

CASE STUDY

Reforesting Ghanaian woodland savannahs, one tree at a time



A farmer observes his growing trees, many of which he has successfully nurtured from tiny seedlings. Photo Credit: Green for Change Ghana/RANAS.

Challenge

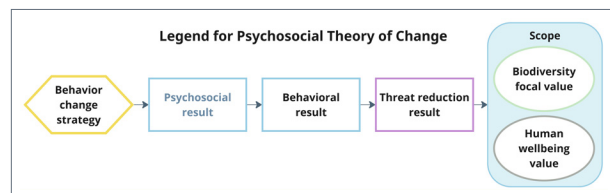
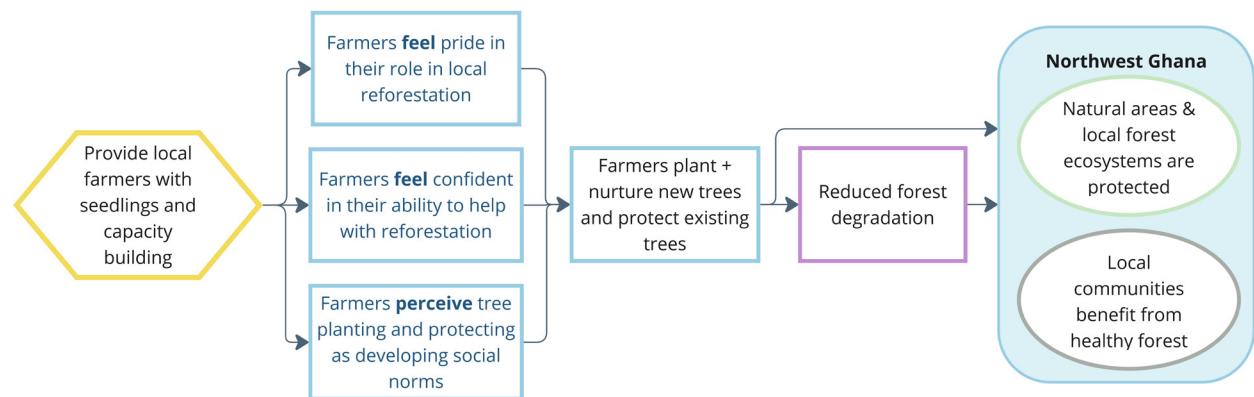
Mole National Park, located in northern Ghana, is the largest protected area in the country. The park is a haven for many species of mammals, birds, insects, and reptiles, but what sets this region apart are the unique savannah woodlands. Unsustainable land use threatens Mole National Park’s rich biodiversity and contributes to climate change by removing carbon-sequestering trees from the land. Large-scale, illegal commercial logging and charcoal production are carried out primarily by outside actors (including foreign nationals).* However, local communities are involved in deforestation at a smaller, but still unsustainable, level in the fringe regions. These activities are reducing the overall tree cover, in turn decreasing wildlife habitat, degrading soil health, and intruding into protected areas.

Previous reforestation efforts have had limited success, due to low participation by local communities and low seedling survival rates. Green for Change Ghana (GCG), Ranas, and Mole National Park Management collaborated with over 1,500 farmers to understand what factors motivate (or impede) communities around the park to participate in tree planting, nurture tree seedlings, and protect existing trees.

Desired Target Behavior

Local farmers and their families who live in communities surrounding the Mole National Park in Ghana plant and nurture tree seedlings and protect existing trees to reforest the area.

Psychosocial Theory of Change



Note: This is a high-level psychosocial theory of change meant to serve as an example of a simplified results chain; the project as a whole contained a much more detailed and layered web of strategies and results not featured here.

*Note: Why work with local communities when the outsized threat is coming from outside actors? There are a few reasons. 1) reducing illegal and/or unsustainable large-scale logging is costly, time-intensive, and requires coordination among multiple stakeholders, including local governing bodies, which was out of the scope for this project. 2) Most importantly, the communities themselves led the call for this work, understanding their relatively minor role in local deforestation and (italicize and) still wanting to improve their land stewardship. 3) An augmented sense of land stewardship tied to self-efficacy and identity may reduce the temptation to give or sell individual and/or communal lands to foreign nationals. This case study does not intend to vilify small-scale or subsistence farmers or frame them as the primary actors in Ghanaian deforestation.

Behavioral Solution and Relevant Levers

The proposed community-based reforestation project, co-designed with the local leaders, tested three alternative campaign approaches to see which one resonated most with farmers and villagers:



1. Standard information-based campaign (comparison group)

The first campaign offered free seedlings along with information and practical training on tree planting, nurturing, and care. Participation was motivated mainly through material and informational incentives, and all registered farmers received seedlings and attended theoretical and hands-on training before planting.



2. RANAS behavior change campaign

The second campaign, implemented by GCG, built on this systemic, data-based behavior change approach by adding emotional appeals, social support, and confidence building. It used imagery to evoke pride, hope, and anticipated regret, encouraged farmers to imagine improved futures, and provided hands-on training to boost self-efficacy. Regular group meetings after planting to discuss successes and failures created ongoing social support. Moreover, identifying community role models in these meetings strengthened both personal norms and public commitment.



3. RANAS behavior change campaign implemented with community leaders

This behavior change campaign used the same emotional appeals, social support, and confidence-building measures as the second one but was implemented with the active guidance of community leaders through trained local promoters. Ranas and GCG believed that training local promoters and working with community leaders would, 1) enable community-led dialogue, peer influence, and social recognition, 2) motivate and energize the community, and 3) embed behavior change more deeply and sustainably within villages, existing community structures, and leadership.

Behavior Change Levers Legend	Information	Emotional appeals	Social influence
	Rules & regulations	Material incentives	Choice architecture

Results

To assess outcomes, the team conducted a behavioral analysis, tracking who participated in specific behaviors, including tree planting, nurturing seedlings (e.g., irrigation, weeding, fertilization, pruning), and protecting seedlings from fire logging, animals, and pests. The team measured the number of seedlings that each participant planted and nurtured and their survival rates and compared this with changes in self-reported risk beliefs, norms, and tree caring self-efficacy.



Photo Credit: Green for Change Ghana/Ranas.

Participants planted 62,000 tree seedlings, and the project team measured the seedling survival 3-9 months after planting. It is important to note that a drought occurred during the project implementation period. Survival rates of the planted tree seedlings were similar (74%) in the group which received the community-led Ranas behavior change campaign and the GCG-led Ranas behavior change campaign (72%). Both Ranas campaigns produced significantly higher survival rates than the standard information-based campaign used as a comparison group (54%). Other organizations working in the same region — but not implementing behavior change campaigns — reported survival rates of only 20-50%.

The Science: Making community involvement and social science insights the norm

Ultimately, the data indicated that *who* implemented the project, whether GCG or local community leaders, was not the most important factor in success. GCG and Ranas believe that 1) **consulting the community** throughout the project design and implementation and 2) **using behavior change levers** contributed to achieving higher seedling survival rates. While there was no significant difference in the impact between the second and third campaigns, it is likely that involving communities throughout the project increased the **durability** of project outcomes over time. The team consulted with the communities at every step of the project, gathering data and seeking community input on key decisions. For example, in a baseline survey, farmers were asked to choose which seedlings they would like to plant. Options included fruit trees (e.g., cashew (*Anacardium occidentale*) and mango (*Mangifera indica*)), trees used for timber (e.g., teak (*Tectona grandis*) and mahogany (*Khaya senegalensis*)) and other native species, all of which were appropriate for their microclimate. Many farmers preferred trees from which they could harvest fruits or nuts. The team received feedback that **farmers felt more motivated to participate** in the project after having the opportunity to select their preferred tree species. Seeking this input ensured that the reforestation project would provide tangible benefits to participants (e.g., fruits, nuts, or timber) that they valued, in addition to helping the overall reforestation goals.

Before the quantitative baseline survey, the team used various methods to ensure they consulted diverse members of the community. This included stakeholder analysis, focus groups, qualitative surveys, community meetings, and key informant interviews. This extensive **mixed-methods information gathering** enabled the team to:

- Define the project’s target behaviors (tree planting, nurturing, and protection) and
- Identify factors that could influence these behaviors, including
 - relevant emotions (e.g., emotions of pride and hope);
 - predominant personal and community norms around trees and tree planting;
 - gaps in farmers’ confidence in implementing the target behaviors; and
 - typical barriers that could then be addressed with the campaign.

Data- and evidence-based social science are integral to environmental work, complementing the “hard” sciences and incorporating local perspectives to produce rigorous, measurable outcomes. This campaign demonstrates using social science insights to shape campaign development increase tree-survival rates, in turn yielding a more cost-effective, scalable alternative to repeatedly planting new trees. The hope is that this approach can be applied broadly to tree-planting efforts worldwide, wherever it is ecologically appropriate.

Further Actions and Resources

- Learn more about [Mole National Park](#).
- Read about the [RANAS methodology](#).
- Explore GFC and Ranas' [project page](#) for more information.
- For more information about how to apply behavior change in the Conservation Standards, check out the [CMP Behavior Change website](#).

About the Organizations



Green for Change Ghana (GCG; implementation partner, Ghana) is a conservation-oriented organization committed to initiating programs that benefit both communities and the environment through landscape restoration activities and community-based natural resources management.



Ranas (consortium lead, Switzerland) is specialized in designing and evaluating data-driven and evidence-based behaviour change campaigns using the systematic RANAS (risks, attitudes, norms, abilities, and self-regulation) approach.



The Conservation Measures Partnership (CMP) is a global community of NGOs, government agencies, and private businesses working together to design, manage, and measure conservation action using the Conservation Standards.



Foundations of Success (FOS) is a mission-driven organization established to accelerate and amplify the impact of the global conservation community. FOS helps teams better learn and collaborate through the use of a common framework for the planning, management, and ongoing improvement of conservation projects.



Rare invests in people and nature to solve our greatest conservation and development challenges by partnering with local leaders, individuals, and their communities to help them co-manage, protect, and restore their natural resources against threats like climate change.

See [other case studies](#) from this CMP, FOS, and Rare collaboration.