

Measuring the Impact of Village Milk Collection Centers on Women's Socioeconomic Development



Sara Gammon

Drexel, Missouri

2017 Borlaug-Ruan International Intern

MS Swaminathan Research Foundation

3rd Cross Street, Institutional Area, Taramani

Chennai 600 113, India



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“You must be the change you wish to see in the world.”

-Mahatma Gandhi

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Title: Measuring the Impact of Village Milk Collection Centers on Women's Socioeconomic Development

Name: Sara Gammon

Institute: The World Food Prize Foundation, Des Moines, IA, USA

Supervisor: Dr. R Rengalakshmi

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Abstract

Dairying is an important livelihood option for many landless farmers who wish to secure a steady source of income and nutrition year-round. However, in the past and in places in the present, unfair practices from milk vendors- late payments and dishonest weighing of milk- lead to minimized profits, reduced options for marketing, and, in consequence, no socioeconomic development occurred. An initiative started by the MS Swaminathan Research Foundation developed 15 village milk collection centers to intervene in the dairy value chain. This case study analyzes the impact of establishing a village milk collection center through focus group discussions (FDGs) and detailed questioning of center members, center managers, and non-members in the Reddiarchatram Block. The report identifies how village milk collection centers are a catalyst for women's socioeconomic development by increasing female income, generating employment opportunities, and closing the gender gap through gained confidence, increased knowledge, and improved ability to make decisions. The results of this study show that being involved with a village milk collection center empowers women farmers and they become better equipped to make decisions on all levels, increase their mobility, and improve their institutional linkage. Field Research conducted in villages in Reddiarchatram Block in Dindigul District and data analyzation at MS Swaminathan Research Foundation (MSSRF) provide a ground level insight on a model which can be applied globally to lift poor from poverty and into prosperity.

Key Words: empowerment, socioeconomic development, village collection centers

Chapter 1: Introduction and Background

Personal Background

Do it with passion or don't do it at all. If you don't absolutely love what you are doing than why are you doing it? When I find something I love I give it my absolute all and I strive to exude such a passion for what I am doing that it makes an impact on those around me. My greatest passions are agriculture and feeding the world, and I can attribute these to several specific opportunities: The National FFA Organization and the Global Youth Institute.

Growing up in a small, rural town of 965, I have been surrounded by agriculture for my entire life. Agriculture has been a part of my family's past, my present, and it will be an important part of my future. At Drexel High School, starting my freshman year, I had the opportunity to be a member of the National FFA Organization. Through FFA I learned how to be better, do better, and expect better from myself and others in all that I do. This organization showed me that I had more potential than I thought. It showed me that I can have an impact on others, and it instilled within me the values of honesty, service, and hard work. This organization is what motivated me to pursue a career in agriculture where I can exhibit my passion daily.

I remember walking into the 2016 Global Youth Institute that was held in conjunction with the World Food Prize and being awestruck. As a small-town girl from rural Missouri, I had never been exposed to so many cultures. Getting to be surrounded by people from all over the world was a new and exciting experience that planted a seed within me to want to work internationally. Everyone was there to work towards the common goal of ending world hunger and increasing global food security, each contributing their own unique ideas of how to accomplish this feat.

At the conclusion of the Global Youth Institute, the Borlaug-Ruan International Interns from the summer prior gave presentations on their experience. I remember sitting in the audience and thinking, *"Wow, this is exactly what I want to do for a career. I absolutely have to apply, but there is no way that I am capable or intelligent enough to become an intern."* Receiving the email the following March saying "Congratulations" after completing a competitive application and interview process will be a moment I will truly never forget. The moment my career began.

I am often asked, "Why agriculture? Are you going to be a farmer?" From economics to policy to production to research to education, the opportunities within agriculture are endless. I will be pursuing a degree in Agricultural Economics and Global Food Systems with a desire to work

internationally to increase food security through economics and policy research. The world's population is on the rise which means people are going to have to come up with groundbreaking ideas to feed the world. How incredible will it be when one of those people is me?

MS Swaminathan Research Foundation (MSSRF)

Established in 1988, the MSSRF is a non-profit research organization that focuses on developing and promoting strategic, applied, anticipatory, and participatory research based on an approach that is:

- Pro-nature
- Pro-poor
- Pro-women
- Pro-livelihood.

MSSRF concentrates on six inter-disciplinary Programme Areas, all involving the four concepts mentioned above. The six areas are Coastal Systems Research, Biodiversity, Biotechnology, Ecotechnology, Food Security, and Information and Communication Technology (ICT).

Professor MS Swaminathan

Professor M S Swaminathan has been acclaimed by TIME magazine as one of the twenty most influential Asians of the 20th century and one of only three from India, the other two being Mahatma Gandhi and Rabindranath Tagore. He has been described by the United Nations Environment Programme as 'the Father of Economic Ecology' because of his leadership of the ever-green revolution movement in agriculture.

A plant geneticist by training, Professor Swaminathan's contributions to India's agricultural renaissance which has led to him being widely referred to as the scientific leader of the green revolution movement. His advocacy of sustainable agriculture leading to an ever-green revolution makes him an acknowledged world leader in the field of sustainable food security.

In 1987, Professor Swaminathan was named the first Laurette of the World Food Prize. He used the prize money to start the MS Swaminathan Research Foundation. At 91 years old, he continues to work to improve the lives of people around the world.

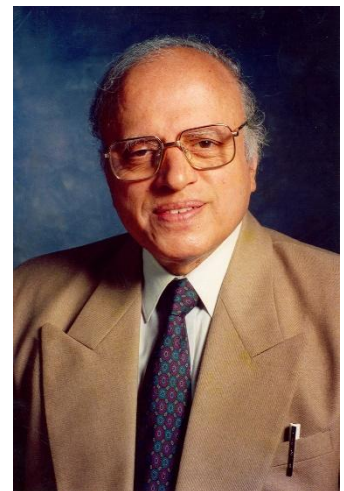


Figure 1: Professor MS Swaminathan

“...Charity begins at home. But if you are an educated person, do something which can help improve the lives and livelihoods of your fellow people. And then towards the latter part of your life, you feel more satisfied that you have done something not only for yourself or for your family, but you have done something which has made a slight difference in the lives of the less privileged.”

Ecotechnology Programme

The JRD Tata Ecotechnology Centre was established in the Foundation in 1996, with support from the Sir Dorabji Tata Trust, Mumbai and is dedicated to the memory of the renowned industrialist, the late JRD Tata. The Centre undertakes pioneering research and development activities to diffuse environmentally sound technologies through the Biovillage model of sustainable development based on a rural system research methodology which gives concurrent emphasis to raising farm productivity and profitability as well as non-farm employment, including small scale industries and ecoenterprises, such as dairying. Thus, the model focuses on promoting a human centered development following being an inclusive and process oriented approach for sustainable livelihoods at the grass root level. The framework includes improved modes for technology transfers, training and capacity building, grass root institution building, micro financial services and partnerships and linkages with other Government departments and agencies while keeping a focus on conservation and sustainability.

In all these approaches focus is given on strengthening, diversifying and identifying alternative livelihood options and eco-entrepreneurship with a special focus on the landless and marginal households through Self Help Groups (SHGs) and farmer federations like Kulumai Milk Producer Company. The Centre promotes and establishes user managed ICT-based Community Learning Centres, which supplies need based dynamic information like market, weather and climate to the different sections of the community. Community based institutions like SHGs federations and farmers associations are facilitated, which act as an effective local forum for decentralized planning and action.

Dairying in India

Millions of smallholders across India rely on dairying for their livelihood. Dairying is both a profitable and practical enterprise across all regions of India. According to the National Dairy Development Board (NDDB), milk is India's single most valuable commodity and is more valuable than both paddy [rice] and wheat combined. In an economic survey conducted by the Ministry of Finance of India, it was found that India ranks first in milk production, accounting for 18.5 per cent of world production. Dairying at the household level is largely the woman's domain. The National Commission for Women says that females constitute nearly 60% of labor in farm production in India. In the article, Role of Dairy Industry in Rural Development which is published in the International Journal of Advanced Research in Engineering and Technology, it

was found that the dairy sector is a major source of income for 27.6 million people with 65-70% being small, marginal, and land-less farmers.

Kulumai Milk Producer Company Limited

The Kulumai Milk Producer Company was established by MSSRF in December of 2014 and legally incorporated on January 21, 2016. It was established to support the empowerment of women on all levels of the milk value chain through backward and forward linkage. Backward linkage includes offering new fodder varieties [(Hybrid Napier Grass (CO4) and Fodder Cholan (COFS29), and Hedge Lucerne], concentrate feed, and veterinary services at a 30% discount. The National Bank for Agriculture and Rural Development (NABARD) funds all schemes offered through the Joint Liability Group (JLG) such as access to loans for milch animals at interest rates of 11% (Compared to 36% from vendors), insurance in case of milch animal death, and JLG savings accounts. Forward linkage includes the use of collective marketing to secure premium price for milk and access to a national market through partnership with ABT-Sakthi.

Mission

- Wealth maximization of its members
- Backward and forward integration
- Capacity building of women
- Information dissemination
- Avoid the intervention of intermediaries

Goals

Short-Term:

- Increase membership
- Increase bulk member cooler storage capacity

Long-Term:

- Construct a pasteurization and processing unit
- Expand company to entire Dindigul District
- Direct market to consumers

The Kulumai Milk Producer Company has implemented a system that encourages the production of high quality milk by giving producers a higher price per liter based upon the percentage of fat and solids not fat (lactose, caseins, whey proteins, and minerals) present (see equation below). These are key indicators of milk quality. The average pay is Rs. 25-30 per liter compared with an average of Rs. 20-21 from a vendor.

Kulumai Milk Producers Company Pricing Formula

$$(\text{Fat percentage} + \text{Solids Not Fat percentage}) \times (\text{Total Solids})$$

Total solids is calculated as the price of 1k of SNF + Fat

*Changes frequently depending on season and international market

Industry Standard

$$(4\% \text{ Fat} + 8\% \text{ SNF}) \times (\text{Rs. } 210)$$

Within the current village milk collection center model, the base is the producer. The producer will then bring their milk to the collection center where it is weighed, tested for quality and quantity, and a receipt of payment is given. It is at this phase where MSSRF's intervention stops. From the collection center the milk is collected by ABT and taken to their cooling center to be merged with milk from all centers. After cooling, it is shipped to a neighboring state for further

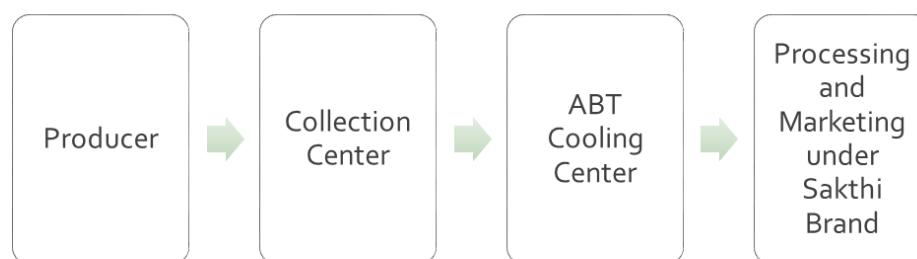


Figure 2: Current Village Milk Collection Center Model

processing and then marketed under the national brand, Sakthi (Figure 2).

No.	Name of the village/Center	No. of Members	Liters Per Day	Center Starting Date
1	Alathuranpatty*	33	125	Dec 2014
2	Kathiranampatty*	24	250	Mar 2015
3	Thathangottai*	42	300	Mar 2017
4	Alavachipatty*	10	100	Feb 2017
5	Eramanayakkanpatty	21	225	Dec 2016
6	Kulathupatty*	23	175	Feb 2016
7	Kalanjipatty	11	90	Jan 2016
8	Kunjanampatty (Bulk)	12	90	Oct 2015
9	Surakkapatty (Bulk)	11	100	May 2016
10	D.Kombai*	21	225	Aug 2016
11	Ellapatti*	17	175	Dec 2016
12	Thippampatti*	25	200	Mar 2017
13	Veerapudaiyanpatty (Kopayi center)*	10	150	Jan 2015
14	Veerapudaiyanpatty (Mahajothi center)*	20	200	Mar 2015
15	Mangarai*	10	90	Jun 2015

	Total	235	2250	
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Table 1: Distribution of Members in Centers within Reddiarchatram Block

* denotes center included in research data collection

Chapter 2: Methodology and Research

Project Objectives

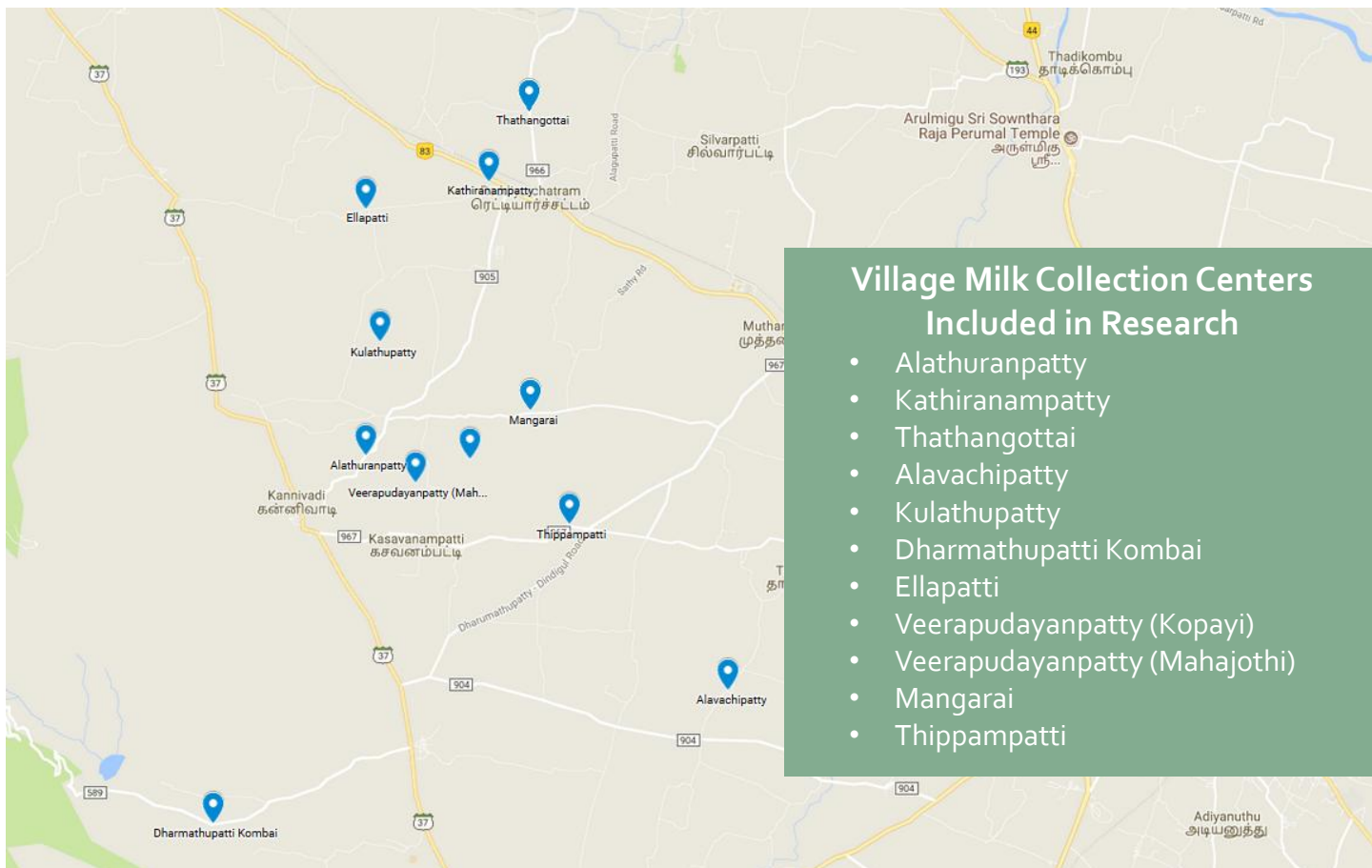
The study was conducted on the microlevel within the Reddiarchatram Block within the Dindigul District of Tamil Nadu. The main objectives are:

1. Identify the impact of being involved with a village milk collection center on personal socioeconomic development
2. Proof-of-concept
3. Provide an outsider's prospective on what could be the next stage in development

Project Limitations

The biggest limitation for my research was the time constraint. Since I only had two months to conduct my research and two weeks in the field to conduct interviews, I had to come up with a feasible project. I decided to stay within one revenue block (Reddiarchatram) to provide data within a single geographic region since all centers established by the MS Swaminathan Research Foundation were not included in the results. The results of the research are an accurate portrayal of the village milk collection centers within Reddiarchatram Block but do not display results that represent all village milk collection centers established by MSSRF and others. However, they may be useful as a guide or a comparison.

Another limitation was the language barrier. Since I am not a native speaker of Tamil and Hindi, a translator was used to conduct all interviews. Although my translator was both very knowledgeable on the subject and well-spoken, some words and/or phrases were lost in translation between the respondents, the translator, and myself. There were also times when the respondent had their husband speak on their behalf. As a result, their answers were influenced by other people.



Methodology

Location of the Project

Figure 3: Map displaying the geographic locations of the 11 village milk collection centers used in data collection

The research was carried out in the Reddiarchatram Block, Dindigul District, Tamil Nadu, India

Sample Selection

The qualified respondents for the research were chosen based on accessibility and convenience. Those who were available to respond while we were visiting the village were surveyed. In total, 49 interviews and 4 focus group discussions were conducted.

- Individual Interviews¹
 - 20 Members
 - 20 Non-Members
- Collection Center Manager Interviews²
 - 9 Manager Interviews for 11 Centers

Focus Group Discussions

The four conducted focus group discussions (FGDs) of members and non-members followed the questionnaires found in the appendix. At least 4 respondents were present for each discussion.



¹ At least one member and one non-member were surveyed from each of the 11 villages containing a collection center

² Two center managers each run two village milk collection centers

Results

Figure 4: Focus Group Discussion with members in Ellapatti

The results demonstrate that being involved with a village milk collection center empowers women farmers and they become better equipped to make decisions on all levels, increase their mobility, and improve their institutional linkage.

- Members of the center experienced greater social development than non-members because of attendance at trainings, networking, and entrepreneurship
- Members of the center experienced greater economic development than non-members because of access to banks, milch animal insurance, and on-time payments
- Non-members chose to remain as so because they imagine that there are a lot of norms and regulations to be followed when part of a group

Income:

- Average Payment per Liter
 - (Used lowest per Liter price received by member)
- Members
 - Rs. 26.55
- Non-members
 - Rs. 21.45
- Difference of +5.1 per liter

Savings:

- 100% of members have savings within joint liability group (JLG)
- 75% of members have personal savings
 - Only 15% of non-members have personal savings

Knowledge:

- 100% of members reported gaining new knowledge through dairying
 - Only 20% of non-members reported gaining knowledge

Knowledge includes:

- Animal healthcare
 - Diagnose, treat, and prevent disease
- Feed management
 - Increase quality and quantity
- Business skills
- Accounting skills

The research finds positive impacts of membership on women's economic empowerment which is defined as the ability of women to access and control how the money is spent (Figure 5).

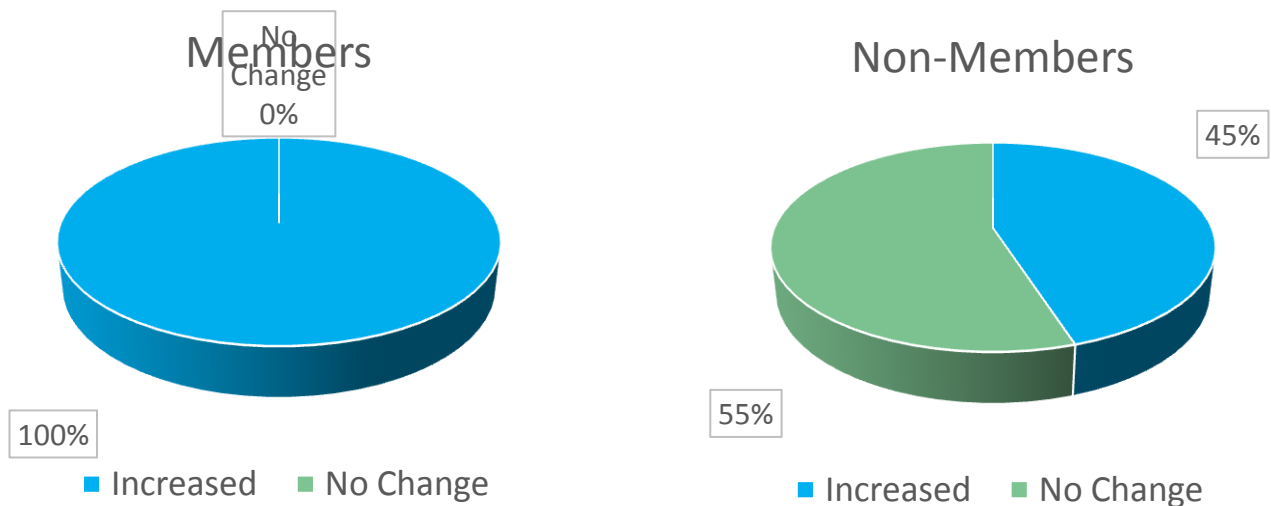
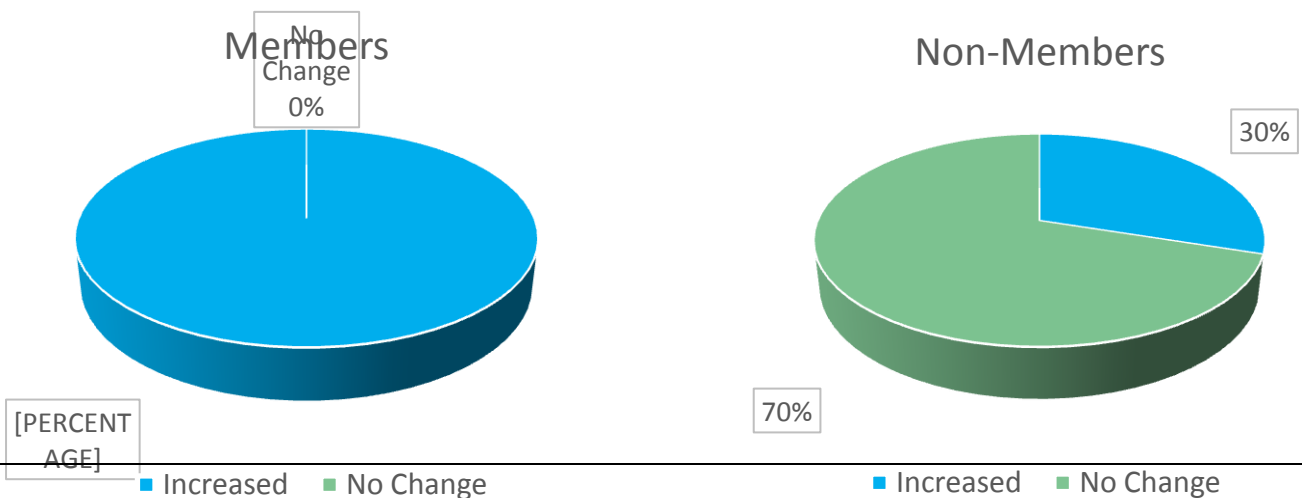


Figure 5: Economic empowerment through dairying comparison

The research finds positive impacts of membership on women's mobility and decision making



(Figure 6).

Figure 6: Social empowerment through dairying comparison

Dairying Process

The milking process starts at the home with the woman of the house. After sterilizing each teat with a sanitizing dip, the cow(s) is milked and the milk is put into a clean container for



Figure 7: Woman milking



Figure 8: Metal Milk Containers



Figure 9: Milk being weighed on a scale at Alathuranpatty collection center



Figure 10: Machines used at each collection center to test for impurities and milk fat

transportation to the village milk collection center.

Upon arrival at the village milk collection center, two samples of milk from each container is tested using an ultrasonic processor to test for impurities and a lactometer to test quality and determine milk fat percentage. The batch of milk is then weighed, and a computer displays the data on a screen for the farmer to view, immediately sends the data to the Kulumai Milk Producers Company, and then prints out a receipt. An SMS message receipt is also sent to each producer's cell phone and payment is directly deposited into the producer's account each Wednesday.



Figure 11: Collection center manager testing for milk fat percentage



Figure 12: Collection center manager testing for impurities

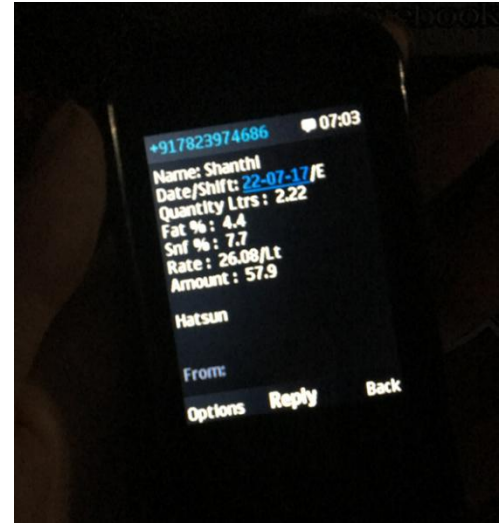


Figure 13: Individual paper receipts and SMS receipts given to producers after each sale of milk

The manager of the ABT cooling center then arrives at the village collection center each morning



Figure 14: ABT Cooling Center bulk milk cooler

and each night, picks up the milk, and takes it to the ABT center to be cooled for several hours.

From there it is loaded into a tanker truck and delivered to Pollachi to be packaged and further processed into things such as curd, butter, or ghee.

Chapter 3: Conclusions

Impact on Food Security

Knowledge is power. Giving someone the tools they need to do something, become stronger, and become more confident is empowering. Teaching someone the skills necessary to further their personal socioeconomic development rather than giving them a handout will be far more beneficial in the long run. Knowledge can be disseminated among a village, transferred from parents to children, while a one-time plate of food cannot. Learning how to run a business, learning better techniques for producing quality milk, learning the benefits of using newly developed fodder varieties, and learning to have the self-confidence to make decisions yourself will empower you. Empowerment and closing the gender gap leads to increased income, confidence, and food security. Dairying allows millions of smallholders to have a reliable source of income year-round and use the profits to expand their enterprise, invest in their children's education, and better their socioeconomic standing.

Suggestions for the Future

From an outside perspective, one could draw the conclusion that the village milk collection model has successfully fulfilled the goals set forth by MSSRF and the Kulumai Milk Producer Company. However, after a careful study of the model, it is realized that more can be done in short and simple interventions over time.

After studying the entire value chain as is, the long-term goal should be vertical integration and separation from ABT. Although ABT gives producers the ability to market their milk under the national brand of Sakthi, by intervening and placing women at all levels of the value chain, employment is opened and women move into higher rolls. This model could take on the form of selling processed products or marketing direct-to-consumer. A new idea that I would humbly propose is marketing the milk directly to schools. The reason for this being that there will always be a steady market in place, and it will not only provide a market for women but it will in turn also strengthen the nutrition of children. Currently there is no allocation in India's Mid Day Meal Scheme for milk. There is a requirement for protein, which is often fulfilled by way of pulses.

Moving forward, it is important to look for opportunities to include women in more sectors of employment as well as keeping the current method of pricing which encourages and rewards the production of quality milk with higher price per liter.

Personal Reflection

"The best way to find yourself is to lose yourself in the service of others."

-Mahatma Gandhi

As I traveled around to interview the women involved with the milk collection centers for my research, I won't lie, it was frustrating at times. This wasn't because of the language barrier or the hot summer sun beating down on my pale skin. Most often it was because as I was attempting to ask these women questions about how they have been empowered, their husbands would show up and completely take over the conversation despite all my efforts to have them let their wives answer. Sure, the husband can answer about the economics in the home and the age of their wife, but it is difficult to get an accurate response from the wife of "What was your husband's initial reaction to becoming a collection center member?" when their husband is looming over their shoulder. These women were lacking social justice.

It was all a bit hard to swallow, the vast differences between India and America. Females are still regarded as unequal in many places in India. I worked with many amazing women at the main office of MSSRF, don't get me wrong, there are plenty of phenomenal women leaders challenging the status quo, but too many are not this lucky. During my interviews, it excited me when women would tell me that since becoming involved in dairying, her decision-making power has increased, but then it pained me to hear that she never attended even the free government school because she did not have the opportunity.

If you look at poverty from the outside, you may "*see*" underdeveloped infrastructure, rural villages, malnutrition, and nameless people working their hardest just to get by. However, you cannot truly see poverty until you are immersed in it, surrounded by it, and forced to look at it for what it truly is. You cannot see the extent of the social injustices and the lack of global citizenship. Most of us tend to shy away from this subject because of the depressing nature of it. The commercials on TV show hungry children and tell you to donate a dollar a day to feed a child in need. While this is great and all, is that really all that these people need? Your money? No, in my opinion, it isn't. Those commercials give you the mindset that your money will solve all the issues as if you donating a dollar a day will somehow cure hunger. Granted it might cure one person's hunger for a moment. Giving someone a plate of food or a dollar doesn't help to solve the problem, what does a, "*Here you go, now wait until someone else phones in and*

donates a dollar," do other than fill a child's stomach for a single night. This isn't sustainable, but knowledge is, showing people new ways to earn those dollars themselves is, empowerment is, social justice is.

It's a hard reality to face, knowing that you cannot change the world in only 8 weeks in a developing country, but if you can change one person's world, make an impact on one person's life, that doesn't account for nothing. Here is a quote which I believe best exhibits this notion:

“People who really want to make a difference in the world usually do it, in one way or another. And I’ve noticed something about people who make a difference in the world: They hold the unshakable conviction that individuals are extremely important, that every life matters. They get excited over one smile. They are willing to feed one stomach, educate one mind, and treat one wound. They aren’t determined to revolutionize the world all at once; they’re satisfied with small changes. Over time, though, the small changes add up. Sometimes they even transform cities and nations, and yes, the world.”

-Beth Clark

My expectations of what India would be like, what hunger and poverty looked like, have been shattered. I have met some of the most resilient, hard-working people in the world. When faced with adversity, they find ways within their means to overcome. The problem is not that the farmers are not intelligent and unwilling to put in the effort. They work hard at what they do and they are doing great things with what they know. Intelligence is not the same as knowledge. Intelligence is the ability to acquire knowledge and knowledge is information. Just like William Burke, an agricultural economist and consultant at Michigan State University said in his article *Africa Needs Better Farm Policy- Not Better Farmers*, the problem I have seen in India is lack of knowledge, lack of accessible resources, lack of the ability to market their product, and lack of supporting policy, not a lack of intelligence or hard work. Once given these things, an entirely new world opens up. It is also important to remember that even small change takes time. Change makes you uncomfortable. I know change makes me uncomfortable. You cannot expect someone whose family has been following the same methods for decades to suddenly accept the help from a stranger. Burke wisely said, *“If you can try to begin to understand the world from the farmer’s perspective, the slow pace of behavioral change isn’t so confounding...”*

You can only do so much with the hand you have been dealt. Sure, you can work with a king, queen, jack, and ten, but if you are given an ace to add to your hand, wow, you can do so much more. The ideas and technologies created, the new methods developed, must be given directly to those who will benefit. As Norman Borlaug said- his famous last words- *“Take it to the farmer,”* and that my friends, is exactly what we must do.

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