

The Ambassador-Led Social Enterprise in Oaxaca, Mexico: Sustainably Spreading Solar Cooking in Rural Communities

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ABSTRACT

Three billion people around the world, and in Mexico, 3.7 million households, burn wood or dirty fuels in open fires or inefficient stoves for daily cooking. This contributes to climate change, deforestation, air pollution, serious health issues, and lost income, time, and opportunities for women and their families. SHE's "ambassador"-led social enterprise model brings solar cooking to rural women thanks to the powerful, durable, and affordable Haines solar cooker (HSC), and a business model supporting commission-based rural saleswomen (ambassadors) to promote and sell HSC and provide peer-to-peer training and long-term customer support for maximum adoption and impact. In our "Cocineros Solares" social enterprise in Oaxaca, Mexico, launched in 2018, three ambassadors sold over 150 HSC at \$25 in 8 months, with nearly half of customers reducing their dirty stove usage by over 50%. With enterprise growth, financial sustainability can be achieved, and replicated so that the 500 million people around the world in areas of fuel scarcity and abundant sunshine can cook with free, clean sunshine.

SOCIAL ENTERPRISE PRODUCT: HAINES SOLAR COOKER (HSC)

- **40% more powerful** than major brand-name solar panel and box cookers.
- **\$15 cost** makes it affordable to world's poorest
- **5-10 years** durability
- **Local manufacture** with simple inexpensive tools
- **Local cookware** reduces shipping costs.



L: The Haines Solar Cooker assembles in one minute and need only be turned towards the sun every hour.

R: The HSC can be rolled up and put into a yoga mat bag. Weighing 20 oz, it can easily be transported this way.

OBJECTIVES

- 1) To launch an "ambassador-led" social enterprise** supporting rural commission-based saleswomen (ambassadors) to sell Haines solar cookers and provide peer-to-peer training and long-term customer support for maximum adoption and impact
- 2) To evaluate adoption and impact** of Haines solar cookers on users (customers)
- 3) To assess feasibility of financial sustainability** for the social enterprise

METHODS AND MATERIALS

Social enterprise launch and growth

- **Market research** exploring solar cooker suitability in context of current cooking practices: 24 households were surveyed in 7 small, remote communities, along with 4 community leaders.
- **Ambassador recruitment and training:** Rural women were trained and assessed over 2 months in usage, promotion, sales, and customer support.
- **HSC promotion, sales, and customer support** handled by ambassadors in their communities.



Rural Oaxacan woman cooking on her traditional smoky stove



Social enterprise rural customer solar cooking at home

Haines solar cooker adoption and impact

- **Quarterly focus group meetings** to collect feedback from customers, led by ambassadors
- **Monthly surveys** on first 50 customers, carried out by ambassadors from Feb to Dec 2018, using the **UN Foundation "Clean Cooking Alliance" Adoption and Impact Indices**, based on: HSC frequency of use, HSC condition, HSC level of satisfaction, interest in replacing HSC at end of lifetime, traditional stove (TS) frequency of use, TS level of satisfaction, change in location of TS; usage of other fuels and stoves, perceived health improvements, perceived fuel savings.



Solar cooking ambassador promoting and selling solar cookers at local marketplace



Solar cooking ambassador surveying customer on solar cooker adoption and impact

RESULTS

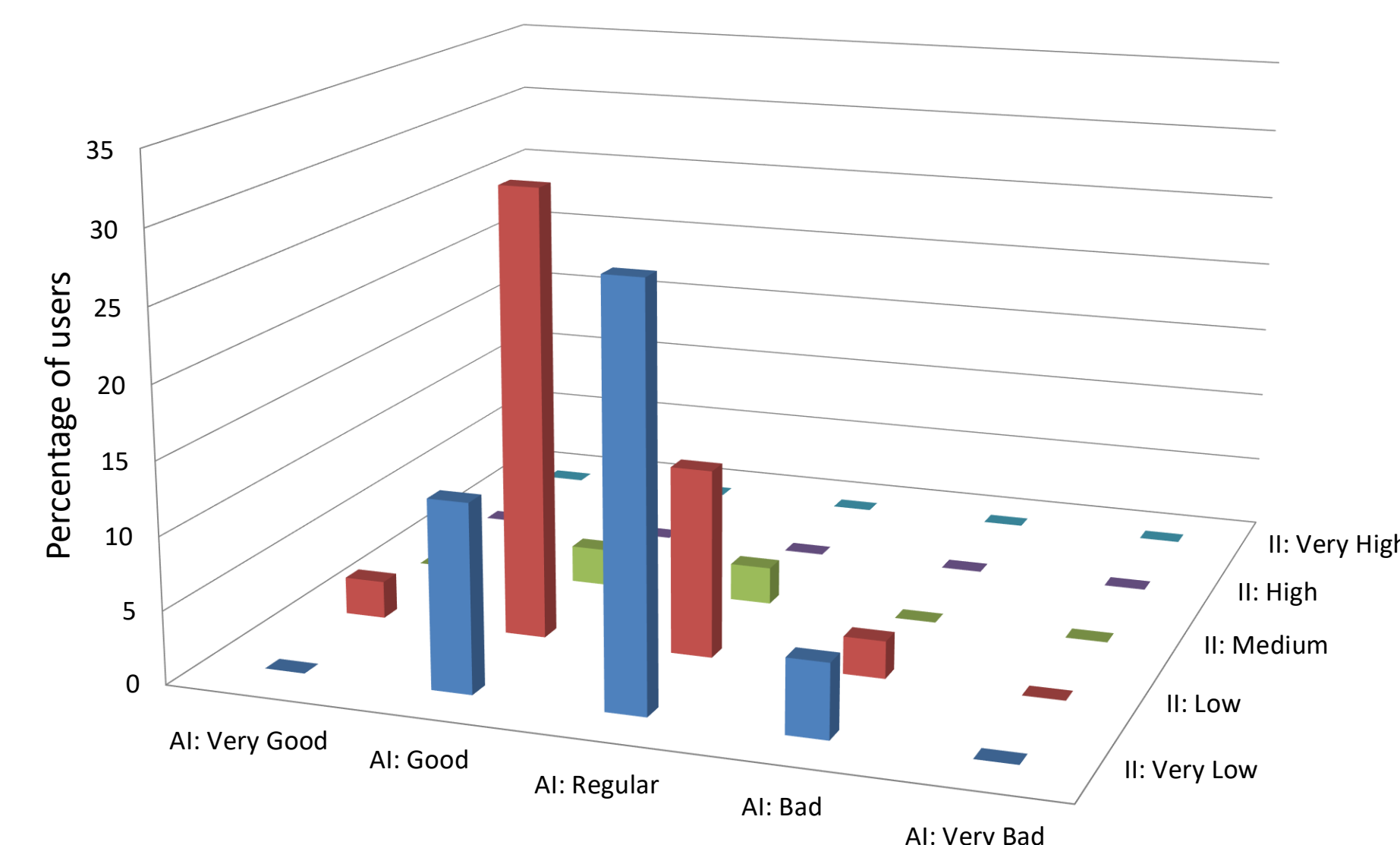
Social enterprise launch and growth

- **Market research** showed HSC suitable for cooking main dishes, desirable as oven for baking cakes, and \$25 price was affordable (avg. gas stove \$125).
- **Ambassador recruitment and training:** 3 out of 5 initial recruits passed training successfully, with average usage of 2x/week.
- **Solar cooker promotion, sales and customer support:** 3 ambassadors sold 150+ HSC to their community members in 8 months.

Haines solar cooker adoption and impact

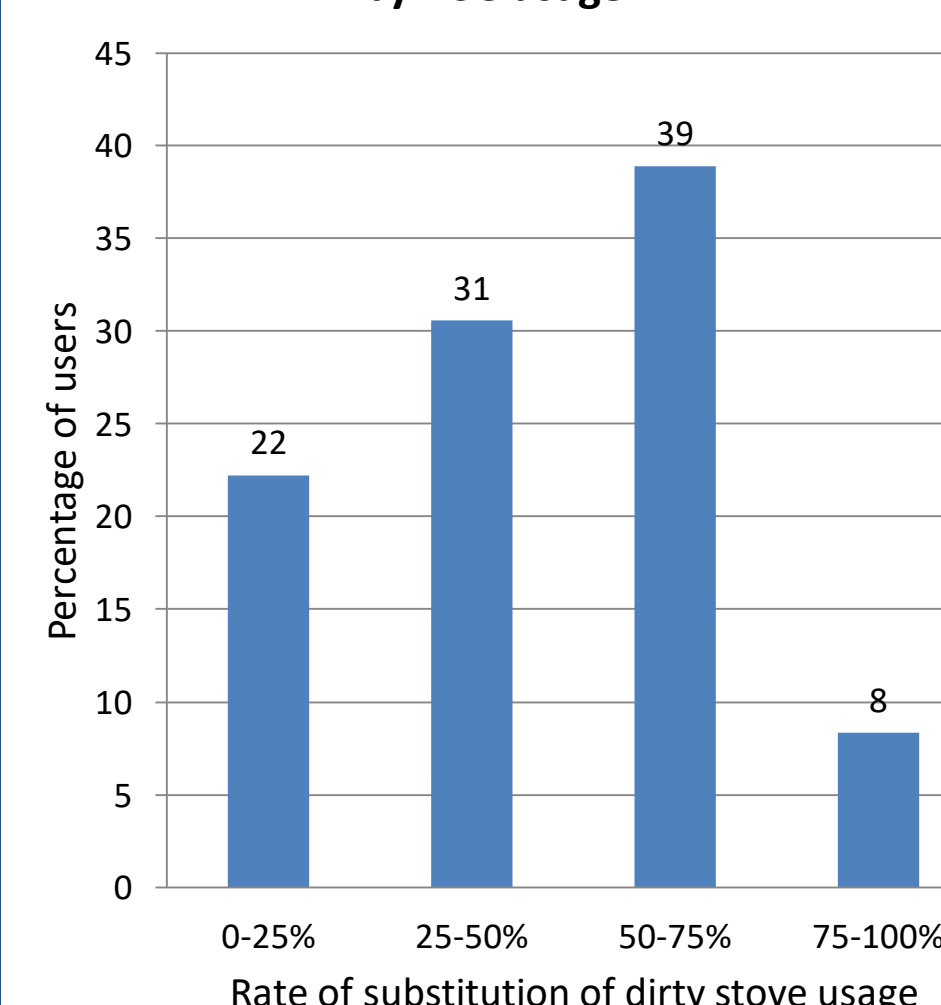
- **Time & financial savings** per focus group feedback
- **Regular adoption, low impact** according to **CCA system** (annual avg., including 6-mo. rainy season)
- **Dirty stove reduction 50+% for 47% users,*** (annual avg) entailing similar reductions in smoke exposure, cooking and fuel collection time and labor.
- **HSC used avg 3x/wk**, up to 6x/wk (sunny Feb-Mar)

Distribution of HSC users by Clean Cooking Alliance adoption index (AI) and impact index (II)



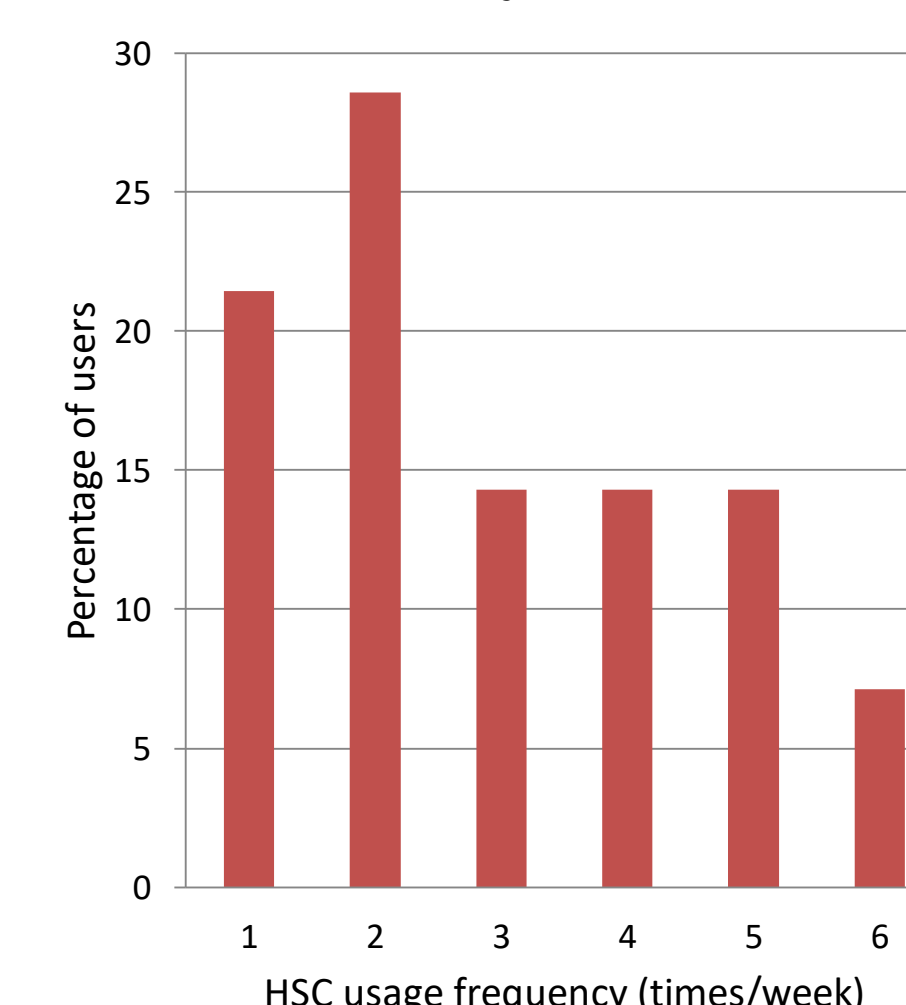
The distribution of HSC users, as a percentage of total users, according to their adoption and impact indices developed by the Clean Cooking Alliance.

Distribution of HSC users by substitution rates of dirty stove usage by HSC usage*



The distribution of HSC users, as a percentage of total users, according to substitution rates of dirty stove usage by HSC usage

Distribution of HSC users by HSC usage frequency during sunny Feb-Mar



The distribution of HSC users, as a percentage of total users, according to HSC usage frequency (times/week) during the Feb-Mar sunniest part of the year

*Excludes 15% of users who use only gas at baseline, and assuming solar cooker usage replaces dirty stove usage (as suggested by market research & focus group feedback)

CONCLUSIONS & NEXT STEPS

- **The ambassador-led social enterprise model was successful** in disseminating HSCs in a cost-effective manner, while ensuring user adoption and impact, and providing local employment.
- **HSC usage displacing over 50% of dirty stove usage for 47% of users** (annual avg) contributes to climate change mitigation and improving users' lives.
- **The HSC shows "regular" adoption yet "low impact" according to CCA** (annual avg) because most women use clean LP gas every day, use dirty stoves outside, and did not discuss health and fuel impacts when surveyed. **HSC usage is expected to grow** (3x/wk on avg in Feb-Mar, some up to 6x/wk).
- **Social enterprise financial sustainability can be achieved** with sales of 200 HSC per month, for example, with 20 ambassadors selling 10 HSC/mo.
- **Next steps** include training more ambassadors, and improving marketing materials for increased cost-effectiveness and higher user adoption and impact.

USER EXPERIENCE

"It comes out delicious! The HSC preserves the flavor, just as if you were cooking it in a clay pot in a firewood kitchen. I would like at least 4!"
- Esther Patricio, customer & ambassador



"As I am an artisan, I prepare my food and then I go out to sell my work. And, when I come back, the food is cooked and ready! I have cooked...everything! Since I do not have a stove with an oven, this is my oven. My daughter says she's going to buy one."
- Macedonia Martinez, customer



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