

SAMS –Newsletter

Vol. 4, June 2019

www.sams-project.eu

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.

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- 2.3. BMZ Policy Paper "Digital Development" in Bonn

3. Look out – project activities and conferences

- 3.1. 07. 2019 Co- Creation Prototyping Workshop, Bandung, Indonesia



@SAMS_EU_H2020

Upcoming Events

Monthly Dissemination, Bandung, Indonesia

07. 2019 Öko FELDTAGE 2019, 3. - 4.7., Germany (UNIKAS)

07. 2019 SAMS Co-Creation workshop, 1. – 8.7., Bandung Indonesia

07. 2019 Indonesian Development Forum (IDF) 2019, 22. – 23.7., Jakarta, Indonesia

09. 2019 – Apimondia, 8. – 12.9., Montreal, Canada

09. 2019 – 5th SAMS Steering Committee Meeting, 19. – 20.9., Brussels, Belgium

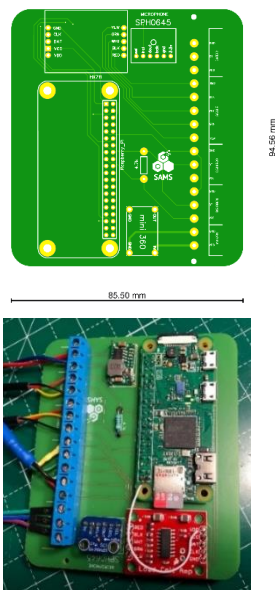
1. Project activities since March 2019

Implementation of prototype monitoring systems

First prototypes of the SAMS Monitoring System were built during a workshop with the team of the University of Kassel in Indonesia and Ethiopia in March and April and have been set up in five bee colonies in each country. Now bee acoustics as well as weight, temperature and humidity of the bee colonies are monitored and the data are transferred to the web server of our project partners from the LLU in Jelgava, Latvia. There, the data is stored and organized in a data warehouse designed by LLU.



Pictures: Implementation of the first SAMS Monitoring System in Ethiopia and Indonesia



New ideas for further development could be collected from the problems and conditions on site, which are currently being implemented at the University of Kassel. For example, they have been seeking simple connectors which are also available in Ethiopia. A PCB design was also developed which uses as few solder connections as possible to reduce soldering times under difficult conditions such as power cuts (left picture). The implementation of PCBs in Indonesia and Ethiopia will take place at the beginning of July. In each country 10 more monitoring systems will be installed and data will be sent. One of the further steps will be the development of a robust case for the monitoring system. In the future, it will be possible to print the case easily using a 3D printer.

Pictures: Printed circuit board (PCB) for SAMS Monitoring System

By UNIKAS

SAMS website - News

New sections were added to the website: "SAMS related topics", a video section, a calendar and the latest tweets are shown in the right sidebar.

By UNILV

Bee colony monitoring at the test site of University of Kassel

A further study on bee monitoring started in May at the UNIKAS: colonies are monitored with the second prototype. The acoustic information (frequency, relative strength), the temperature in the hive and its weight in a certain interval are recorded (figure below) and acoustic monitoring with high-performance microphones runs in each bee colony (24/7). Together with the data obtained from bee monitoring in Ethiopia and Indonesia, a DSS will be developed by the LLU Jelgava, Latvia. Next steps will be initiated within a co-creation workshop with all project partners in Bandung, Indonesia in July this year. For data evaluation and accurate logging of the behaviour and the health condition of the bee colonies, an enhanced requirement is set for the beekeeper during the weekly inspection. To simplify logging, a smartphone application was developed, called “SAMS Beehive-Protocoll”.



Pictures: Left: SAMS test site at UNIKAS; right: Smartphone app for protocolling behaviour and health status of bees.

By UNIKAS

Doctor Thesis of SAMS Latvian partner finalized - Congratulations Armands!

The SAMS Latvian partner Armands Kviesis (LLU) has finalised his doctoral thesis with the title “Application of decision support system in control of multiobject biological system”. The [summary is available](#) on our SAMS website.

By UNILV/ GIZ

SAMS scientific survey – first impressions and extended deadline

Presently the SAMS UCD team is conducting an online-survey among scientists in EU countries, Ethiopia and Indonesia. Purpose of this survey is to learn how scientists of different disciplines would use SAMS data in order to accomplish a user centred interface- and interaction-design approach for future data provision and representation. We invite every researcher interested in beehive data to participate:

https://www.soscisurvey.de/sams_survey

The survey is online until 31 July 2019. It is available in English and Indonesian.

By GIZ

Beehive showcase

A showcase with the SAMS Monitoring System was built for demonstration purposes. It was already presented at the BMZ event on "Digital Development" at the beginning of June in Bonn and will be exhibited next at the [Organic Field Days](#) in Grebenstein, Germany (see below)



Pictures: Beehive with SAMS Monitoring System and transparent face as well as scale unit as showcase

By UNIKAS

Publication news

“When it pays to catch a swarm - evaluation of the economic importance of remote honey bee (*Apis mellifera*) colony swarming detection” is prepared and submitted to the Journal of Economic Entomology (<https://academic.oup.com/jee>). Paper preparation was a collaborative work of partners from Latvia, Austria, Indonesia and Ethiopia.

Another scientific paper with the possible title “Evaluation of the economic gains of the bee colony remote monitoring” is in preparation process. The main idea is, to calculate and describe possible benefits of IT system implementation to the beekeeping practice.

By UNILV

DWH development progress

Data warehouse is operating and data from several devices are coming to it. DWH user interface is updated and modified. Device data is demonstrated to the end user in a user friendly way. Next step of the DWH development is implementation of several rules for data analysis and bee colony state identification and the implementation of Fuzzy logic. For better user experience, it is planned to implement workspaces within SAMS DWH. The idea behind it is: to provide functionality for grouping user defined objects like apiaries, devices and reports, and to implement sharing of such groups with other DWH users for collaborative work (under development).

A swarm economy calculator is implemented as a web tool to the SAMS DWH system and is publicly accessible at sams.science.itf.llu.lv. The tool is used to evaluate the economic benefit of going to the remote apiary and catching a swarm. User can change several parameters to adapt the calculation model to the local peculiarities.

By UNILV

Country activities - Ethiopia

Situation of Beekeeping and its Implication for SAMS Business Development

As mentioned in one of our previous newsletters, beekeeping in Ethiopia is a longstanding tradition. If beekeeping would be properly supported and if the huge potential would be tapped, business development/commercialization of beekeeping activities would be relatively easy in Ethiopia.



Pictures: left: Tej in special glass, ready for consumption. Right: Purified table honey.

HOLETA plans to play a strong role for the private sector in establishing business relationships and commercialization of different SAMS products. In this approach, private sectors will take the lead in mobilizing beekeepers and providing training and other embedded services. HOLETA's complementary support services include: enhancing the capacity of private companies to establish business relationships and develop export competitiveness, strongly work with other local and international partners in facilitating and developing SAMS businesses and the extension of SAMS techniques, promoting the increased engagement of youth and women.

By Oromia Agricultural Research Institute, Holeta Bee Research

04. 2019 - 2nd Local Advisory Board Meeting, Addis Ababa, Ethiopia

Representatives from 9 different organizations were attending the 2nd local Advisory Board meeting: Asefa Amaleddegn (Agricultural Transformation Agency; ATA), Markos Lemma, Florian Mandescheid and Yosef Alemayehu (ICEADDIS), Yetnayet Girmaw (SNV-Ethiopia), Gemechis Legesse, Taye Negera and Kibebew Wakjira (Holeta), Juergen Greiling and Negas Bekana (Ethiopian Apiculture Board; EBA), Rita Nedif (GIZ-Ethiopia), Hailegeorgis Demissie (BEZA Mar), Demisew Wakjira (Ministry of Agriculture, Honey) and representatives of Sericulture Directorate.

Project activities since the 1st local advisory board meeting and future perspectives were presented by Kibebew Wakjira. Markos Lemma presented a SAMS technology overview and expected output and progress in local UCD activities. The presentation on experience of the ASPIRE project on value chain development (previous project) by Yetnayet Girmaw (Sector Lead- Apiculture Development Programme, SNV Ethiopia) gave important lessons on the role of the government support for successful project implementation and in creating environment and facilitating collaboration among different government and non-government institutions. He also faced out on the importance of agro-dealers, lead farmer beekeepers as input suppliers and extension

agents and embedded services through lead firms for sustainable technology transfer, access to market and quality inputs supply.



Pictures: left:some Advisory board members; right: presenting and explaining the SAMS project activities

By Oromia Agricultural Research Institute, Holeta Bee Research

Country activities - Indonesia

03. 2019 - Prototype Implementation Process in Indonesia, Ciwidey, West Java



Picture: top: D'Bees team help us install the prototypes; right: one of the detected cicadas

After conducting several stages of UCD research, it was time to implement the prototype. We chose Mr. Debby (D'Bees Apiary in Ciwidey) as the subject of the prototype implementation because his characters were in accordance with the Persona of **New Generation Beekeepers**. In Ciwidey, Mr. Debby's bee colonies are spread on a hill, with uneven ground contours, and very tight vegetation. This has made it a little difficult, to install some prototype parts such as solar panels and electric wires. It was also nice that Mr. Debby and his team took a lot of parts in helping us while on the site, as well as actively took part in this project phase. During the prototype implementation process, we also observed and discovered **another interesting thing; the presence of cicadas, a noisy insect**.

This can be a challenge for the prototype, specifically for the sound sensors. Despite the presence of other sound sources

from the ecosystem are buzzing loud around the colony, we hope that the sound sensors inside, can still detect the sound of the bees.



By CVPI

03. 2019 - Mini Talkshow and Discussion Vol. 2, Bandung, West Java

On March 23rd, Labtek Indie organized for the 2nd time a Mini Talkshow and a corresponding discussion entitled "Tap Into Modern Beekeeping" and Sascha and Andreas from University of Kassel became speakers.

Located at FISIP A Building - Padjadjaran University, Bandung, Sascha talked about urban beekeeping in Berlin and how it gained popularity since the rise of environmental awareness movements. Berlin as a big city also has a good garden and park ecosystem, so the bees have no trouble producing honey. Andreas explained about Smart Apiculture, where the existence of sensor technology that measures sound, weight, and temperature can help to maintain the ideal condition of the beehive and the health of bees.

This Mini Talkshow also became a session of Dwi Purnomo and Tanti Sofyan for sharing process, concerning the importance of the stages of UCD research and social engineering in this project. Although the audience that came to this event were not big, we managed to capture new people, interested in beekeeping and startup businesses.



Pictures: left: Sascha and Andreas were talking about smart and urban beekeeping; right: group picture after discussion

By CVPI

Meetings

04. 2019 – UNPAD and SITH ITB, Bandung, West Java

On 1 April 2019, UNPAD Team conducted a meeting with the School of Life Sciences and Technology, Bandung Institute of Technology (SITH ITB) to include the view from external experts in the project activities. This meeting was held to win over SITH ITB, with their experts on insects and pollination, at our SAMS Indonesian Advisory Board. The results of the meeting also opened various possibilities for other collaborations in apiculture research and technology that can support environmental conservation and business. Among them were, the utilization of educational forests around Geulis Mountain which indirectly becomes the headwaters/upper course of the Citarum River through beekeeping, community Empowerment through training in processing honey derivative products for residents around Geulis Mountain and the involvement of ITB and UNPAD students in the research process.



Picture: SAMS team and SITH ITB group picture.

04. 2019 – UNPAD and Research and Development Agency, West Java

On 23 April 2019, UNPAD Team conducted a meeting with the Research and Development Agency of West Java Province (BP2D Provinsi Jawa Barat). They agreed on joining the SAMS Indonesian Advisory Board. Other than that, they will support our project and make collaborations in the research of honeybees, they will analyse data from the SAMS technology which can be used for climate research, integration of agriculture, plantation (farming) and beekeeping. They also said that this project could be used as a regional innovation and requested a schedule of research to be conducted.



Pictures: top: UNPAD and BP2D participants during the meeting, bottom: group picture of the participants.

05. 2019 – UNPAD and CVPI, Sumedang Regency, West Java

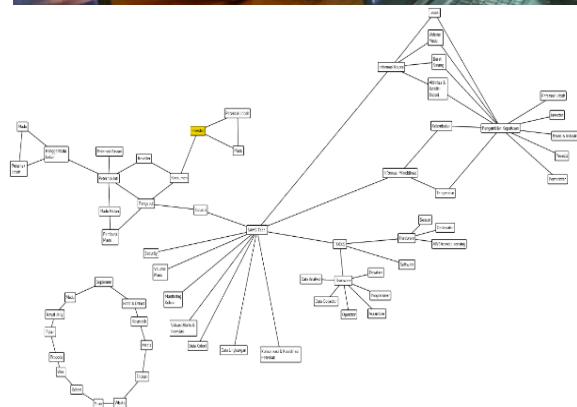
On 1 May 2019, the Indonesian SAMS team's (UNPAD and CVPI) monthly meeting was held in Jatinangor, Sumedang. During the meeting, UCD activities were discussed and the upcoming implementation workshop from 1 July to 7 July was planned.

05. 2019 – UNPAD and Common Room, Bandung, West Java

UNPAD Team held a meeting with Common Room to discuss the business plan and business development of SAMS. Meeting topics were the supply chain of beekeeping to determine the target users and possible consumers segment of the SAMS technology and to brainstorm about products that can be produced by SAMS. Mapping of stakeholders was carried out based on the position of each stakeholder that play a role in the supply chain of beekeeping products.

Several possible business opportunities:

- Brainware: Data Analyst, Data Collector, Operator, Assembler, Programmer, and Designer
- Software and Hardware: Sensor, Geolocator, AWS/remote sensing
- Honey product and derivative product



Pictures: top: Working on the business development of SAMS, bottom: supply chain mapping.

05. 2019 – UNPAD and Indonesian Apiary Association, Bandung, West Java

On 15 May 2019, UNPAD Team conducted a meeting with the Indonesian Apiculture Association of West Java Region (APIDA Jabar) represented by Mr. Rasjid. They agreed on joining the SAMS Indonesian Advisory Board. In addition, this meeting resulted in several research and collaboration ideas related to the development of Apis mellifera in Central Java. The results of this meeting will be followed up by the signing of the MOU between UNPAD and APIDA and a visit to the honey bee farm in Central Java in July.



Picture: Group picture of the SAMS team and Mr. Rasjid (Indonesian Apiary Association)

By Universitas Padjadjaran

05. 2019 - Mini Seminar “Bees the Pollinators: Unnoticed Heroes”, West Java

On 27 May 2019, UNPAD and CVPI held a mini seminar with the topic: “Bees the Pollinator: Unnoticed Heroes”. Speakers were Dwi Purnomo (Unpad) and Ramadhani Eka Putra (Institut Teknologi Bandung). They talked about the important role of pollinators, especially those of bees, and their influence on human life. The participants who came were from several circles, including students, lecturers, local government, West Java of Forestry Service and beekeepers.



Pictures: top: speakers and moderator of the mini seminar, bottom: group picture of the participants

By Universitas Padjadjaran

Conferences and Events

05. 2019 – 2nd World Bee Day Celebration Event, Addis Ababa, Ethiopia

Holeta team participated and presented SAMS to the audience (presentation and poster). The panel discussion was attended by over 200-delegated participants from the whole Ethiopian Apiculture sector, including actors from all segments of the value chain, public, private sector partners and donors. The discussion was honored by the presence of the State Minister Dr. Gebreigiziaber Gebreyohannis (Federal Ministry of Agriculture, MOA of Ethiopia), Mr. Daba Debele (Head Bureau of Agriculture, Oromia State) and other higher political officials.

Presentations and discussions dealing with the current threats of bees around the globe, Ethiopian and worldwide perspectives and current technological advancements in beekeeping were held during the event. The state minister as well as other participants emphasized the 20 minutes presentation about SAMS but also pointed out their expectations and concerns related to capacity building for sustainability after the project phase out. “Looking forward” calls for concrete action were a major point of reflection during the following discussion.



Pictures: top: H.E. Dr. Gebreigiziaber Gebreyohannis, State Minister of Ministry Agriculture of Ethiopia and other officials; bottom: presenting SAMS

By Oromia Agricultural Research Institute, Holeta Bee Research

05. 2019 - AGRIBUSINESS 4 Change, Addis Ababa, Ethiopia



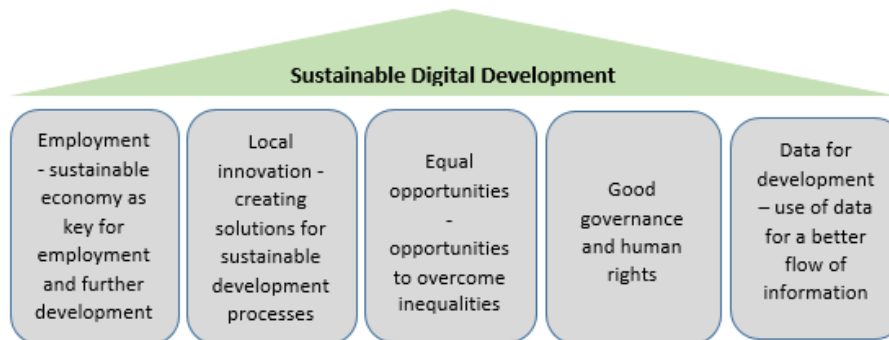
Picture: The Ethiopian SAMS team presents SAMS to the audience at the Agribusiness 4

The conference took place from May 7 to 9 and was organized by GIZ in partnership with Green Innovation Centre and the Ethiopian Agricultural Transformation Agency. More than 175 persons attended it from different parts of the world. The focus was on maintaining emphasis on entrepreneurship in agribusiness, with particular attention on youth, related policy, and large-scale action. The Ethiopian SAMS partners from HOLETA and iceaddis participated in this International event and presented SAMS in the innovation market with banner, poster, flyer, newsletters and SAMS technical aspects to the conference participants.

By Oromia Agricultural Research Institute, Holeta Bee Research

05. 2019 BMZ Policy Paper “Digital Development”, Bonn, Germany

SAMS has participated at the official presentation of the BMZ policy paper "[Digital Development](#)" in Bonn May 29, 2019 and presented the second pillar “Local Innovations”. The paper outlines five pillars as strategic framework for addressing challenges effectively and exploiting the potentials powerfully.



By GIZ

LOOK OUT: 07. 2019 - Co- Creation Prototyping Workshop, Bandung, Indonesia

After the first prototype monitoring systems have been set up in Indonesia (03.19) and Ethiopia (04.19) SAMS has to define next steps in regards to the software. Next steps are now to review the user and to prioritize the user requirements for the development of the SAMS software products: (1) the Decision Support System and (2) the Advisory Support System.

Therefore, all SAMS partners will participate in the CO-Creation Prototyping Workshop in Bandung, Indonesia in July. The overall goal is to create prototypes of the Decision Support System and the Advisory Support System with focus on user centred design.

By GIZ
