

Going the last mile: Behavior science and investments in climate change mitigation and adaptation

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Abstract. Awareness-raising and training are common elements of climate projects but do not guarantee that these will lead to a change in pro-climate behavior. Several psychological barriers limit individual pro-climate action. Nudges and boosts are well-established tools in behavioral science that may help overcome such barriers. This study illustrates the potential for including behavioral interventions in Green Climate Fund (GCF) investments that are directed towards adaptation and mitigation. We imagine behavioral science interventions that could potentially change behavior of key stakeholders to close the ‘last mile gap’ in climate finance investments/projects. Overall, of twenty projects, ten are found suitable for incorporating behavioral science interventions. We conclude that encouraging behavior change that use tools from behavioral science has the potential to ensure success of climate projects. However, these approaches are still employed infrequently in project designs. Ensuring these approaches are employed requires doing deep analyses of barriers and enablers, formulating potential mental models, and designing appropriate behavioral science interventions that are tested for their efficacy and effectiveness before they are used. Incorporating such approaches can help us understand much better what works, for whom and why in climate projects.

Keywords: Nudges, Behavioral science, boosts, Behavior change, Green Climate Fund, Evaluation.

1 Introduction

The scientific evidence on anthropogenic climate change is clear.¹ Nonetheless climate action is ineffective or relatively absent on the ground.² Psychologists have identified various factors behind this seemingly irrational behavior.³⁻⁵ We argue that most climate projects indeed ignore this ‘last mile’ of delivery – the last mile is the gap between the provision of infrastructure, services and training (that are all supply driven), and, realized action/behavior on the ground.

The purpose of this paper is to showcase how insights from behavioral science can be a potential solution for this last mile problem. It applies insights from ‘nudges’ and ‘boosting’ for a sample of ten projects by the Green Climate Fund (GCF). Nudges are

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slight alterations of the decision-making environment that induce specific behaviors.⁶ Boosts, increase the decision-making ability of individuals through training on soft skills or heuristics.⁷

2 Methodology

This is work in progress. The purpose of this paper is to briefly illustrate the potential for incorporating behavioral science interventions into climate project designs. All investments/projects considered in this paper (see Appendix I) were submitted by entities or organizations accredited by the GCF and each project/investment, is arguably aimed at reducing GHGs or greenhouse gas emissions (mitigation) and/or increasing the ability of human beings to increased climate variability (adaptation). For each project we studied their theory of change. In the last link of the theory of change, we examine the potential for incorporating nudges and boosts that may help the project close the last mile gap i.e. increase the likelihood that people's *behavior* will change. We identified these potential nudges and boosts from a literature review and adapted them to the context of the climate project.

All our illustrations are examples and have not been tested yet. The aim of this short paper is to encourage project implementers to incorporate behavioral science interventions into their designs. It is clear that if project proposers incorporate these ideas, the behavioral science related intervention (nudges and boosts in this paper) will need to be tested in the specific context of the projects and more importantly, adjusted to the mental models of the target population.^{8,9}

3 Case studies

This section illustrates the use of behavioral science interventions in ten GCF projects (see Appendix I for more details).

3.1 Behavioral insight: Social influence approaches

The first set of interventions illustrates the use of dynamics of social groups for behavior change. A defining feature of population groups is shared norms about what is usual and desirable behavior.¹⁰ Giving people feedback on how their behavior ranks compared to their peers, changes existing norms. These types of interventions have been found, for example, to reduce excessive drinking¹¹ and increase conservation behavior.¹²

Changing social norms may help to close the last mile in many climate projects. However, changing social norms is not easy and can involve costs. But since approved projects represent 'sunk costs', the costs of these behavioral science related nudges and boosts is usually relatively small, especially if they can ensure effectiveness of large investments:

- The sustainability of project FP040 depends on the effective operation of hydropower plants. However, the project document highlights lack of staff capacity, to operate hydropower plants, as a potential barrier to effectiveness. Giving anonymous feedback on individuals on their cooperative behavior to ensure that their (training) knowledge is shared with other staff, is likely to increase the effectiveness of trainings for plant personnel.
- Social norms may be used to reduce undesirable practices. Project FP084 requires changes in individual behavior to keep newly restored ecosystems intact. Evidence shows that signaling a change in social norms can support a shift in group behavior.^{13,14} Indeed nudges can be cheap and valuable additions to awareness campaigns. In contrast, using champions to advocate for behavior (also called the positive deviance approach) can be far more costly.¹⁵ Such interventions may be suitable for project FP091, where new, resilient water supply systems require changes in water use practices amongst the target population.

3.2 Behavioral insights: Nudging by focusing attention

The second set of interventions nudges individuals by refocusing attention.

- A key challenge for project FP015 is the high labor turnover among coastal protection officers. A poster in the office can increase pride that officers feel in their work, by linking their work with their national identity. There is some evidence that a strong identification with the workplace reduces turnover intentions.¹⁶
- Choosing the right framing¹⁷ is essential for information campaigns. In project FP020, the targeted population is perceived to be concerned about environmental risks of geothermal power. Public acceptance can be increased by focusing their attention on damage caused by coal plants.
- Nudges can further augment projects where the GCF provides loans to local financial institutions. In the case of project FP029, reminders by text message may improve repayment rates by lenders with limited financial management skills.¹⁸
- A change in layouts of forms is likely to increase reports back to the GCF by partner agencies (e.g. project FP025). Getting project signatories to sign a declaration of correctness at the beginning of the form may increase responsiveness and honesty in reporting by making ethics salient, at least in the short term.¹⁹

3.3 ‘Boosting’ competencies

While nudges utilize cognitive biases to steer decision-making, ‘boosts’ empower individuals by fostering competencies.⁷ They help individuals overcome limiting beliefs and mental models.²⁰ Compared to the effects of boosting that can persist for years²⁵, nudging are more appropriate when the motivation of individuals are unclear.⁷

- Project FP055 supports recipients of welfare transfers to build sustainable agroforestry livelihoods. A plan-making exercise could enable beneficiaries to adopt a longer-term perspective on savings, investing, and consumption.²¹
- Similarly, project FP093 relies on investments by small businesses which require entrepreneurial mindsets.²² ‘Personal initiative’ trainings can strengthen these kind of soft skills and have been found to be more effective than traditional business trainings.²³
- Shifting mindsets is crucial for women’s empowerment. Project FP058 increases the drought resilience in rural Ethiopia, where women are especially vulnerable.²⁴ Value affirmation exercises may prevent gender imbalances in training outcomes by instilling an empowering mindset.²⁵

4 Discussion

Climate projects do not operate in a vacuum but are embedded within social, economic, and ecological systems. Purely technocratic solutions to climate adaptation are thus likely to face serious challenges. The case studies and outlined interventions illustrate the diversity of contexts in which nudges and boosts can potentially improve project effectiveness. To understand and incorporate these sorts of behavioral insights into project designs, we urge planners and project designers to use the following basic steps:

- First, build a theory of change and identify the ‘last mile’ i.e. where demand side changes or behavior changes is a critical assumption and is likely to affect project impact.
- Second, in the last mile of the project’s theory of change, identify barriers and enablers to desired behavior. Ask and examine: What is stopping certain behavior or leading to it?
- Third, map these barriers and enablers and create ‘mental models that are context customized. Different tools for investigation and understanding the local context should be used such as focus group discussions, interviews, ethnographic examination and anthropological study.
- Fourth, build a distribution of these behaviors i.e. what is the incidence of different behaviors, perceptions and mental models and dominant characteristics in the population of interest? This step typically uses survey instruments.
- Fifth, design possible behavioral science interventions and test their efficacy.
- Sixth, test the uptake of efficacious interventions in experimental settings: These usually have the following components:
 - a. What is the ex-ante hypothesis that we want to test? (Why?)
 - b. Identification methods (usually randomization) and identifying how causality will be established.
 - c. Protocols for implementing experiments.
 - d. Econometrics and data methods (including data collection, timing and specifications of econometric models)

e. Analyses

- Seventh, implement tested behavioral interventions in the field and test them further: These can be lab experiments, or they can be field experiments.
- Finally, these interventions can then be applied in a scaled-up way and assessed to see if these nudges and boosts work in real-world situations as planned.

5 Appendix

Table 1 - Overview of GCF projects used to illustrate potential behavioral interventions to close the 'last mile'

Funded Project (FP) number (country)	Project focus	GCF investment (million US \$)	Behavior targeted	Possible behavioral science intervention
Social influence				
FP040 (Tajikistan)	Resilience of hydropower infrastructure	50	Effectiveness/cooperativeness in trainings	Anonymous social norms feedback
FP084 (India)	Coastal ecosystem-based adaptation	43.4	Protection of ecosystems	Dynamic social norms feedback
FP091 (Kiribati)	Water Sanitation and health adaptation in SIDS.	28.6	Adoption of new water usage behavior	Positive deviance campaign
Nudging through focusing attention				
FP015 (Tuvalu)	Seawalls for coastal protection	36	Decreased turnover in public administration	Priming motivation through a poster
FP020 (Caribbean)	Geothermal plant	80	Public acceptance	Use of framing in an information campaign
FP025 (multiple)	Funds for low-carbon investments	378	Integrity in reporting	Making integrity salient in form layouts
FP029 (South Africa)	Fund for low-carbon investments by Medium and Small Enterprises (MSMEs)	12.2	Timely repayment	Reminders
Boosting competencies				
FP058 (Ethiopia)	Gender-responsive drought resilience.	45	Gender empowerment	Value affirmation exercise
FP062 (Paraguay)	Reduced Emissions from reduced Degradation and Deforestation Plus (REDD+)	25.1	Sustainable agroforestry businesses	Plan-making exercise
FP093 (Burkina Faso)	Rural electrification	27	Low-emission MSMEs strengthened	Personal initiative training

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