



Dediapada, Gujarat Project

Market Research October 2019 In association with Sparsh, Mumbai and Jeevan Tirth Foundation, Gujarat

Foreword

At the time of compilation of this first marker research report from Smokeless Cookstove Foundation, we are nearing two years of our operative work in the space of Clean Cooking in India. The idea of putting together this report came from the fact that most of the times we faced low adoption ratio of our solution for a zero-cost smokeless chulah in spite of initial euphoria from the communities. Is it because, we are talking about a solution and not a product in form of a stove? Or is it that cooking is a deeply ingrained cultural habit that becomes difficult to change.

Our work in Dediapada, Gujarat gave us an opportunity to study this gap at a deeper level. We did our first pilot in March 2019 and went back in June 2019 to study the impact of our training. Even before we began the assessment, we knew that we had failed to create a substantial impact. Now, we needed to know what was not right. In my heart, I knew the answer – we simply did know our customers well or in this case, our beneficiaries – the Vasava tribes.

The data presented in this report will not indicate the reasons for our project's failure but it will highlight the facts that we will keep in mind while designing our next project in this area.

Much to our relief, the information that we found in the villages of Dediapada is not very different from what's already available on HAP (Household Air Pollution) and its deadly yet almost invisible impact. But, it definitely has helped us in creating a blue print of much tighter framework for our next training and capacity building intervention planned in December 2019.

As a take away, I feel that only if development sector professionals start to apply principles and processes from the corporate sector, the journey to beneficiary led impact is less erroneous and data driven, something that can be rectified before it's too late.

After having understood some aspects of the cooking and living practiced by the Vasava tribes in Dediapada, we are now poised to undertake a more structured training programme in making smokeless chulahs based on Rocket Stove technology. This research has thrown open the sociocultural context in which we will implement the training and hopefully create a deeper level impact through behaviour change.

I would like to thank my colleagues Navneet Mishra & Ralph Gomes who made this research and compilation possible and to you for having shown interest in our work.

Warm regards,

Nitisha

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Introduction

About Smokeless Cookstove Foundation

The Smokeless Cookstove Foundation (SCF) is a Non-profit organisation working towards curbing the problem of Household Air Pollution. With its training program - the Smokeless Cookstove Revolution, SCF seeks to train the rural, migrant and tribal population with the skill of making a 'virtually zero-cost, efficient & improved cookstove' that has a considerably reduced smoke output based on the principles of Rocket Stove Technology. SCF's training program Smokeless Cookstove Revolution (SCR), imparts skills and knowledge required in making a virtually zero-cost, improved cookstove that significantly reduces the indoor emission of noxious fumes and use of biofuel input. Based on the Rocket Stove Technology, the Stove uses far less fuel than traditional chulahs and emits lesser fumes, improves efficiency and reduces cooking time so that the family members can use the rest of the time for furtherance of their livelihood (Daily wage, education, etc.) The raw materials used include locally available mud or clay, cut dry grass, rice puffs, cow dung and bricks. Individual metal moulds with specific dimensions are used to make the base for the chulah – also known as the doughnut. The metal mould manufactures for under INR 500 (~USD 7) and after that be used to make several hundred stoves. While the Chulha does not compete with other models of the Improved Cook Stoves available in the market, the solution provides immediate adaptability as it is not very different from a traditional chulha and is a 'no-cost' solution.

Background & Scope of research

In March 2019, the SCF launched a pilot programme in the Dedhiapada, Southwest region of Gujarat to provide interim relief in the kitchens of the underserved tribal communities. So far one training has been carried out in association with Sparsh based in Mumbai and Jeevan Tirth Foundation based in Anand, Gujarat.

In June 2019, the SCF team visited the location to assess the household level impact. The study used a detailed questionnaire for surveying the household multiple cooking options including traditional chulahs, LPG and smokeless chulah.

We found that in day to day practices of conducting training and intervention, there remain conceptual and operational challenges. Despite the strong grounding supports from local agencies, the operating principles that guide SCF in practice often remain broad in scope, and are seldom mapped out in explicit terms.

The market research aimed at addressing critical gaps in the training modules in a holistic and replicable manner to it promote smokeless chulahs in selected socially excluded communities. In this study, we investigated which factors influence the scope of implementing clean cooking habits. In this study, a team of 03 Members by the SCF led the data collection over 5 Days.

Study Area & Methodology

Study Area

Dediapada is a town in the Southernmost region of Gujarat. It's a part of the Narmada District. The region is surrounded by forest and is abundant with diverse flora, and fauna and home to many animal species as well. The beneficiary community in the village are that of the Vasavas. They are a part of the Bhil community from West India. The dominant occupation is farming and most households appear self-sustained, at the least. They mostly grow paddy, wheat, corn, among other crops. Grass roots organisation Jeevan Tirth works with the rural and tribal community in the context of Education, Livelihoods, Tribal & Dalit Rights and Preservation of Tribal Knowledge.



Geographical Placement of Dediapada, in the state of Gujarat

The following five villages covered for survey:

- 1. Kunba / कुनबा
- 2. Vadhva / वाडवा
- 3. Chikda / चक्ति्दा
- 4. Rukkhal / रुक्खल
- 5. Nawagaon / नवागावं

Methodology

The research methodology employed by SCF has been subject to numerous procedures to guarantee the quality and the reliability of the information contained within the reports.

We divided the data collection into two rounds. We started with the questionnaire by employing household surveys and following up with personal interviews. We first carried out a household surveys in four villages using a structured questionnaire and an additional focused group discussion with community members.

In addition to this, an interview was conducted with the Sarpanch of two villages, Vadhva and Chikda.

Market Research Tools

Sr. No.	Tool	Findings	Villages
01	Observation	 Traditional mud chulha are commonly available. Community prefers to cook on traditional mud chulha. Use of LPG as the main cooking medium is not feasible. Fuel consumed by most of the households are wood. Water scarcity is a big issue in the villages. Firewood collection is a problem in terms of time, accessibility and effort 	• Kunba/ कुनबा • Wadwa/ वाडवा • Chikda/ चकि्दा • Rukkhal/ रुक्खल • Nawagaon/ नवागावं
02	Focus Group Discussion (FGD)	 Each household had more than one traditional mud chulha. Wood collection point is 5 to 7 Km from village. Residents spend 04 hours daily to collect wood from forest. 	• Nawagaon/ नवागावं
03	Survey	 Community is aware that traditional mud chulha consumes huge fire wood. The labor cost associated with firewood gathering ranges from Rs.120 to Rs.150. The transportation cost associated with firewood gathering ranges from Rs.2000 to Rs.4000 depending on the distance to forests. Effects on health: Watery eyes, Cough, Headache, Runny nose and Respiratory diseases. 	• Kunba/ कुनबा • Vadhva/ वाडवा • Rukkhal/ रुक्खल
04	Key- Informant Interview	 Awareness of health effects of cooking smoke among women and children. Aspire to conserve forests and minimize wood fuel consumption at household level. 	• Vadhva/ वाडवा • Chikda/ चकि्दा

Village surveyed information

- 1) <u>Kunba / कुनबा</u> is a medium sized village located at a distance of 20 Km from Dediapada Taluka of Narmada District. The village has 150 (approximate) number of households. Agriculture is the main occupation of the village. We also found that electricity was only utilized for tube lights and fans. The village has one primary school and one *Aanganwadi* center.
- 2) <u>Vadhva / वाडवा</u> is a large sized village located at distance of 30 Km from Dediapada Taluka of Narmada District. The village has 1000 to 1300 (approximately) number of households. The village receives sufficient water supply because it has access to water from local river, at a distance of 1.5 Km from the center of village. The village has one secondary school and one *Aanganwadi* center. It also has one Hospital under *Ayushman Yojana* of Government of India.
- 3) <u>Chikda / 可硬</u> is also a large sized village located at distance of 26 Km from Dediapada Taluka of Narmada District. The village has more than 1300 (approximately) number of households spread across 09 Fali (Habitants).
- 4) <u>Rukkhal / रुक</u> is a medium sized village located at distance of 25 Km from Dediapada Taluka of Narmada District. The village has 150 (approximately) number of households.
- 5) <u>Nawagaon / नवागाव</u> is a medium size village located at distance of 2.5 Km from Dediapada Taluka of Narmada District. The village has 200 (approximately) number of households. In the village water is acquired from bore wells, hand-pumps and wells.



Key Findings

1. Age distribution population



- The average age of the study population is 42 years with age ranging from 30 to 60 Years
- Most of the study population were greater than 40 Years (47%) followed by 30-40 years (33%) and 50-60 years (20%).

Both	-		20%		
Outdoor	-	2015 L.C. 31 L.C.	× 2	26.67%	
Indoor	- - -				53.33%
0.0)0%	20.0	0%	40.00%	60.00%

2. Locations of the cooking area in the household

- Considering the location of cooking from the studied participants, majority of the cooking area was indoor (53.33%) followed by outdoor cooking (26.67%) and both (20%) depending upon the weather of the season.
- Most of the studied participants who cooked both indoor and outdoor prepared rice, roti, dal, vegetables/non-vegetables and boiled water.

Behavioural Outcomes



- Among the types of fuel used for cooking by participants, majority (92%) of the studied participants relied both on firewood and (8%) on animal dung available at household level.
- Due to high refilling charges, the number of LPG users are much lower than the number of firewood users.





Behavioural Outcomes



Note– The above representation is based on nominal data (not adequate respondent base) across respondents from 5 village and differed from House to Household within the village itself

- The time devoted to firewood collection is analyzed on the basis of quantitative and qualitative aspect.
- Community travel covers considerable distances from (5 to 7 KM) and time spent ranges from a few hours to more than half a day to collect firewood. These collection mostly conducted by adults, although in some cases by all family members, so both genders had contact with the resource. The dry season is the best season for the gathering of firewood. They store large collections of the gathered firewood near their settlements for the winter and monsoon season when the need is greater.
- The average firewood consumption was recorded as 08 Kg /day/family, with an average family size of 04 members.
- Firewood consumption varied in various family size, classes and also depending upon the usage of alternate cooking tool as LPG.



Social Costs Analysis



- Fuel gathering consumes considerable time for women and other adult members of the family which limits other productive activities (such as income generation).
- Fuel gathering also takes many hours per day for community which are located at a distance of 2 to 4 Km from forests.
- However community which are located at a distance of more than 5 to 10 Km, collect the stock firewood at single time for one year estimadely.

What are the costs (monetary and non-monetary) associated with the stoves and firewood consumed?

Sr. No.	Nature of Cost	Value	Villages
01	Purchase of traditional mud chulha	Rs.50/Chulha	• Rukkhal/ रुक्खल
02	Labour cost	Rs.120 to Rs.150/Day	Kunba/ कुनबाWadwa/ वाडवा
03	Transportation Cost	Rs.2000 to Rs. 4000	Kunba/ कुनबाWadwa/ वाडवा

Social Costs Analysis

	Yes	No
Are you aware that the open cooking fire on a traditional mud chulha causes health hazardas?	43 %	57 %
Have you ever faced any physical problem while cooking at traditional mud chulha?	100 %	00 %

- We found that 57% (approx.) are not aware that exposure to smoke affects the health of those who are exposed to it.
- When asked about their personal experiences of physical problem with cooking on traditional mud chulha, (100%) women have suffered from headache, runny nose, cough, breathlessness, watery eye and redness.



Observations & Findings *Gram Sabha\Village-Vadhva*

- The fifth day of the field visit was very important as *gram sabha* was invited in *gram panchayat* Vadhva. All the participants and facilitators (*Sarpanch*) had reached Government School till 12:00 PM. Participants discussed their matters and opinions of respective issues in the villages.
- At the outset, representative of Vadhva *Sarpanch*, Sh. Karan Singh welcomed the SCF team. All villagers present thanked team to select their *gram panchayat* for organizing training to impart skills and knowledge required in making a virtually zero-cost, improved cookstove that significantly reduces the indoor emission of noxious fumes and use of biofuel input.

Observations & Findings

- ✓ Villagers assured for their presence in trainings to be organized by SCF.
- ✓ Enthusiasm in the villagers and Sarpanch for the intervention of SCF.
- ✓ An aspiration to conserve forests and reduced wood fuel consumption at household level, was observed among Gram Sabha's behavior .



Way Forward

It was a community focused study on 5 villages, which involved 15 to 20 participants in the age group of 30 to 60 years, permanently residing in the tribal area of Dediapada Taluka, District Narmada.

In our study, it was noticed that every household is using firewood and sometimes LPG for cooking. On assessing the awareness and attitudes of the participants regarding smoke emission from chulahs, most of them were not aware of its ill-effects.

From the gathered findings, it was possible for SCF to organize a training programme with 40 to 50 proactive community members in the month of November-2019 to impart skills and knowledge required in making of a virtually zero-cost improved cookstove that curbs the problem of Household Air Pollution. Based on the Rocket Stove Technology, the Stove uses far less fuel than traditional chulahs and emits lesser fumes, improves efficiency as cooking time is reduced.



Annexure – List of Survey Respondents

Sr. No.	Name	Village	Tools
1	Savita Behen Ram Singh	Wadwa	Survey
2	Savita Behen Jai Singh	Wadwa	Survey
3	Vanita Behen Punia Bhai	Rukkhal	Survey
4	Jatri Behen Punia Bhai	Rukkhal	Survey
5		Kunba	Survey
6	Ravina Ben Ravindra	Rukkhal	Survey
7	Rewaji Bhai, Sarpanch	Chikda	In-depth Interview
8	Karan Singh, Sarpanch (Rep.)	Wadwa	In-depth Interview
9	Jasoda Behen	Nawagaon	FGD
10	Chandrika Behen	Nawagaon	FGD
11	Babita Behen	Nawagaon	FGD
12	Manish Behen	Nawagaon	FGD



Report written by Smokeless Cookstove Foundation team based on field research carried out with Jeevan Tirth Field team from October 12-16, 2019





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