

# The Role of Trust in Enablers and Barriers to Adoption of Clean Cooking Practices

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## ABSTRACT

Modern energy services are inaccessible or not present for nearly one third of humanity, with 2.8 billion cooking with solid fuels like biomass or coal, and 1.1 billion lacking any access to electricity. While the benefits of modern energy services are numerous, the rate at which they are adopted has been lagging behind the stated progress targets set forth by the United Nations Sustainable Development Goals (SDGs).

Trust in institutions has been identified as a crucial factor influencing the adoption of clean cooking practices. Here, the dynamics of trust in traditional institutions, governments, and non-governmental organizations (NGOs) focused on rural energy access are explored. Initial results show that trust may be a key factor influencing both enablers and barriers to the successful adoption of modern energy practices in rural settings. This analysis is work in progress, and the author welcomes any feedback or constructive response.

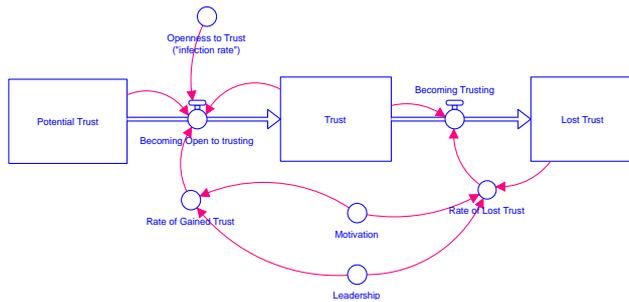
## BACKGROUND

Providing access to modern energy services has been a stated goal of nations and international organizations alike, including the United Nations' Sustainable Development Goal 7 aimed at delivering "ensure access to affordable, reliable, sustainable, and modern energy." Currently, more than one third of the global population, 2.8 billion people, lack access to clean cooking fuels, and 1.1 billion lack electricity access. Progress has been lagging behind targets, suggesting that by 2030, 2.3 billion will still lack access to clean and modern energy for cooking and 674 million without electricity access (IEA - International Energy Agency, 2017). Understanding how to encourage the spread and adoption of clean cooking technologies effectively remains elusive.

Studies in rural Nepal and India have suggested that trust can act as both a barrier to and enabler of clean cooking adoption (Ho & Weigelt, 2005; Li, Poppo, & Zhou, 2009; Malakar, Greig, & van de Fliert, 2018). Research into successful energy transitions has found that *motivation, leadership, and trust* were common threads throughout examples of positive deviance in energy access, with an emphasis on trust between stakeholders. (Herington, 2018). Conversely, in case studies where adoption was delayed or unsuccessful, trust was highlighted as a key barrier to clean cooking adoption. One such barrier involving trust is known locally as *sampradayam*, which is characterized as

*institutionalized trust in traditions*. This acts as a type of inertia for the status quo (Malakar, 2019).

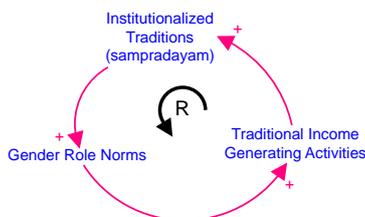
Combining the effects of traditional institutionalized inertia and the need to build trust in institutions promoting modern energy services has proved challenging. The barriers and impediments to the rate of change in energy access lie at the confluence of many systems. Institutional, cultural, technological, and environmental systems are all interacting and influencing the progression of energy access (González-Eguino, 2015). Understanding the role of trust at the intersection of these systems may lead to better policy development, a faster rate of change in energy access, as well as a reduction in overall emissions. Traditional problem-solving modalities typically approach complex problems by segregating the various components involved for closer examination. Conversely, system dynamics is founded on the principle that problems exist as a result of the relationship between the interacting parts. Problem solving using system dynamics allows for the examination of component interactions and feedback loops, as well as information and material delays present in the pertinent system involving the problem. The concept of endogeneity is also levied in system dynamics, highlighting the need to understand the variables that are internal to the system structure, rather than external influences.



**Figure 1: Stock & Flow representation of how trust is gained and lost in rural energy access.**

Trust is a cornerstone of social studies, with scholars suggesting it to be a critical factor in cooperation of people and institutions (Poppo, Zhou, & Ryu, 2008). Several definitions have been set forth concerning *trust* and differentiating it from other related concepts like *confidence*, though the terms have been used interchangeably. Here, the two are differentiated, with *trust* defined as the public's belief that the action of a government or NGO will be taken with the intent to improve the public's wellbeing. *Confidence* in the government or NGO is defined as the public's belief in the capabilities of the government or NGO. We also test the theory that confidence and trust are linked, where trust is a grown stock of confidence that is accrued over time through actions witnessed that are congruent with original agreements.

Trust has acted as an effective barrier to change in some instances. Studies have suggested that placing more trust in traditional institutions reduces the probability of clean cooking adoption (Malakar, 2019). Additionally, in areas where clean cooking practices are adopted and access is gained to cooking fuels such as liquid petroleum gas (LPG), many households choose to maintain the status quo cooking practices (a practice known as fuel stacking). *Sampradayum* and the high degree of trust that is placed in traditional ways and institutions results in maintained gender norms and limited adoption of new income generating activities.



**Figure 2: The influence of a high degree of trust in Institutionalized Traditions**

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