

# Can Poverty Graduation Programs Reduce Poverty While Supporting Environmental Goals? Evidence from Northern Kenya



## Abstract

Researchers partnered with IPA Kenya and The BOMA Project to evaluate whether adding environmental components to a poverty graduation program could improve household well-being while reducing pressure on natural resources. The program combines livelihood and business support with interventions such as subsidized improved cookstoves, tree planting, and natural resource management. A randomized evaluation in Northern Kenya found that **both the standard and environmentally focused versions of the program increased household consumption, productive assets, and food security relative to a comparison group, with larger gains under the environmentally focused version, though the source of the additional gains is unclear.** The environmentally focused version also reduced fuelwood use, but a rise in charcoal use suggests a shift between fuel types rather than a broader move away from biomass fuels. With both versions producing positive returns per dollar spent during the program duration and projected over ten years, results suggest that poverty reduction and environmental goals can be pursued together.

### RESEARCHERS

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### PARTNERS

**Implementing:** The BOMA Project

**Funding:** IKEA Foundation

**Research:** Northwestern University, Oregon State University, London School of Economics and Political Science

### SECTOR

Social Protection, Climate and Environment

### STUDY TYPE

Randomized Evaluation (RCT)

### COUNTRY

Kenya

# The Challenge

Climate change threatens progress in reducing poverty, particularly for households whose livelihoods depend on agriculture, livestock, and natural resources. Climate-related shocks can disrupt livelihoods, reduce household income and assets, and increase food insecurity. These risks are particularly significant for people living in extreme poverty, who often have fewer resources to absorb shocks and recover from them. [The Ultra-Poor Graduation \(UPG\) Approach](#) is an evidence-based model designed to help households living in extreme poverty transition toward sustainable livelihoods by addressing multiple constraints at the same time. The approach combines support such as consumption assistance, productive assets, savings, skills training, and personalized coaching.

These challenges are particularly acute in the arid and semi-arid lands of Northern Kenya. Many households depend on livestock and other natural resources for their livelihoods and face recurrent droughts and other climate-related challenges. At the same time, activities that support household livelihoods and meet basic needs, including charcoal production, fuelwood collection, and livestock grazing, can place pressure on forests and rangelands. Graduation programs can help households build assets and strengthen their livelihoods, but these activities may also increase demand for natural resources. This raises an important question: Can environmental components be added to graduation programs without reducing their effects on household well-being?

# The Program

The BOMA Project adapted the Ultra-Poor Graduation approach for people living in the arid and semi-arid lands of East Africa through its **Rural Entrepreneur Access Project (REAP)**. REAP provides a core package of livelihood support to help households build businesses, increase savings, and strengthen their ability to manage economic shocks. Its components include:

- Business training
- Asset transfers, including a cash grant of up to USD 400 per business
- Savings groups
- Life-skills coaching

BOMA developed **Green REAP** as an environmentally focused version of REAP. It retained the full core REAP package and added components designed to reduce the negative environmental impact of business activities, promote more positive management with the environment, and adapt and be more resilient to climate change. These additional components include:

- Training on green enterprises and sustainable practices
- Subsidized improved cookstoves
- Tree seedlings and ecosystem restoration support
- Support for green-oriented enterprises
- An optional growth grant for successful businesses

# The Evaluation

Researchers partnered with IPA and The BOMA Project to conduct a randomized evaluation measuring Green REAP's impact on households' poverty and welfare outcomes and their engagement with the environment. They also measured its cost-effectiveness relative to the Standard REAP graduation program.

A total of 105 forest communities in Marsabit, Samburu, and Turkana counties in Northwest Kenya were randomly assigned to one of the following groups:

- **Green REAP program**
- **Standard REAP program**
- **Comparison group**

The final survey included 2,996 of the 3,149 households originally tracked and was conducted between November 2025 and January 2026, 24 months after the core program rollout. Researchers measured household consumption, poverty, productive assets, business activity, savings, food security, subjective well-being, and environmental practices. They also conducted qualitative interviews and 296 observational forest walks repeated along the same paths surveyed at the start of the study to evaluate the extent to which households extracted and used forest resources.



A graduation program villager with her chickens. CREDIT: BOMA LIFT-NK

# Results

**Both programs significantly improved household well-being, with Green REAP producing stronger effects on consumption, poverty reduction, and food insecurity. Both programs demonstrated similar improvements in subjective well-being.**

**Standard REAP and Green REAP improved household well-being relative to communities that did not participate.** Monthly consumption

per adult equivalent was 34 percent higher in Standard REAP households and 50 percent higher in Green REAP households, from USD 27.14 in comparison households. Both programs also reduced the share of households below the international poverty line of less than USD 3 per day, from 96 percent to 93.3 percent in Standard REAP and to 90 percent in Green REAP. Moreover, Standard REAP and Green REAP improved food security, with larger improvements experienced under Green REAP.

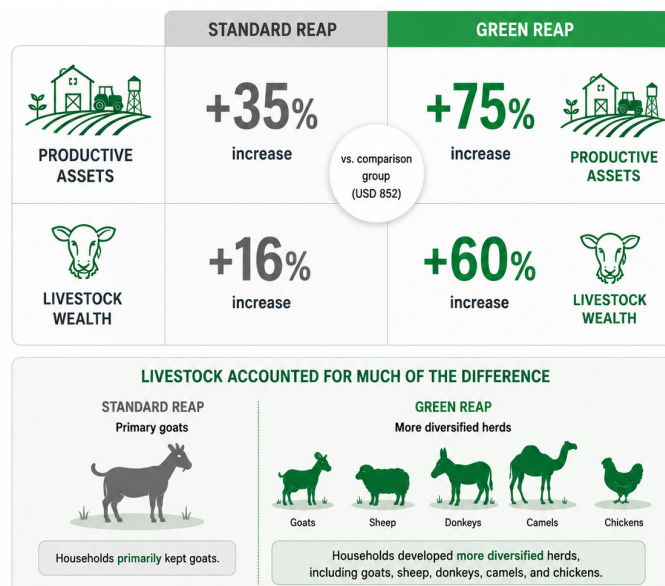
Subjective well-being—measured by life satisfaction and distress—also improved significantly in Standard REAP and Green REAP households relative to the comparison group. However, Green REAP did not produce meaningfully stronger benefits compared to Standard REAP.

| Outcome                                     | Standard REAP     | Green REAP        |
|---------------------------------------------|-------------------|-------------------|
| Monthly consumption per adult equivalent    | +34%              | +50%              |
| Households below international poverty line | −2.7 pp           | −6 pp             |
| Food Security                               | 21.3% more secure | 31.3% more secure |
| Life satisfaction                           | 14.2% happier     | 18% happier       |
| Distress                                    | 21.3% lower       | 25.3% lower       |

**Both programs strengthened households economically: Green REAP doubled Standard REAP's productive asset increase through greater livestock accumulation, with similar effects on income and off-farm business outcomes.**

**Productive assets increased significantly in both programs, although the effects were larger in Green REAP.** Relative to the Comparison Group, which held USD 852 in assets, productive assets increased by 35 percent in Standard REAP and 75 percent in Green REAP. This more than double effect is due to Green REAP households holding more livestock value than Standard REAP households (a 60 percent increase versus a 16 percent increase), and diversifying herds to include camels, sheep, donkeys, and chickens.

Although productive assets increased more in Green REAP than Standard REAP, the two programs produced similar positive effects on other indicators, including household income, off-farm business ownership, and business outcomes—including profits, assets, and savings.



Together, these findings reveal that the larger gains in consumption and productive assets under Green REAP were not accompanied by larger measured gains in income or business activity, leaving the source of these additional gains unclear.

**Green REAP improved environmental management and produced larger gains on several environmental outcomes.**

Green REAP households reported greater engagement in tree planting, conservation, natural resource management, and sustainable livestock practices, including vaccination, rotational grazing, and use of crop residues as feed. Sustainable livestock practices improved under both programs, while environmental management practices improved substantially under Green REAP but showed no detectable change under Standard REAP.

Households in both REAP programs reduced time spent producing charcoal as well as charcoal production and sales relative to the comparison group. The reduction was larger in Green REAP, where only 1 percent of business engaged in charcoal production or sales compared to 5 percent under Standard REAP and 10 percent in the comparison communities.

Independent forest observations also found fewer charcoal kilns and less severe tree damage in Green REAP communities than in Standard REAP and comparison communities.

Finally, the creation of new green businesses (one of the goals of Green REAP) also increased relative to Standard REAP. However, an important caveat is that even with this effect, fewer than 1 percent of Green REAP businesses were green.

**Improved cookstoves helped Green REAP households reduce fuelwood use, with adoption reaching more than half of households. However, they caused charcoal use to remain elevated.**

By the end of the study, 53 percent of Green REAP households were using improved cookstoves, compared with 16 percent under Standard REAP and 12 percent in comparison communities. However, it is important to note that the cookstoves were subsidized to Green REAP households—without subsidization, the cookstoves' regular price of USD 41 might be a barrier for use.

Together with the broader changes in conservation and natural resource management, these results suggest that practical support, incentives, and access to technologies may have been more important for changing environmental behavior than increases in environmental knowledge, which did not measurably change throughout the intervention.

At the same time, the adoption of cleaner cookstoves came with an environmental trade-off. While reliance on fuelwood dropped, the share of households using charcoal increased from 11 percent in comparison communities to 40 percent under Green REAP, a 263 percent increase relative to the comparison group, partly because some improved cookstoves used charcoal. **Thus, reducing reliance on one household fuel (wood) did not necessarily lead to a transition to cleaner energy overall.** The finding highlights the importance of considering how environmental interventions interact and monitoring potential trade-offs as programs expand.



A graduation program villager with her cleaner cookstove.  
CREDIT: BOMA LIFT-NK

**Both Standard REAP and Green REAP generate positive benefits per dollar spent in the long term, suggesting potentially impactful investment.**

In 2025 currency, Green REAP cost approximately USD 971 per household, compared with USD 699 for Standard REAP, a 39 percent increase in implementation costs. Over the two year duration of the program, both versions produced meaningful benefits while the program was running.

**Researchers also presented a projection of both versions’ benefit-cost ratio over ten years, which could be useful for donors interested in long-term program investment.**

Assuming households retain the full gains during that time beginning in year 3, Standard REAP generates USD 5.51 for every dollar spent, and Green REAP generates USD 5.86. On the other hand, gains may fade as years pass; as such, under this assumption, researchers found that if households retain 75 percent of the gains, every USD 1 spent will generate an estimated USD 2.84 in benefits under Standard REAP and USD 3.01 under Green REAP.

|                                                                             | Standard REAP | Green REAP   |
|-----------------------------------------------------------------------------|---------------|--------------|
| Implementation Cost (per household)                                         | USD 699       | USD 971 +39% |
| 10-year benefits per USD 1 spent with gains retained starting year 3        | USD 5.51      | USD 5.86     |
| 10-year benefits per USD 1 spent with 75% of gains retained starting year 3 | USD 2.84      | USD 3.01     |

## Policy Implications

The findings suggest that environmental components can be incorporated into poverty-graduation programs without reducing their economic and well-being impacts. Green REAP produced larger gains than Standard REAP on several economic measures, though the source of these additional gains is not fully understood, since income and business activity were similar across both arms, potentially requiring more research to unpack them. Green REAP also improved several environmental practices relative to Standard REAP.

Given the limited amount of green businesses that were created, the findings further suggest that many environmental benefits came from practical interventions that could be integrated into existing livelihoods.

This suggests that programs seeking to shift environmental behavior may see more traction from practical support and access to technologies than from efforts to build new green business lines.

At the same time, the evaluation highlights potential trade-offs as programs expand. Green REAP's larger gains in productive assets were driven in part by greater livestock accumulation, which could increase pressure on rangelands even as other practices (such as rotational grazing) improved.

Similarly, while Green REAP reduced fuelwood use, it also saw a rise in charcoal use, indicating a shift between fuel types rather than a reduction in reliance on biomass fuels overall. Continued monitoring is needed to determine whether the observed economic and environmental gains persist over time, and how changes in livestock ownership, charcoal use, and natural resource and herd management affect long-term sustainability.