

Of Compassion and Community Tanks:
How the work of the MSSRF has changed not only the lives of rural villagers in
Pudukottai, India, but my life as well.

By Danika Schaaf



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Acknowledgements

First, thank you to the late Dr. Borlaug, Ambassador Quinn, Mr. Ruan, Mrs. Fleming, for giving me the opportunity to complete a Borlaug-Ruan internship. My internship was life-changing and I cannot express the depths of my gratitude for this experience. Also, thank you Mrs. Fleming for keeping in touch with all of the interns while we were gone. I am sure it must have been difficult to keep track of fourteen teenagers who were scattered across the globe.

Next, thank you Professor Swaminathan, for the hospitality you showed me during my time at the MSSRF. Also, thank you for giving me the opportunity to study at the Foundation. Seeing all of the positive changes the Foundation is bringing about has been incredibly inspiring.

Thank you, Dr. Sudha, for guiding me in the beginning of my internship. Also, thank you for checking my progress and making sure everything was going well.

Thank you, Mrs. Shanti Durai, for tirelessly editing each draft of my paper and for all of the help and encouragement you gave me along the way.

Thank you, Dr. Rajagopal, for suggesting which reports I should read about the Pudukottai watershed project. The background information I gathered about the project was extremely useful.

Thank you, Dr. Nageswaran, for making sure I gathered all of the information I needed for my research and for answering any questions I had about the watershed project.

Thank you, Mr. T. Senthilkumar, for being my translator. Without your help, I would not have been able to get the information I needed.

For those at the Ecotechnology Centre, thank you for so warmly welcoming me into your workplace environment and making me feel like part of your workplace family. I am indebted to you for your kindness.

Introduction

My name is Danika Schaaf. I am from Des Moines, Iowa. When I wrote a research paper for the 2008 Youth Institute, I was a Senior at Roosevelt high school. Now, I am a Freshman at Iowa State University. At ISU, I am majoring in Global Resource Systems, a major offered through the College of Agriculture. Global Resource Systems is a multi-disciplinary program that prepares its students for careers in agriculture which will take them around the globe. The events that have taken me to this point in my life were set in motion by my impulsive decision to write a paper for the 2008 Youth Institute.

“When someone makes a decision, he is really diving into a strong current that will carry him to places he had never dreamed of when he first made the decision,” (Alchemist). When I first decided to write a paper for the 2008 Youth Institute, I had no idea what I was getting myself into. For example, I did not realize that, during the Youth Institute’s three-day events, I

would meet researchers from around the world who were so compassionate that they have built their careers around helping others. I had no idea these same researchers would inspire me to pursue a career in agriculture and I could not anticipate that I would be given an amazing opportunity to conduct research in a foreign country. In short, I did not predict the Youth Institute would change the direction of my life.

After attending the Youth Institute, I decided to apply for the Borlaug-Ruan internship for a few reasons. First, the scientists I had met at the Youth Institute impressed me. I thought it was really inspiring that these scientists had come from all around the world to discuss the problems facing food security and what could be done about them. Next, I enjoyed learning about how combinations of science and food policy could help solve hunger issues. Last, I had realized that a career in agriculture could potentially allow me to travel around the world and learn about those in need. As a result of these realizations, I wanted to apply for the Borlaug-Ruan internship because I felt the internship could show me what a career in agriculture would be like.

Then, as luck would have it, I did get a Borlaug-Ruan internship. For my internship, I would spend my summer in India so I could do project research from the M.S. Swaminathan Research Foundation (MSSRF).

About the Work of the MSSRF

Professor M.S. Swaminathan established the MSSRF in 1988. The Foundation was started with the aim to “enlist science and technology as allies in the movement for sustainable development with social and gender equity,” (Twenty Years). Today, the MSSRF has implemented numerous projects that have helped out the people of India. These projects range from laboratory research, such as genetically modifying plants, to social projects, such as involving women in theatre so they may express themselves and bring light to social issues they find important. Despite that I have only described a small fraction of the work of the MSSRF, one may clearly see its work has benefited many people in a variety of ways.

How I Chose my Research Topic

When I first arrived at MSSRF, I knew two things for sure. First, I wanted to study food policy. Second, I wanted to be able to work one-on-one with rural farmers. The only problem was that I did not know which of MSSRF’s many social projects I wanted to focus on. As a result, one of my supervisors, Dr. Sudha Nair, suggested I attend an up-coming meeting that would be a review of the five watershed projects currently going on at the Foundation.

After attending the meeting, I learnt how watershed projects use water-harvesting structures (such as wells, dams, drip irrigations systems, and Community-Managed Percolation Tanks [CMPTs]), Intensive Farming Systems (IFSs), and Community-Based Organizations (CBOs) to help rural communities. To explain part of the importance of watershed projects, I will briefly examine both the need for water-harvesting structures and how the IFS works.

First, India is facing nationwide water shortages that are affecting all levels of society. Although, there is a simple solution that may help alleviate India’s problems. Part of the solution lies in the creation of water-harvesting structures, such as the tanks in Pudukottai. For instance, as a result of the tank, villagers are able to use water the tank collects to increase their agricultural productivity, and in turn their incomes, as well as conserve their natural water

resources. Therefore, the rainwater harvested in the tanks has benefits on both a local and national scale.

Next, IFSs are a major part of the watershed projects. They are water-use efficient, self-sustainable systems that give villagers a wider variety of income sources during the monsoon season. To do this, IFSs use multiple, inter-locking components.

To explain how an IFS works, I will provide an example of how a hypothetical IFS based around a tank might work. First, fodder plants are planted around the border of the tank. Water from the tank is used to water the fodder plants, so the farmers do not have to use well water to water the plants. Because the farmers can use the fodder to feed their cows and they do not have to buy them feed, they can afford to buy more cows and increase their amount of livestock. Next, the cow's milk and dried dung provides an alternative source of income for the farmers. Also, the cow's manure can either be made into vermicompost (a type of compost) to be spread over the farmer's crops or it can be put into the tank to enrich the water with nutrients.

Next, three types of fish are put in the tank to turn it into a fishery. The fish are bottom level, mid level, and top level feeder fish, so that none of the tank's water area goes to waste. When the fish grow to full-size, then they are harvested and sold. Next, to ensure that farmers do not have to buy the fish food, a chicken coop is installed by the side of the pond. The coop is installed so that part of it juts over the edge of the tank. Therefore, since the coop has a wire bottom and part of it hangs over the tank, the chicken's droppings fall into the water and are eaten by the fish. Also, the chicken's eggs may be sold by the farmers as another source of income. Second, a bug light is attached to the side of the coop so that bugs which are killed by the light fall into the pond and are eaten by the fish.

Last, banana trees are planted around the tank. Every part of the banana tree may be sold. For instance, everything from the banana fruits to the banana tree fibers has a use and can generate income for the farmers and their families.

The Analytical Framework of My Project

Once I had considered all of the projects I had heard and read about, I became interested in the watershed project in Meiyagoundanpatti, Pudukottai District of Tamilnadu State, which is led by Dr. Nageswaran.

When I chose what I wanted to study, I created a framework for my project with the help of Mrs. Shanti Durai. The objectives of my research were to study the role of men and women farmers in farm/watershed activities compared to household work, to understand how the watershed project has empowered its women members, and to learn how the CMPT has affected income levels, which have influenced food security.

The scope of my study was limited to the men and women members involved in the watershed program at Pudukottai. To gather my primary data, I used a semi-structured interview schedule to gather data from eleven women in Meiyagoundanpatti and three CBOs. These CBOs were the Micro-Credit CBO of Meiyagoundanpatti (this group had sixteen members I talked to), the Micro-Credit group of Sri Amman (I talked with the twelve members of this group), and the Landless Laborers Milch Animal CBO of Sri Konattamman (I talked with fifteen men and two women during this discussion). For the individual interviews, I talked with women who were available at the time of my field visit. Then, times were arranged for me to meet with the Micro-

Credit CBOs in the evening after the women had finished their day's work. The focus group discussion with the Landless Laborers Milch Animal CBO was held in the morning when the men (and two of the women) in the group were not working. Altogether, I talked with thirty women and fifteen men. To get my secondary data, I read reports about both the Pudukottai watershed project and other watershed projects as well.

Even though the members of the Sri Amman and the Sri Konattamman CBO do not live in villages where a tank has been constructed, I held focus group discussions with them for a couple of reasons. First, the CBOs were created as part of the watershed project in the area. This is because, even though the watershed projects are centered around water-based structures, the projects are meant to help as many people as possible in and around the water tank. Also, the members of each organization have seen positive changes occur in their lives as a result of joining their organization, just as the families in Meiyagoundanpatti have.

To gather information, I first traveled three-hundred and twenty two kilometers (two hundred miles) to Tiruchchirappalli (or Trichy) on Thursday, July twenty fifth, with Mrs. Shanti Durai and Dr. Rajagopal. At the end of our first day in Trichy, Mrs. Shanti Durai and Dr. Rajagopal went back to Chennai. Then, Dr. Nageswaran became my supervisor. Under his direction, I spent the next ten days conducting my field research. To collect my data, each working day, Dr. Nageswaran and I commuted fifty kilometers (thirty one miles) to Pudukottai. From there, I commuted to Meiyagoundanpatti, Pudukottai with Mr. T. Senthilkumar. By the time my stay in Pudukottai was finished, I had gathered the information I needed.

When I got back to Chennai, I spent one week compiling the data, analyzing, and writing about the results of my research in the form of a report. Then, I revised it with the help of Mrs. Shanti Durai and Dr. Sudha Nair. Last, when I finished my report, I prepared a presentation about my research results to be presented to a larger audience at the Foundation.

About the Team at MSSRF

From the beginning to end of my project, I was assisted by a number of people versus just one.

- Dr. Sudha Nair

Dr. Sudha Nair is the Director of the J.R.D. Tata Ecotechnology Centre at the MSSRF. She is also the team leader of the Centre and is responsible for overseeing all of the programs at the Centre. When I first arrived, Dr. Sudha Nair helped me chose an area I wanted to focus on. Then, during the rest of my stay, she monitored the progress of my work.

- Dr. Rajagopal

Dr. Rajagopal is the Principle Coordinator of the watershed projects. Therefore, he monitors the progress of each watershed project. Dr. Rajagopal initially guided me and gave me reports to read about the Pudukottai watershed project.

- Mrs. Shanthi Durai

Mrs. Shanthi Durai is the Principle Scientist at the Ecotechnology Centre. It is her

responsibility to look into the social and gender components of each program at the Centre. Every day, Mrs. Shanthi Durai checked my progress on my work and answered any questions I had.

- Dr. Nageswaran

Dr. Nageswaran is the Principle Scientist coordinating the Pudukottai watershed project. His work responsibilities range from attending ground-breaking ceremonies for new CMPTs, to writing reports about the recent watershed activities. While I was in Pudukottai, Dr. Nageswaran made sure I was able to gather the information I needed.

- Mr. T. Senthilkumar

Mr. T. Senthilkumar is the Social Scientist for the Pudukottai watershed project. His duties include community mobilization and capacity building, assisting farmers in agricultural activities, helping prepare documents, and monitoring the CBOs. During my field research, Mr. T. Senthilkumar was also my translator for when I interviewed the women of Meiyagoundanpatti.

Background Information on the Pudukottai Watershed Project

From start to finish, a watershed project takes five years to complete. During the five years, the control and responsibility of the watershed project is gradually transferred from the MSSRF staff into the hands of the community. Then, at the end of the five years, the villagers may take full responsibility for the project. The watershed project in Meiyagoundanpatti is in its second year of completion. Despite that the project is not yet half finished, it has already yielded many benefits for the residents of Meiyagoundanpatti. For instance, some of the benefits include: greater access to water (the tank can hold up to three million liters of water), the ability to grow a wider variety of crops (these crops will be reviewed later on) and cultivate more land, and an increase in family's incomes. Although, it must be noted that there are more benefits than this, but they will be addressed later on.

One key part to understanding the success of the watershed project in Pudukottai is to understand how the CMPTs and CBOs work. First, CMPTs will be examined. The villages picked to receive a CMPT have to meet standards created by the MSSRF. According to the February 2007 - October 2008 Project Report, these are the following requirements which communities have to meet: villagers must have issues with water availability and water management, they must lack irrigation facilities and be dependent on rainwater for their irrigation uses, there must be low agricultural productivity and little crop diversity, there has to be a large amount of land unsuited for cultivation, the literacy rate should be low among community members, employment opportunities must be low, and the community must be willing to accept and participate in project activities. If a village meets this criteria, then it is eligible to become part of a watershed project.

Next, according to the Process Document on Participatory Planning, before excavation begins on the CMPT, there is background work which needs to be done. First, meetings are held with the community members of the village that will become part of the watershed project. This is done so that the staff of the watershed project may get a better understanding of the village's social structure, cropping patterns, water uses, agricultural problems, and so on. Then, CBOs such as the Watershed User Group and the Watershed Community Agriculture Association self-

help groups are created. The groups are formed to help the community members, ensure that they are directly involved in implementing the project and help make decisions about it, and that they feel a sense of ownership over it.

During the rainy season, water harvesting structures, such as tanks, become filled with rain water. In Pudukottai, the rainy season lasts from September until February. As it gathers water, the tank helps re-charge the wells surrounding it. This happens because, since the tank does not have an artificial lining, some of the water seeps through the ground into wells within a three-hundred meter (nine hundred eighty four ft) radius. Once the pond is filled with water, families may use it to help meet their water use needs.

Based on the needs and available natural resources, the villager's water storage structures and farm lands are inspected to see what they are like. Then, a location is picked for the CMPT that will be the most beneficial for the villagers. Next, a decision is made about what type of water-holding structure will best benefit the community. After that, an engineer inspects the proposed site for the tank and makes sure there are no problems with it. Last, construction work on the tank is started. Within two weeks, it is built.

Water Harvesting in Tanks - the Technical and Administrative Aspects

Even after the CMPT is excavated, there is still more work to do. This work includes installing a fence around the border of the pond to keep animals away from it, planting banana trees around the inside border of the fence, planting fodder around the border of the pond, and, for some tanks, putting fish into it to turn it into a fishery. Since the watershed project staff cannot continually monitor the well-being of the pond, the community is mobilized. As a result, it is the responsibility of the women to take care of the pond. Although, their responsibilities will be examined later on.

Now, it is time to see how the CBOs work. When a village is selected to become part of a watershed project, the community members are not only required to care for and use the pond in a responsible way, but they also have to join the CBOs which are formed in their village. Even though there are a wide variety of CBOs, they all have a similar intent. First, the CBOs help their members overcome a common, usually economically oriented, problem that all of the members face. Next, the group interactions during CBO meetings help the members for tighter bonds so they may support one another.

About My Research

Once I decided I wanted to study the tank in Pudukottai, I had to chose an aspect of it I wanted to research. After Dr. Sudha Nair suggested various aspects of the CMPT I could study, I decided to research how the implementation of the tank in Meiyagoundanpatti had affected the amount of work women do. Although, I would soon find out that the lives of the women had been affected in many positive ways I had not expected.

On my first day in Trichy, Dr. Nageswaran joined Dr. Rajagopal, Mrs. Shanti Durai, and myself and then we commuted to a town called Keela Ennai, which is located in Pudukottai. At Keela Ennai, we got to watch a Bhoomi Pooja ceremony. The Bhoomi Pooja is a Hindu ceremony where a priest asks the Gods for their blessings. In this case, the priest was asking the Gods to place their blessings on the tank that was to be built in Keela Ennai. During the ceremony, I was lucky enough to be able to participate. As part of the ritual, coconuts were being

cut in half and then their milk was offered to the Gods. Since I was a guest, I was given the honor of breaking a coconut as part of the ceremony.

Because I arrived in Trichy on a Friday, I spent the rest of the weekend reading review reports about the project and doing desk research. On Monday, I started my field research. Over the next six days, I interviewed eleven women and participated in three focus group discussions with three CBOs. The talks with the CBOs were held in the evening when the community members would be available because they had finished their day's work. Through the interviews, which were conducted with the help of Mr. T. Senthilkumar, I learned how the CMPTs had positively impacted the life of each woman I interviewed. Next, the focus group discussions helped me understand how the lives of members of the CBOs had been positively impacted as a result of joining their group.

Study Findings

- Family Size and Occupation

Of the sixteen households in Meiyagoundanpatti, I interviewed eleven women from ten different households (two of the women were married to the same husband) and used the information they gave me as the source for my data.

Table 1 The Composition of an Average Household

S.N.	Gender	0-14 yrs.	15-40 yrs.	41-60 yrs.
1	Male	1	2	1
2	Female	1	2	0

The average age of the women I interviewed was thirty seven. Also, although it is not shown in this table, three households had a member in the family who is more than sixty-one years old.

An average household consists of a husband and wife, two daughters and three sons. Out of the eleven women, only four had received an education. Two of the women had studied until the second standard, one until the third, and one until the tenth standard. For ten of the families (91%) agriculture was the primary job for both the males and females of the household. Next, in eight of the families (73%), both the husband and wife had second jobs. These jobs could include selling fuel wood, making artificial diamonds, working for the government, making bricks, or running a printing press. Although, it should be noted that three of the eight women (37.5%) sold fuel wood and another three (37.5%) made artificial diamonds. Also, three of the eight males (37.5%) depended on selling fuel wood as their secondary source of income. Last, each family (100%) had at least one cow.

Table 2 Primary Sources of Income

S.N.	Job	Males	Females
1	Agriculture	10	11

S.N.	Job	Males	Females
2	An electrical employee	1	0

For ninety-one percent of the families, both the male and female gave agriculture as their primary source of income. For one family (9%), though, the husband's primary source of income comes from his work as an electrical employee.

Table 3 Secondary Sources of Income

S.N.	Job	Males	Females
1	Selling fuel wood	3	3
2	Making artificial diamond jewelry	1	3
3	Making bricks	1	2
4	Running a printing press	1	0
5	Government employee	1	0
6	Agriculture	1	0

Note: Three families said agriculture was their only source of income. Also, for one family, the male's secondary source of income was agriculture.

For thirty-eight percent of the families, selling fuel wood is the secondary source of income for both the males and the females. Another popular job for the females was making artificial diamond jewelry (thirty seven point five percent of the women make artificial diamonds).

Impacts of Women's Participation

- Women's Work at the Household Level

Because the goal of my research was to learn how the amount of work women do during the rainy season was reduced, I will discuss my findings about that first. In households, women are in charge of getting the water used for chores. As a result, women have to get the water for drinking, bathing, for cleaning dishes, laundry, and for livestock. Since the CMPT gets filled during the rainy season, water becomes readily available during this time. Therefore, women may take water from the pond instead of using a pump to get water, which helps in reducing the amount of work they do.

Table 4 Time Spent Getting Water

S.N.	Purpose	Dry Season	Rainy Season
1	Drinking water	71 min (1 hr, 11 min)	45 min
2	Bathing water	55 min	31 min

S.N.	Purpose	Dry Season	Rainy Season
3	Laundry water	156 min (2 hrs, 36 min)	79 min (1 hr, 19 min)
4	Water used for cleaning vessels	64 min (1 hr, 4 min)	36 min
5	Livestock drinking water	85 min (1 hr, 25 min)	44 min
	Total	431 min (7 hrs, 11 min)	235 min (3 hrs, 55 min)

During the dry season, the women spend around two and a half hours getting water for doing laundry work (washing clothes) which is a large chunk of their time spent getting water. The total amount of time women spent getting water was reduced by forty-five percent during the rainy season, this is a direct effect of the construction of the tank. The women may use the time they save during the rainy season to relax or complete other tasks.

The advantages of taking water from the pond rather than using a pump to get it are twofold. First, on average, the total amount of time spent fetching water for all of the chores combined went from four-hundred and thirty one minutes to two hundred and thirty five minutes. Next, since water must be pumped up from more than ninety-one meters (three hundred ft) underground, the women were spared from the back and arm pain they get from pumping water.

Because many of the men in the village farm during the day, it is the responsibility of the women to take care of the tank. Therefore, once a month, each woman spends an average of one-hundred and ninety-minutes (three hours and ten minutes) doing maintenance work for the tank. This work involves repairing the fence, plant sampling, de-silting the pond, repairing soil erosion, fixing bunts, and weeding. Because the women are all equally responsible for taking care of the tank, each woman feels a sense of ownership over it.

Table 5 Tank Maintenance

S.N.	Time Spent on Maintenance of the Tank	Total
1	120 min (2 hrs)	3
2	180 min (3 hrs)	4
3	240 min (4 hrs)	3
4	300 min (5 hrs)	1
Average total amount of time		190 min (3 hrs, 10 min)

Once a month, the women of Meiyagoundanpatti do maintenance work for the tank. In the case of thirty-six percent of the women, the amount of time they spent on repairs was three hours. In one instance, though, the woman spent five hours doing repairs.

Table 6 Maintenance Work Activities

S.N.	Activity	Total
1	De-silting the tank	10
2	Weeding	9
3	Repairing the fence	6
4	Bunt repairs	2
5	Plant sampling	1
6	Checking for soil erosion	1

Note: each woman was involved in at least two maintenance activities.

To maintain the tank, the majority of the women help de-silt it. This is probably because de-silting the tank is a large job. Smaller jobs, such as plant sampling or checking for soil erosion, may be done by an individual.

- Leadership and Decision-Making

Every month, there is a meeting scheduled by the project staff that all of the villagers attend. At these meetings, the villagers are trained in a variety of useful ways. For instance, a couple of things they have learned are how to take care of the pond and how to develop their leadership and group social skills. Also, because decisions about the CMPT are made at these meetings, group discussions are used to make decisions. Since everyone may voice their opinion during these discussions, all eleven women (100%) I interviewed felt they had a fair say regarding the decisions made about the tank.

Table 7 Training Received for Maintenance of the Tank

S.N.	Training Details	Opinion	
		Yes	No
1	Training received for maintenance/care of the tank	11	0
2	Usefulness of the training received	11	0

At the monthly meetings, the women have learned how to care for the tank. Because the women have received this training, they can ensure the tank is always in good condition.

Table 8 Decision-Making in the Household

S.N.	Details	Total
1	The husband and wife make decisions together.	10
2	The husband makes the decisions.	1

Because I learned that women have a fair-say in making decisions about the tank, I was curious about their decision-making power at the household level. The ninety one percent of the women said she and her husband would discuss their problems and then make a decision together.

Table 9 Benefits of the CMPT

S.N.	Details	Total
1	There is greater access to water.	10
2	They may support more livestock and crops.	5
3	Living conditions have improved.	2
4	Their income levels have increased.	1

Note: some women gave multiple answers.

Almost all of the women felt the most beneficial aspect of the tank was having greater access to water. This has, in turn, led to the other benefits the women felt the tank has given them.

- Enhanced Family Incomes

Table 10 Impacts of Enhanced Incomes

S.N.	Areas the Women have Invested in	Total
1	Schooling for their children	6
2	More money has been put into savings	2
3	More crops and livestock were purchased	2
4	A brick-making business was started	1
5	A wedding was held	1

Note: one woman invested in two areas.

Since fifty five percent of the women have invested money in furthering their children's education, it is clear that they understand the importance of an education. Also, because one woman's family started a brick-making business, her family has created a new, lucrative source of income for themselves and their community because they have hired other villagers to work for them.

Because the income levels of families affected by the CMPT have risen, they have benefitted in multiple ways. The women said their greater incomes had helped them in the following ways: they have reduced their dependence on money lenders, there is now less seasonal migration, they may travel more, they have been able to invest in more assets, and their children are healthier.

Table 11 Loan Size and Interest Rates

S.N.	Loan Size		Interest Rate	
	Before	After	Before	After
1	3,000r	1,875r	16%	12%

After the tank was installed, the average size of a loan decreased by thirty seven percent. Also, the average interest rate went down by twenty five percent.

All ten of the families (100%) have been able to reduce their dependence on money lenders. (Since one woman said her family has never had to borrow money from money lenders, her family was not included.) Before the installation of the tank, families had to borrow money to pay for their children's education, the cost of weddings, festivals, and the cost of living. Also, on average, the size of a loan was three-thousand rupees, with an interest rate of sixteen percent. After the CMPT was installed, the most commonly cited reasons for borrowing money became paying for festivals and the cost of living. Next, the average size of a loan decreased to one thousand eight hundred seventy five rupees and the interest rate went down to twelve percent.

Although, a few families had even better results. As an example, in one case (10%), the amount of money the family borrowed decreased from ten thousand rupees to three thousand rupees. In this family's case (10%), they no longer needed to borrow as much money because their earnings have increased. For another family (10%), their interest rate on loans went from seventy five percent down to twenty-five percent. The interest rates on loans went down so drastically because the family no longer needed money in emergencies as desperately as it did before. Last, one woman (10%) said her family had stopped taking loans from money lenders altogether.

- Decreased Seasonal Migration

As an alternative source of income, it was common for a member in each family to travel to different towns and help other farmers with their paddy harvest. Six of the women I talked to (55%) said they no longer have to migrate for work because, as one woman said, "the wealth is here now."

Table 12 Seasonal Migration

S.N.	Women who Work Seasonal Jobs	Total
1	Yes	6
2	No	5

Before the installation of the pond, all of the women I interviewed had to do seasonal job work. Those who no longer travel to find jobs may stay home and do other tasks.

- Increased Mobility

Each woman I talked to (100%) said they felt their out-of-home mobility has risen. Now

that their incomes have increased, they can afford to make pilgrimages to temples and see festivals in other towns.

- Greater Investment in Assets

Every woman I talked to (100%) said her family has been able to invest in new assets. For example, five women (46%) have been able to pay for their children's schooling. Also, two families (18%) have put more money into their savings. Then, two families (18%) have purchased more crop seeds and livestock. Another family (9%) has started a brick-making business. Last, one woman (9%) said her family had invested in both her children's education and paid for their daughter's wedding.

- Increased Health in Children

Infants in the village are healthier than they were before. Because they can now afford it, mothers are weaning their babies earlier and feeding them formula instead of breast milk. This formula has more nutrients in it than breast milk and contains medicines. Therefore, the infants are healthier and better protected against certain illnesses.

- Increased Bargaining/Negotiating Power

As a result of their family's higher incomes, one-hundred percent of all of the women have said their bargaining/negotiating power has increased. Therefore, if a woman needs to get a loan from a money lender, then she may be able to negotiate with the money lender and get a lower interest rate now than she could before.

- Agricultural Benefits

Since water is readily available and there is more of it during the rainy season, farmers have experienced a couple of benefits. First, each woman (100%) said her family has been able to cultivate more land and plant a wider variety of crops. The crops farmers may now plant are: paddy, cotton, fodder grass, tomato, coconuts, banana trees, teak trees, mango trees, lemon trees, chili plants, and coco plants. According to the Process Document, crop yields have increased by twenty-five to forty percent in dry land farming. Also, because the farmers are planting more crops, they are earning higher incomes for their families.

As another result of the increased amount of water, one farmer was able to install a drip irrigation system for his coconut trees. A drip irrigation system is made up of a series of small, rubber tubes that slowly carry water from a well to its destination. Since the water moves slowly, there is always a constant, gentle dripping of water at the base of the coconut tree. This benefits the farmer in a couple of ways. First, this round-the-clock supply of water ensures that the coconut tree's roots will be kept moist even during the driest times of the year. Second, the farmer does not have to spend time watering his coconut trees because the drip irrigation system does it instead.

Benefits of the Micro-Credit CBOs in Meiyagoundanpatti and Sri Amman

For the Micro-Credit CBOs of Meiyagoundanpatti and Sri Amman, the benefits each group has brought its members are extremely similar; however, since the Sri Amman group is two years old, whereas the Meiyagoundanpatti CBO is only one year old, the Sri Amman group

was able to provide its members with a couple of extra advantages.

- The Benefits of Group Savings

Every month, each group member (100%) must deposit a certain amount of money into the group's savings. For instance, members of the Sri Amman CBO are required to deposit fifty rupees each month into the group account as savings. Since this group has twelve members, its monthly savings are six-hundred rupees. Next, the maximum amount of money which may be borrowed at one time is four thousand rupees for the Sri Amman group. In Meiyagoundanpatti, the limit is one thousand rupees; however, as the Meiyagoundanpatti group matures, the maximum limit will become higher. Also, since the women have faithfully been re-paying their loans, they have gained credibility with the banks. Because of this, if they need to, then they may take loans from the banks as well.

Next, decision-making at the household level has changed. When women of the Sri Amman CBO were asked about who makes financial decisions in their family, they said they help make financial decisions with their husbands. Prior to joining the CBO, the men did not include their wives in making financial decisions.

- Easier Access to Funds in an Emergency

Next, both groups hold a formal monthly meeting where finances are discussed. Although, the women said they also hold informal, weekly meetings too. If a member needs money in an emergency, then an impromptu meeting will be held so she may have access to the funds she needs. Not only is this convenient if money is needed right away, but the interest rates from the CBOs are lower than those given by a money lender if money is needed immediately. For instance, the Sri Amman group's interest rate is twenty four percent, while the Meiyagoundanpatti group has an interest rate of twenty percent. By contrast, a money lender might charge up to one-hundred and twenty percent if money was needed in an emergency.

- A Highest Sense of Security

The members of each group (100%) expressed that they felt more secure since joining their CBO. Their heightened sense of security comes from a couple of things. First, they have more funds in their savings. Second, if they need to take a loan in an emergency, then they have immediate access to money and the loans are at a fixed interest rate.

- New Income Opportunities

The opportunity to generate more income was given to each woman (100%) in both groups when they were given a cow by the MSSRF. Both the cow's milk and dried dung can be sold. Also, since the MSSRF donated fodder plants to each woman, they do not need to buy cow feed because the cows can eat the fodder.

Benefits of the Landless Laborers Milch Animal CBO

Located in Sri Konattamman, this CBO was created to help those who do not have any farm land. Since these CBO members were the most impoverished out of the three groups I talked to, its members have probably experienced the most dramatic positive changes.

- How the Landless Laborers Milch Animal CBO Operates

Since the members of this group (100%) do not own any farm land, they had to depend on seasonal work to earn a living. Therefore, each family (100%) in the group was given one cow, or milch animal, so they could begin to generate their own source of income. After that, a joint bank account was set up for this CBO so that its members may borrow money from the account instead of from money lenders. Next, it is the responsibility of the women in the group to look after the cows during the day. To watch over the cows, the women just need to make sure they get enough food and water and do not wander away. Also, since there is private land to use for grazing during the non-agriculture season and government land for grazing during the agriculture season, the families do not have to buy feed for their cow.

- Changing Monetary Habits

The amount of money the families are taking out in loans has decreased by seventy percent because their incomes have increased as a result of their milch animal. Next, the reasons for borrowing money have changed. Prior joining the CBO, all of the families (100%) needed to borrow money for their everyday living expenses. Today, they no longer need to borrow money for necessities and only borrow money for events, such as festivals. Last, the people in the CBO only borrow money from the joint bank account. Before, they had to take loans from many different money lenders to make ends meet.

- Educational Opportunities for Children

As a result of their higher incomes, parents may send their children to school. Because of this, the children who are getting an education will be able to get better jobs and lift themselves out of poverty.

- Increased Social Standing

Another impact of the CBO is that its members (100%) now have more social prestige in their community. This is for a couple of reasons. First, the money they earn from selling the cow's milk and dried dung has provided the families with a stable source of income. As a result, the families are more self-dependent. Before joining the CBO, the men and women in the group had to travel to other villages to find work. Now, only the men still need to migrate to find jobs. Also, if a man cannot find seasonal work, then it is not as impacting for his family because they are earning money from their cow.

Table 13 Secondary Sources of Income

S.N.	Details	Total
1	Selling fuel wood (seasonal work)	15
2	Making bricks (seasonal work)	15

Note: the women were not included in this table because they no longer need to do seasonal work.

The men listed both brick-making and selling fuel wood as possible secondary jobs because the job availability determines the work they do. Before, if all of the job openings had

been taken and a man could not find a job, then this negatively affected his family. Although, the impact of not being able to find a job is not as bad now since the families have their cow.

- Greater Food Security

After joining the CBO, all of the members of the group (100%) now have better diets. Even though the families could afford to eat three meals a day prior to joining their CBO, their meals consisted of only rice and water. Now, they can afford to buy better food to add to their diets to make them more nutritional.

Suggestions from the Women

When I interviewed the women of Meiyagoundanpatti, they gave me their suggestions for improvements they felt could be made to the tank. The ideas they suggested included turning it into a fishery, doing more to prevent soil erosion, diverting water that gathers in ditches during the rainy season into the pond, building steps that lead down to the tank to replace the dirt slope that leads to the tank, and putting a steel fence around the pond to replace the wooden fence that is currently there.

Table 14 Suggestions for Improving the Tank

S.N.	Details	Total
1	Turning it into a fishery.	7
2	Better prevention of soil erosion.	2
3	Diverting water that gathers in ditches alongside the road into the tank.	1
4	Building steps leading down to the tank.	1
5	Putting a steel fence around the pond.	1
6	Holding the monthly meetings twice a month instead of once a month.	1

Note: some women gave multiple suggestions.

The most commonly given suggestion for the tank was turning it into a fishery. If the tank were also used as a fishery, then families could sell the fish and earn more money. The suggestion of diverting water from the ditches into the tank is one that should possibly be examined further.

Main Findings

- The Impacts of Women's Participation

From my interviews with the women of Meiyagoundanpatti, I wanted to learn how the installation of the CMPT had affected the amount of work they do, their level of empowerment, and their family's income levels, which has in turn influenced their level of food security.

- The amount of time women spend getting water during the rainy season has been reduced by forty-five percent because of the tank.

- The women feel they are able to contribute equally to the decision-making process for the tank.
- The income levels of all of the families have risen as a result of the greater agricultural outputs.
- The women feel they have greater bargaining/negotiating power.
- Dependence on money lenders has gone down.
- The number of women who migrate to find seasonal jobs has decreased.
- All of the women now have increased out-of-home mobility.
- Families have been able to invest in more assets.
- The infants in the village are healthier.
- There is greater food security in the village.
- Agricultural output has increased.

- Benefits of the Micro-Credit CBOs in Meiyagoundanpatti and Sri Amman

When I held the group discussion with the Micro-Credit CBOs, I wanted to learn how joining the group had given the women greater financial independence and how it had positively effected their lives.

- The women are more involved in making financial decisions at the house-hold level.
- Women have immediate access to money in an emergency.
- Dependence on money lenders has decreased.
- The women feel more secure because they know they have greater funds in their savings accounts and that, in case of an emergency, they can easily get money.
- Because they were each given a milch animal, the women have another source of income.

- Benefits of the Landless Laborers Milch Animal CBO

During the focus group discussion with the Landless Laborers Milch Animal CBO, I wanted to learn how getting a milch animal had changed the group member's lives by providing them with a constant source of income.

- The women of this group now do easier work than they did before.
- Because of their cows, the incomes of all of the families in this group have increased.
- The members of this group are no longer dependent on money lenders.
- The members of this group no longer need to borrow as much money as they did before.
- Parents may now afford to send their children to school.
- All of the members of this group now have greater social prestige because they are earning a steady source of income.
- All of the members of this CBO now have more nutritional diets and greater food security.

Conclusion

“I hear and I forget. I see and I remember. I do and I understand,” - Chinese Proverb. Despite that I had read many reports about the Pudukottai watershed project before I started my field research, it was not until I got to interview the villagers that I began to truly understand how their lives had been changed by the watershed project.

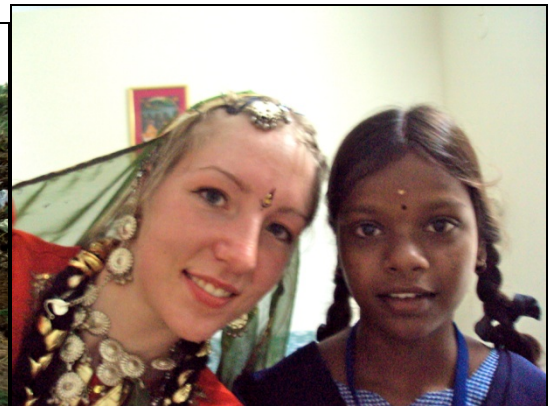
Conducting my field research was eye-opening for me. After attending the Youth Institute, I developed a great interest in food policy and my field research allowed me to see the wonderful effects food policy had on the communities of Pudukottai first-hand. During my stay in Pudukottai, I think I hit a point where I looked around and thought, “Wow, so this is what

food policy is all about,” and felt amazed. It was awe-inspiring to see the many different ways people had benefitted from the project. The enormous amount of enthusiasm I found I had gained for the watershed project surprised me. Never before had I felt so impressed with an agricultural activity as I was then.

Further, my research allowed me to understand that food policy can include multiple aspects. Learning about the different areas of the Pudukottai watershed, such as the different CBOs, IFSs, and the CMPT, helped me see that. Also, I have learned that the same solutions which help bring about food security can have other positive side-effects as well. Learning these lessons helped me see how complex an issue global hunger is. Although, after seeing the work and dedication of the researchers who are helping to create food security for the rural villagers in Pudukottai, I know that, no matter how daunting it may seem, the task of solving global hunger is one that must be faced. As a result of my internship, I have been left without a shadow of doubt in my mind that I would like to pursue a career in agriculture.

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- First row, first picture: *This picture was taken when I was breaking a coconut during the Bhoomi Pooja.*
- First row, second picture: *This is a photo of a tank that was in Pudukottai.*
- Second row, first picture: *This is a photograph of two boys and me in Keela Ennai. When the rural children saw my camera, they became really excited and asked me to take pictures of them.*
- Second row, second picture: *This is a photo that was taken during one of my interviews.*
- Bottom row, first picture: *This is a photograph of a girl who had just come home from school and her mother. I took it during a break from interviewing the women in Pudukottai.*
- Bottom row, second picture: *This photo is of a path that led to a woman's house in Pudukottai.*
- Bottom row, third picture: *This photo was taken as I was getting ready to perform a traditional south Indian dance. Esther, the girl on the right, helped me put on my costume, jewelry, and make-up for the dance.*