PROJECT OVERVIEW

AIR-C3: Applied Implementation Research for Clean Cooking in Cambodia

Overview

- **Why clean cooking?** Around 3 billion people worldwide cook with biomass fuels such as wood and charcoal. The smoke from burning these fuels creates household air pollution that contributes to millions of premature deaths each year and is linked to heart disease, respiratory illness, diabetes, and cancer.
- **What is AIR-C3?** The Applied Implementation Research for Clean Cooking in Cambodia (AIR-C3) project is a multi-year study (2025–2029) designed to understand how electric induction cooking can be adopted and used by households in Cambodia and whether it can help reduce household air pollution from cooking with biomass fuels.
- **Who's involved?** AIR-C3 brings together researchers from four U.S. universities—Emory University, University of California, Berkeley School of Public Health, University of South Carolina, and Colorado State University—with implementation led by iDE Cambodia. The study is funded by the U.S. National Institutes of Health (NIH).

Why Clean Cooking Matters in Cambodia

Wood and charcoal continue to be widely used for cooking in Cambodia, with approximately 60% of the population relying on these fuels for some or all of their cooking needs. Household air pollution from biomass cooking was estimated to contribute to approximately 18,400 deaths in Cambodia in 2021.

Beyond health impacts, cooking with biomass fuels can create economic, environmental, and time burdens for households, including spending on cooking fuels, impacts on forests and the environment, and time spent collecting fuel.

Access to electricity has expanded rapidly across the country, creating new opportunities for households to use electric cooking technologies such as induction cookstoves. As access to electricity continues to expand, induction cookstoves may offer a promising clean cooking alternative for many households.

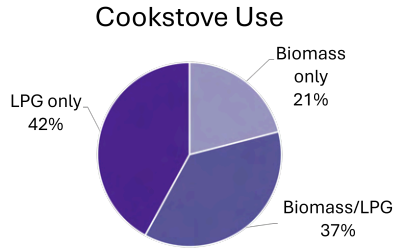
About the AIR-C3 Study

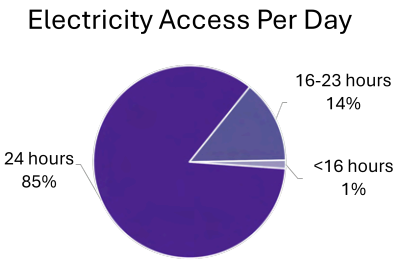
AIR-C3 is evaluating different approaches to support induction cookstove adoption and use across 65 villages in five districts: Samraong Tong, Chbar Mon, and Kong Pisei in Kampong Speu Province, and S'ang and Kandal Stueng in Kandal Province.

The study combines community-based implementation activities with household surveys, interviews, stove use monitoring, and household air pollution exposure measurements. Through these activities, AIR-C3 seeks to understand:

- Which approaches are most effective for encouraging households to purchase and regularly use induction cookstoves.
- Whether these approaches help households reduce their use of biomass fuels for cooking.
- How these approaches perform among different types of households, including lower-income households.
- The costs, benefits, and lessons learned from different approaches.

Key Insights Informing Program Design





To inform the design of intervention activities, AIR-C3 conducted household surveys and interviews with households and community stakeholders to better understand cooking practices and factors that influence induction cookstove purchase and use, as well as continued use of biomass fuels for cooking.

This work included interviews with more than 100 participants and a willingness-to-pay study involving 250 households across the five study districts to better understand affordability, purchasing decisions, and barriers to induction cookstove adoption and use.

In November 2025, AIR-C3 also completed a survey with 2,622 households across 65 participating villages prior to program implementation. Findings highlighted continued use of biomass fuels alongside LPG, widespread access to electricity, and opportunities to support induction cookstove adoption and use among participating households.

Together, these findings identified key opportunities and barriers related to induction cookstove adoption, affordability, and sustained use and informed the design of the “Changkraun Chhlat Vey” ("Smart Cookstove") program.

“Changkraun Chhlat Vey” Program

The “Changkraun Chhlat Vey” ("Smart Cookstove") program was developed to address barriers to induction cookstove purchase and use and support cleaner cooking practices in participating villages. The program promotes the ATEC eCook v3 induction cookstove, which was designed for cooking in Cambodia and includes induction-compatible cookware and a two-year warranty.

The program combines community engagement, behavior change communication, sales, and household support strategies to encourage induction cookstove purchase and use. Different combinations of these activities are being implemented and evaluated through AIR-C3 to better understand how they can support induction cookstove adoption and use while reducing reliance on biomass for cooking.




Coordination Activities
Meetings with district, commune, and village leaders support planning, coordination, and implementation of the “Changkraun Chhlat Vey” program and facilitate local engagement throughout program implementation.

Community-Level Activities
“Changkraun Chhlat Vey” launch events introduce the program, encourage reflection on challenges associated with biomass cooking, and raise awareness of induction cooking as an alternative.

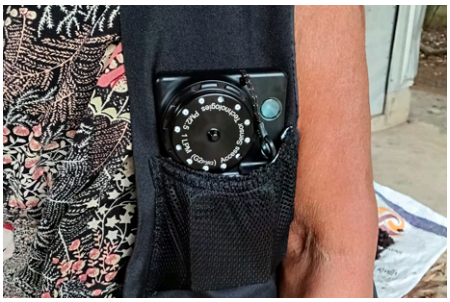
Group-Level Activities
“Changkraun Chhlat Vey’ small group demonstrations provide hands-on opportunities for households to learn about induction cooking and engage with community champions and recent purchasers.

Household-Level Activities
All purchasers receive cookstove delivery, first-use coaching, and after-sales support. In selected intervention villages, sales agents conduct door-to-door sales visits, and eligible lower-income households receive targeted purchase subsidies.

“Changkraun Chhlat Vey” Key Messages

The “Changkraun Chhlat Vey” ("Smart Cookstove") program is guided by the motto "Clean Kitchen, Happy Family." The following seven key message themes are used throughout program activities and communication materials to support induction cookstove adoption and use and encourage transitions away from biomass cooking.

 **1. Modern cooking for today’s homes:** Electric induction cooking offers a modern alternative to charcoal and firewood for households with electricity.	● Brings modern, smart cooking technology into the home. ● Designed as a modern alternative to charcoal, firewood, and LPG cooking in Cambodia. ● Through the program, households in participating villages have the opportunity to learn about and access this cooking technology.
 **2. Faster and easier everyday cooking:** Induction stoves heat quickly and are simple to use, helping reduce the time and effort needed to prepare charcoal, collect firewood, or refill LPG.	● No need to prepare charcoal, collect firewood, or refill LPG, simplifying daily meal preparation. ● Heats up quickly, helping reduce the time needed to prepare meals compared with biomass and LPG stoves. ● Multiple heat levels allow cooks to quickly and precisely adjust heat during cooking, helping ensure food cooks evenly without overcooking or burning. ● Instructions and demonstrations help households learn to use the stove with confidence.
 **3. Efficient cooking that can save money over time:** Induction stoves use electricity efficiently and may reduce repeated spending on charcoal, firewood, or LPG.	● Heat is transferred directly to cookware, reducing wasted energy. ● Efficient electric cooking may reduce repeated purchases of charcoal, firewood, or LPG. ● Available to participating households at a reduced program-supported price.
 **4. Safer cooking for families:** Induction stoves cook without an open flame and keep the cooking surface cooler, helping reduce burn and fire risks.	● Cooking without open flames helps reduce burn and fire risks. ● The flame-free cooking surface remains cooler than traditional stoves, helping create a safer cooking environment. ● Built-in safety features, including child locks, timers, and pan detection, help improve cooking safety.
 **5. A smoke-free and clean kitchen for a healthier home:** Cooking with electricity replaces charcoal or firewood and helps create a cleaner, smoke-free kitchen.	● Cooking with electricity means no smoke from burning fuels in the kitchen. ● Electric cooking produces less excess heat, helping keep the cook and kitchen more comfortable. ● Kitchens and cookware stay cleaner without ash, soot, or smoke residue from burning fuels. ● The smooth glass cooking surface is easy to wipe clean, helping households maintain a cleaner kitchen with less effort.
 **6. Cooking with confidence and support:** Induction stoves include warranty coverage and after-sales support so households can cook with confidence and get help if needed.	● The stove includes warranty protection for repairs or defects. ● Delivery and setup support help households get started using the stove. ● After-sales support is available if households need assistance. ● Opportunities are available to learn from other induction stove users. ● The stove is manufactured by ATEC, an established international cookstove company. ● The program is implemented by iDE Cambodia, an organization with extensive experience working with communities in Cambodia.
 **7. Cook the meals your family already loves:** Induction stoves work in many homes with electricity and can prepare the same dishes families cook every day.	● Cook familiar Cambodian dishes with the same taste. ● Two burners allow multiple dishes to be prepared at the same time. ● Includes induction-compatible cookware. ● Simple methods are available to check cookware compatibility.



How AIR-C3 Measures Change

AIR-C3 uses several methods to understand how households adopt and use induction cookstoves and how cooking practices change over time. Together, these activities help measure the impacts of the "Changkraun Chhlat Vey" program.

- **Household surveys:** Household surveys collect information on cooking practices, stove ownership, fuel use, household characteristics, and experiences with induction cooking.
- **Interviews:** Interviews with community members, program implementers, and other stakeholders provide insights into experiences with induction cooking and implementation of the program.
- **Stove use monitoring:** Small monitoring devices provide information on how often different cooking technologies are used and how cooking practices change over time.
- **Household air pollution exposure measurements:** Portable monitoring devices help understand how air quality may change as households adopt and use induction cookstoves.

Timeline

Program Development and Implementation

2025-2026
Learning about household cooking and developing the program

Late-2025
Pre-implementation household surveys

2026-2027
"Changkraun Chhlat Vey" program implementation

Monitoring, Evaluation, and Learning

2026-2028
Follow-up activities and monitoring

Late-2028
Post-implementation household surveys

2029
Sharing study findings and lessons learned

FOR MORE INFORMATION

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Additional Resources

- www.airc3.org
- www.freemanresearchgroup.org/airc3
- ClinicalTrials.gov: NCT06942715

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