

AI-Driven Climate-Smart Beekeeping for Women (AID-CSB): Environmental Health For Human Rights

2022 Final Technical Report

The AID-CSB project works to narrow the gender digital divide and support rural women’s livelihoods and biodiversity.

The world is in need of income-generating activities that do not come at the cost of the environment. Low-income countries in dry climates are of particular risk and vulnerability, and in need of profitable activities that not only avoid further degradation of natural environments, but also ideally support and sustain a biodiverse ecosystem. Beekeeping presents such an opportunity and is also unique in its ability to be leveraged by women, particularly in contexts where they may not own land and other productive assets or may be expected to stay at home.

Beekeeping requires strong baseline knowledge of management practices for bees, regular support from local experts in the face of new challenges, and strong monitoring, documentation, and planning by the beekeeper. This is where the opportunity for the Beekeeper’s Companion application came in, as a digital colony management tool.

In light of the above, this project was conceived to support biodiversity and enable improved honeybee colony management

among women by leveraging traditional knowledge and technical assistance to become more productive beekeepers.

First, the project leveraged a participatory design and user-research process with women beekeepers to localize a honeybee colony management app.

Then, the project worked to facilitate adoption and use of the app and expand app features and project activities to generate data and awareness on linkages between bee and environmental health, and beekeeper activities.

In 2022, the AID-CSB project piloted a localized hive management app in new regions, raised awareness on the linkages between beekeeper activities and environmental health, and tested new features based on user feedback; narrowing the gender digital divide and supporting rural women’s livelihoods and biodiversity.

Key achievements of the AID-CSB project in 2022 at the country level include:

ETHIOPIA



UZBEKISTAN



By empowering women beekeepers and supporting their livelihoods, the protection of environmental health supports human rights.

Four key findings this year included:

1. **New digital skills among women beekeepers:**

In 2021, 15 women beekeepers in Ethiopia with little to no smartphone experience received digital literacy training. During follow-ups in person and on Telegram in 2022, it was witnessed that these women had increased knowledge and confidence in many key skills¹, particularly sharing screenshots and photos of their beekeeping activities, which is of high importance for beekeepers for their own historical records, exchanging ideas and advice with other beekeepers, and seeking help from beekeeping experts.

2. **Young women's leadership in workshops:**

In the 2021 final report² we noted that in the beekeeper workshops in Uzbekistan (which are majority women but contain a few men beekeepers), men dominated the group discussion/question sessions and few women spoke up. This year we witnessed a positive change in the workshop, where young women took the lead to present feedback and men beekeepers were conscientious not to interrupt or speak on behalf of women.

3. **Lack of transparency on pesticide use and policy:**

To better understand the key stakeholders in the regulation and handling of pesticides in Uzbekistan and raise awareness on the linkages between bee and environmental health, and

beekeeper activities, several key stakeholder interviews were conducted in Uzbekistan, but with notable hesitancy to meet in-person and have conversations recorded or take photos, and deferral to managers to answer questions.

4. **The symptom checker provides helpful guidance:**

A new 'symptom checker' feature was prototyped based on beekeeper feedback and tested, yielding positive feedback from beekeepers and specific suggestions on how to improve the feature for the local contexts.

Way forward:

Beekeepers see the value and potential of the app together with the support of local and international partners; not only in the service provided to the individual beekeeper in hive colony management support, but also how the data can work to increase beekeepers' opportunities in three ways:

1. Market access, honey authenticity, product differentiation, and strengthened livelihoods
2. Additional income through biodiversity credits and eco-payments
3. Access to microloans and financial inclusion



A beekeeper in Ethiopia shows her apiary, explaining how her honey bees pollinate her apple and avocado trees, which in turn provide forage for her bees.
Photo Credit: Laura Becker, ICARDA

- 1 Field Visit to Amhara Beekeepers: Expanded Digital Literacy & App Training <https://mel.cgiar.org/projects/aid-csb/538/field-visit-to-amhara-beekeepers-expanded-digital-literacy-app-training>
- 2 AI-Driven Climate-Smart Beekeeping for Women in Ethiopia and Uzbekistan | Final Project Report 2021 <https://repo.mel.cgiar.org/handle/20.500.11766/67516>