

IASS-Blogpost

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Energy Access, Water, Sanitation, and Food Security in Rural Areas: Insights from Rwanda

What kind of help do remote rural villages in developing countries need to sustainably improve their infrastructure? What is the state of electricity supply and services, the availability and quality of cooking solutions, and the quality of water access in these settlements? Is there a nexus between access to basic services and nutrition in these areas? And, if a project is implemented, how can progress made at the household level be monitored, reported, and evaluated? These questions are at the heart of the project [“Action-Based & Impact-Driven Research: Establishing Collaborative Frameworks for Researchers, Impact Makers, and Sustainable Entrepreneurs \(IMPACT-R\)”](#).

I launched this project within the framework of my Klaus Töpfer Sustainability Fellowship at the [Institute for Advanced Sustainability Studies](#), where I focus on investigating the nexus between access to energy, drinking water, sanitation, and hygiene (WASH) as well as food security in remote regions, further developing the digital solutions developed by my company, [HEDERA Sustainable Solutions](#).

IMPACT-R was designed to build upon the latest international standards for reporting on achievements towards the United Nations Sustainable Development Goals, (SDGs 2, 6, and 7) and has four main objectives:

- (i) Developing frameworks for identifying needs;
- (ii) Training local staff in the use of digital tools for raising awareness of community needs;
- (iii) Empowering local organizations to report to third parties that support their activities, about their achievements and future plans; and

! Zum Aktualisieren der Textelemente, Zitation markieren und dann F9 drücken !

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(iv) Enabling impact assessments at household level, to monitor improvements in access to electricity and cooking solutions, WASH, and nutrition, by harnessing the advantages of digital tools.

Launched in December 2020, IMPACT-R began by identifying frameworks and measurement tools in the fields of energy access, WASH, and food security, and then adapting the software and digital tools to enable data collection, analysis, and automatic reporting. The first phase selected the [Multi-Tier Framework \(MTF\)](#) for energy access measurement, developed by [The World Bank's Energy Sector Management Assistant Program \(ESMAP\)](#); the [Joint Monitoring Program \(JMP\)](#) framework for WASH from the [World Health Organization \(WHO\)](#) and [UNICEF](#); and the [Food Insecurity Experience Scale \(FIES\)](#), an experience-based metric of household or individual food security, developed by the [Food and Agriculture Organization of the United Nations \(FAO\)](#). The methodologies were selected for implementation in a series of data collection campaigns involving microfinance institutions and non-governmental organizations in Africa, Latin America, and South Asia.

Data Collection in the Field

Initial data collection consisted of a baseline study and in-depth needs assessment, conducted together with the [Sustainable Villages Foundation \(SVF\)](#), a Berlin-based organization that aims to design and implement a model to foster sustainable development in remote rural regions suffering from deficient infrastructure. For a pioneer study, SVF selected a pilot community in Rwanda, the twin settlements of Bisagara and Rugarama (collectively called Bisagara, a village of approximately 600 households with over 2,600 inhabitants) in the Bugasera region in the Eastern District of Rwanda.

Methodology

The baseline study consisted of household data collection (245 households) and in-depth focus group discussions with different stakeholder groups, conducted over a ten-day period in April 2021. The household survey consisted of about 250 questions. In addition, a household roster was included with a detailed set of control variables for further analysis.

The focus group discussions centered on the current situation and status of the village and the future vision, challenges, and solutions related to the development of the twin settlements. The participants included shopkeepers, primary school teachers, secondary school students in their final year, members of three different farmer groups and members of a savings and credit cooperative organization (SACCO).

Digital Tools for Household Data Collection & Technical Setup

As part of the IMPACT-R project, a household questionnaire was made available to all participating organizations via an Android app. HEDERA provided technical support for the setup of the digital tools and monitoring during field data collection.



The questionnaire entailed energy, WASH, and food security surveys, optimized to take into account the local context (lack of grid connection, additional techniques for water collection and storage, available appliances, etc.). Besides standard question types, the survey included GPS location data as well as the possibility of taking photos.

Preliminary Results

Out of the 600 households in the village, 245 randomly selected households were surveyed, and seven focus group discussions took place. Based on the focus group discussions and in-depth conversations with the community, access to clean and safe drinking water was identified as the main priority. Several leaders and decision-makers in the village, such as the secretary of the Juru sector, secretary of the Juru cell, Chiefs of Bisagara and Rugarama, SACCO manager, local nurse, Catholic Church representative, and primary and secondary school headmasters, actively participated in the discussions.

Five students from the University of Rwanda were trained to collect field data. The project had a valuable impact at the personal level for the team working in the field. Everybody was impressed by how the community enthusiastically welcomed the study, and how the participants in the different focus groups were eager to share their views, comments, and visions. At the same time, the students were grateful for the opportunity to get in contact with these rural realities. “Every household I went to, they were thrilled to have me, they welcomed me with a smile, and they were willing to share all the information I asked about”, said one student.

The study findings underline the immense need for affordable, clean water supply and storage, an issue that was not so evident prior to the data collection. The consequences of the lack of water range from drinking of unfiltered rainwater to excessive time spent on water collection, and fatal accidents in water storage tanks. For the Rwandan students, some of the information was startling; One stated: “I did not know that there were places in Rwanda where people did not have clean water ... some households that I visited collect rainwater in plastic sheets ... the water in these plastic sheets has turned green ... and I asked them: Do you ever try and clean it, like boiling and filtering...? And they told me: How can you boil water if you even don't have wood for cooking your food?” The emptying of septic tanks also poses a challenge to the community. Urgent repairs are required to the local primary school's water system, and SVF, the water system supplier and the school are cooperating to ensure the system is repaired soon.

A technical report is planned for Summer 2021. Moreover, workshops with the African Center of Excellence-Energy for Sustainable Development (ACE-ESD) will be delivered to disseminate the results and to use the digital tools for compiling the report.



Current and Future Developments

Further data collection campaigns are ongoing in Latin America, South Asia, and Sub-Saharan Africa as part of the IMPACT-R project, in collaboration with microfinance institutions and non-governmental organizations. To date, approximately 2,500 households have been surveyed in Colombia, Haiti, Nepal, Zambia and Senegal.

Interested parties can follow-up on the work of the Sustainable Villages Foundation [here](#). Organizations interested in access to energy, drinking water, sanitation, and issues of hygiene and food security at household level are welcome to contact us using the form available on the [IMPACT-R website](#).