team and interested SME partners. The activities have been carried out to obtain 24 business models started from developing honey derivative products in 2018, developing a local beekeeping IoT system, developing beekeeping tourism, Ideathlon in 2019, and conducting a webinar in 2020 to find SMEs who are willing to join this activity. The activity was hampered due to the Covid-19 pandemic that entered Indonesia, which limited the movement of the UNPAD team to carry out business model creation activities. The team counteracted by conducting several virtual Zoom-meetings.

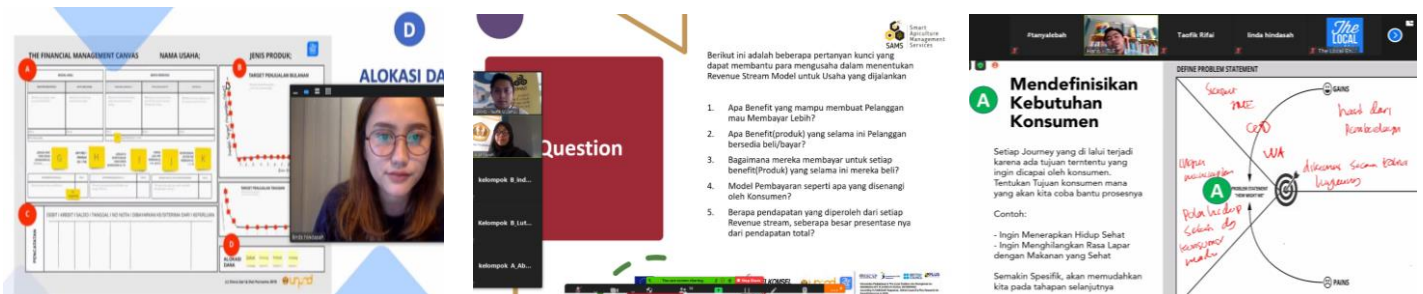
1) INNOVATIVE BUSINESS MODEL INCUBATION - KICK-OFF (JULY 3, 2020)

The UNPAD team launched an Innovative Business Model incubation program for beekeeping businesses. A total of 180 participants registered, around 80 participants were accepted to take part in the incubation program batch 1. This incubation program is expected to have an effect on strengthening the MSME business model in the beekeeping business, changing mindsets and increasing the capacity of business actors, strengthening the business ecosystem, and strengthening the community's economy. This incubation program will focus on introducing the Business Model Canvas and a deeper understanding of the blocks contained in BMC so that participants are expected to be able to create and describe the business model they are running.



Picture: Business model incubation kick-off event.

2) INNOVATIVE BUSINESS MODEL INCUBATION (JULY – AUGUST, 2020)



Pictures: impressions of the online meeting.

This event was for business actors in the beekeeping sector, aiming to increase the capacity of participants in understanding their business model by using the business model canvas as a tool. The event was carried out in six meetings with the following topics:

- ☞ July 10, 2020 - Improving the Quality of Customer Relationships
- ☞ July 17, 2020 - Designing Product Excellence based on Customer Needs
- ☞ July 24, 2020 - Work Management with Impact
- ☞ August 7, 2020 - Mapping Key Partners
- ☞ August 14, 2020 - Financial Management
- ☞ August 28, 2020 - Diversification of Revenue Streams

The speakers for this incubation activity were members of The Local Enablers team and the UNPAD SAMS team. In addition to the main session, the participants were also given a special discussion time in small teams to provide opportunities for everyone to understand and master the learning material more deeply, assisted by facilitators from The Local Enablers.

3) INNOVATIVE BUSINESS MODEL INCUBATION – INAUGURATION (SEPTEMBER 4th, 2020)

The Inauguration of Innovative Business Models Incubation for beekeeping and bee derivative product actors has been carried out with a keynote speaker from Lingkar Temu Kabupaten Lestari (LTKL). This inauguration activity is the closing of a series of workshops offered by the SAMS UNPAD to business people in the beekeeping sector.

In this last session, the incubation participants were given an increased understanding of their role as ecological actors. Business activities in the beekeeping sector play an important role in maintaining the sustainability of various types of flora, especially those that become sources of human food, in addition to other types of flora that can maintain the balance of nature. The speaker, who was presented from LTKL, was Adinda Aksari, Deputy Director at LTKL.



Picture: Key note speaker at the innovative business model incubation event.

By UNPAD

SAMS Capacity Building and Dissemination Activities

NEW SCIENTIFIC ARTICLES SUBMITTED

♣ SAMS project, its objectives and already achieved results was submitted to the International Journal of Agricultural Sustainability. Decision from the journal editor is still in progress.

♣ "When it pays to catch a swarm - evaluation of the economic importance of remote honey bee (*Apis mellifera*) colony swarming detection" submitted to the journal of Environmental and Resource Economics is still in a review phase.

By LLU

♣ An article on experimental setup of the SAMS HIVE systems at the University's apiary was published in the Project and Research Guide of the Experimental Plant for Irrigation and Solar Technology within the Department of Biosystems and Engineering at the University of Kassel. It can be downloaded [here](#).

By UNIKAS

INDONESIAN MONTHLY TEAM MEETING – SEPTEMBER 4, 2020

Within the virtual meeting, the preparation for the SAMS Final Conference in November was discussed. The discussion focused on the concept of the SAMS Final Conference to be implemented, the video content that needed to be created, and the target participants. In addition, there is a factor that is of particular concern to the Indonesian team, it's the condition of Covid-19 in Indonesia, which the case is still significant increase every day. This makes the concept of a local public viewing obsolete.

By UNPAD

MUC CONFERENCE (HUMAN COMPUTER CONFERENCE) – SEPTEMBER 7, 2020

Learnings

- Major learning: HCD is good to create innovation but sometimes a more direct
- Face to Face meetings were very essential to build the team collaboration and mutual trust
- I should have started UCD earlier before starting in this project
- Developer's mind context: When we work on requirements it is very important to visit the implementation sites to be able to understand before you develop
- Time frame process which is not enough time to arrange especially if you consider the difference between Indonesia, Europe and other countries
- Find the right communication tool which fits the engagement of the group
- Adapt to changing team constellation and be still efficient

SAMS is an IoT system, sensors in beehives are taking data like hive temperature and Weight continuously. We implemented this system in Indonesia and Ethiopia, very challenging contexts that required a lot of research effort. Hardware had to be adapted to local needs and availability, which was a huge challenge. Software on Smartphone was developed in 3 languages to enable Beekeepers to use the sensor data to improve their beekeeping. It was an enormous challenge to establish communication and co-working over such a large team. There were company regulations as well as huge differences in work culture. A lot of time was lost to organize communication. Finally we succeeded by organizing quite a few face-to-face meetings and organized smaller working units and were able to establish a good workflow following main HCD process rules.

Picture: SAMS at the Mensch und Computer conference on September 7th.

The Mensch und Computer (MuC) conference is an annual conference organized by the German Informatics Society (Gesellschaft für Informatik e.V.) and the German Usability Professionals Association (German UPA). With more than 800 participants in the past, the Mensch und Computer (MuC) is one of the largest German-speaking IT conferences and the largest Human Computer Interaction conference in Europe. This year, SAMS joined the MuC conference to share the experience of international collaborative works within the SAMS project for the past 2.5

years. It was concluded in the talks, that in order to succeed a collaborative UCD teamwork with multi-discipline and various background team members, sensing journey or site visit plays an important role. The empathizing phase could help each team member with their respective background to understand the problem or challenge's context.

By CVPI (+ Labtekindie)

Citizen Science Conference – SEPTEMBER 7, 2020

Due to Covid-19, the 5th Citizen Science Conference was held online but still was attended by more than 200 people from different science disciplines. Gratzner Kristina from UNIGRA presented the SAMS poster to the audience.



Picture: SAMS poster was presented at the CCC 2020.

By UNIGRA

Other Exciting News and Project Activities

SAVE THE DATE: SAMS FINAL CONFERENCE AT 25TH AND 26TH OF NOVEMBER

Since SAMS is coming to its end we would like to announce our final conference planned for end of November. Due to the global COVID 19 Crisis, the event will be held 100% virtual. However, there will be “public viewing events” conducted by the different project partners in the various regions of the SAMS project.

The topics of the conference comprise precision apiculture, policies in apiculture, bee health, apiculture in the development context, data monitoring in apiculture and data management.

The planned talks of the conference will be published soon on the SAMS project website.

Please, register for the SAMS Final Conference via the registration form on our homepage.



By GIZ

SAMSWiki Updates



SAMSWiki- Status quo

	77 chapters and subchapters
	106 uploaded files
	124 articles
	207 literature references
	20 users

Picture: SAMSWiki-Status quo (09/2020)

NEW CONTENT AND GOOD DEVELOPMENT

The [SAMSWiki](#) is an important and valuable outcome of the SAMS project. During the past years, we were able to constantly improve the availability of the content and the knowledge database itself. We already translated some of the content into [BAHASA](#) (Indonesia) and [AMHARIC](#) (Ethiopia), and we included some of the many SAMS project findings ([SAMS-system based recommendations/management options](#), or [SAMS - Labels and certifications for bee products](#)). With new content creators, languages, literature sources and expert knowledge, the content will further be increased. By the way: have you already thought of supporting the SAMSWiki project? Please visit the SAMSWiki, [create a new account](#) and be part of our publicly available knowledge database.

By UNIGRA

Final project activities

UCD GLOSSARY – IN PROGRESS

UCD (User Centered Design) Glossary was initiated at the beginning of the project to help the UCD teamwork with the same definition of the terms. This was initiated by Katrin as SAMS advisory board member and grew along with the UCD team process in Indonesia and Ethiopia. After UCD research processes are pretty much done, it is decided to publish the glossary in the hope of providing information and hints for the public who attempt to do UCD research themselves. Instead of publishing only the terms and its definition, the UCD team decided to add the context of use on several terms in the form of stories on how the UCD team in respective countries encounter the terms. The development of the stories is still progressing right now. These stories will also serve as material for reports, the script of the final conference presentation, etc.

By GIZ

USER CENTRED DESIGN & BUSINESS DEVELOPMENT – COMING UP

In the last three project months, the User Centred Design & Business Development tasks will be finalized:

- ✂ The UCD Glossary will be made available for public on the website and on SAMSWiki
- ✂ The DSS interface will be adapted
- ✂ The 54 developed SAMS Business Models will be made available for public on the website and on SAMSWiki
- ✂ The 11 most promising SAMS Business Models will be supported in funding, licencing and certification in association with the business partnership network
- ✂ UCD lessons learnt and results will be highlighted in Deliverable D2.2, the evaluation of the business models will be pointed out in Deliverable D2.4 and the evaluation of the business models in terms of licences will be in Deliverable D2.5

By GIZ

TALKS – COMING UP

- ✂ Robert Brodschneider (UNIGRA) was invited to speak in front of the Food and Agriculture Organization of the United Nations (FAO) in an online event on October 30th. The talk deals with the non-western look at bees and beekeeping with a special focus on two SAMS project target countries Ethiopia and Indonesia.



By UNIGRA

PLANNED SCIENTIFIC PUBLICATIONS – COMING UP

☛ “Transition of *Apis mellifera* beekeeping in Ethiopia - from traditionalism to modern” (review article) in “Journal of rural studies”

☛ Working title “SAMS - decentralized bee colony monitoring in Ethiopia and Indonesia” in “Proceedings of Science”

By UNIGRA

PLANNED CONFERENCES – COMING UP

☛ Partner from Latvia will participate in **XI International Agriculture Symposium "Agrosym 2020"**, which will be held online in October, 2020. SAMS monitoring system based on ESP will be presented there, as well as economic aspects of precision beekeeping will be presented and discussed

By LLU

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Thank you