



The TRL Improved Cookstove (ICS) Project

ONIL stoves cost Q1,200/ea, including procurement and installation. TRL subsidies make them available to our beneficiaries for Q350. The project includes an innovative educational component to empower our mostly female clientele to preserve indigenous cultural cooking traditions while adopting this new technology. The price of Q350 per stove was maintained due to its accessibility and, combined with our educational program, its ability to accelerate the uptake of the technology, promote responsible ownership, and ensure long-term stove maintenance. Our Technology Adaptation Specialist's (TAS) experience as a chef and community nutritionist, and her many years' experience cooking on the stove, makes her the perfect person to impart new cooking techniques for traditional foods. Because she can communicate with beneficiaries in their native language, she can easily communicate the significance of the stove's positive environmental impacts and obtain a commitment from the beneficiary to its correct usage.

The nearly 500 ONIL stoves TRL has installed have sequestered approximately 3,300 tons of CO₂. TRL aims to install a minimum of 600 stoves over the next five years while continuing to maintain approximately 1600 stoves installed under the Cojolya Association of Womens Weavers. Maintenance often includes the provision of energy efficiency improvements to existing biomass fired cookstoves.

TRL's digital monitoring platform tracks ONIL stove condition and net social and environmental impacts. Intake questionnaires gather general demographic information about each beneficiary and are followed by maintenance questionnaires and surveys administered over a multi-visit schedule. Within this schedule, our Outreach Team provides a unique educational component: ample environmental education alongside technological adaptation support.

Two surveys have been designed in-house: Adoption Metrics and Female Empowerment. Additionally, TRL uses the Poverty Probability Index (PPI) to track project participant poverty levels over time. The PPI is a ten-question survey designed and statistically validated for international organizations to use in tracking and combating poverty. PPI questionnaires are country specific and compare responses to a scorecard, which then compares beneficiary responses against national and international poverty lines. TRL also asks beneficiaries select questions from The St. George's Respiratory Questionnaire and Clean Cooking Alliance indicators to monitor and evaluate health outcomes. The St. George's Respiratory Questionnaire, designed by St. George's University in London, England, is also statistically backed and has been approved for randomized controlled therapy trials as well as population surveys. Each survey has a "prior" and "post" version to establish a baseline scenario and identify changes that take place during the project lifetime. Each additional instance (e.g., ONIL stove installed) mandates a minimum of five visits in the home of the beneficiary.

The ONIL stove was selected based on the following criteria:

Durability – stoves previously installed are still functioning correctly after more than 15 years of use. The stoves can be maintained, easily and TRL's stove servicing program is included in the cost of the stove. Our beneficiaries purchase replacement parts at cost and perform other maintenance upon request.

Heat Transfer – heat is evenly distributed across the full breadth of the metal plate.

Insulation – stoves cannot radiate too much heat as day-time temperatures are high year long, but must be able to heat the home at night. The stoves have insulated cement walls that make them warm to the touch while in use, reducing risk of burns.

Mobility – stoves can be easily relocated if the family moves or builds a new kitchen.

Efficiency – the stove is 70% more efficient in the use of wood fuel, (1) reducing time and/or money spent by families in firewood collection/purchase and (2) lowering wood fuel demand and consequently slowing local deforestation rates.

Health Benefits – the stove provides for a 99% reduction in HAP, compared to open cooking fires.

Value – other, similar stove designs are more expensive than the ONIL stove we promote, despite the fact that the construction of TRL's ONIL stoves is customized to our specific requirements based on our beneficiaries' needs (i.e., more durable construction, metal *plancha* ideal for culturally specific culinary needs, use of a chimney, interior design radiates heat well after fire is out).

Uptake – The ONIL stove design is suited to local indigenous cooking practices and is thus culturally, widely accepted in the service area.

In addition to the installation of stoves and trainings, TRL has joined a number of promotional initiatives to improve family economies and alert the community to the dangers of open fire cooking and the benefits of ICS and other environmental technologies. TRL often refers beneficiaries to microcredit or community savings groups. Our goal is to expand access to the ONIL cookstove and spread knowledge of TRL's work as an environmental, not-for-profit organization.