

A Glimpse of the Other Side...
My Two Months as a WFP Intern at MSSRF
By Jacquelyn Johnson

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I recall the first thought that went through my exhausted brain while stepping off the plane in Bombay. "Well, Dorothy, you're sure not in Kansas anymore." There was no yellow brick road, but rather chipped tile that I followed as I was pushed and jostled towards the baggage claim. I don't know what else I expected, but as I looked around at the mass of people I noticed not a single white person. It hit me for the first of many times to come that my face was for once in the minority. Coming from Ankeny, Iowa, an area of almost all Scandinavian origins, it was a bit of a shock to be the different one.

Different was the last thing I desired to be as I was waiting two and a half hours for my luggage. The air personnel were having technical difficulties opening the baggage compartments, but on the positive side, my luggage wasn't lost somewhere between Amsterdam and Bombay. Still, the blatant stares were a little disconcerting, especially in the middle of the night with predominately male strangers. I gratefully followed an experienced Indian college student studying in France through customs, into the rain, and onto a very dirty bus that reeked of gas fumes. As we were transferring from the international to the domestic airport, she gave me my first valuable lesson on the people of India. She must have noticed I was a little shaken after fighting our way through a mob of yelling porters trying to grab my bags. "The poor people here are different than in the western world. They may be louder and more intimidating, but they are not going to physically hurt you." That was a relief.

In the following weeks, when men and women would put their arms into my car window asking for money, I often thought of what the college student had said. If someone were sticking their arms in my window at home I would think they had a knife and were trying to rob me, not begging for a few rupees. That is one of the first differences I noticed between the U.S. and India. The beggars on Indian streets are not there because of an addiction to alcohol or drugs, or a lack of desire to work. They are there because their parents were most likely there, and their grandparents. They have nowhere else to go, and no other way to live. No help wanted signs hang in the windows. Even the talented college students find it difficult to get a job here. An agricultural economy on top of a massive population makes every aspect of India different from anything I've ever known.

Before coming to India, I hadn't really thought about the economy and its relationship to agriculture. I knew that as a third world country India was struggling, but I never considered that it was in a completely different situation than the U.S. During my first meeting with the executive director of MSSRF, Dr. Kesavan, I received an important lesson. The U.S. focuses on mass production, while India has production by the masses. Less than two percent of the population continues to farm in the U.S., whereas seventy percent of the Indian population uses farming as their main source of income.

Before I began work at MSSRF, I thought that mechanization was the solution for higher yields and successful farming. I soon learned, however, that if mechanization were to occur in India, hundreds of thousands of landless laborers would lose their jobs and starve to death. There is no strong industrial sector to absorb them. The concept that ten laborers can do the same work as one tractor just as efficiently was very difficult for my John Deere programmed brain to except.

My second misconception before arriving in India related to integrated farming. From my experience in Iowa, diversification meant insecurity. The large, successful farmers focus on a couple of cash crops, producing the maximum yield by using technology and mechanization. The profit is then taken to the grocery store to buy the week's food. The mono cropping of the U.S. relies on a firm trust in the national economy. Farmers do not produce food for their families, because they have faith that there will always be food available somewhere else. Security is gained by having high enough yields to make enough money to buy the food, shelter, or other necessities. This is not so in India. The economy cannot be depended upon in rural villages. With the unpredictable monsoons, droughts, and market prices, the only reliable food source is the food they can produce and store themselves. Diversification offers the security

that they need. If something affects one crop, like a disease or drought, they still have other food sources to eat and commodities to sell. This multi cropping system is necessary to survive in India, but explains the difficulty in applying new technologies. With such small amounts of land available for each crop, the cost in time and money in applying a new technology to each is substantial.

The opportunity that the World Food Prize offers youth has allowed me to see a bigger world. My prejudgments would never have changed if this program had not seen the importance in teaching the youth of Iowa what it means to be food insecure. I used to think that if someone was hungry it had to be because of a lack of desire to work, or maybe simple irresponsibility. Growing up in America, I have been spoiled by constantly having available the resources to better myself. I have taken it for granted that those resources are available to everyone all over the world. I have always been fascinated by the way others live, how their cultures differentiate from mine. A fierce respect for agriculture stems from my own farming background. When Mr. Lierman, my WFP advisor, offered me a chance to be a part of a program that combined my two main interests I immediately said yes. The paper I wrote for the 2000 WFP symposium related to the safety of biotechnology. It's a very controversial issue, and to have the chance to debate it with great minds from around the world was exhilarating. I put a lot of work into writing my paper and presenting it at the symposium. I spent my extra time attending the other sessions of the conference. Scientists were gathered from every corner of the earth to share and discuss information relating to various aspects of world food security and hunger alleviation. The goal of the WFP is to recognize the achievements of men and women who have helped bring our world closer to being hunger-free. I remember feeling as if I were in my element for the first time, as if the issues being discussed and the passion these people had was akin to my own. I have always attended a very urban school on the outskirts of Des Moines, so I have not had many opportunities to discuss agricultural issues of interest to me. This program really gave me a chance to explore a possible future career as a developmental worker.

After attending the conference, I was very excited to hear I could continue working with the program through a summer internship. The symposium was only three days long, but this internship would offer me eight full weeks to study and learn about agriculture and a different society. I submitted my application for an internship and crossed my fingers. I then took part in an interview session, where I requested to be placed in India. I was on vacation with my best friend in Florida when my mom called to say M.S. Swaminathan Research Foundation, located in Chennai, India, had accepted me for an internship. I was ecstatic, so much so that I wanted to go home and start packing right then. The next few months I spent reading everything about India I could get my hands on. I viewed the country as this mythical place, full of fasting Brahmins, incense-filled temples, and mysterious adventures to be explored. I found a couple of local restaurants that served Indian food and insisted on going once a week before I left. When my plane finally touched down in Chennai, I landed with two full suitcases of new clothes consisting of long skirts and conservative blouses. I was ready to be Indian, or so I thought.

It turns out the local dress is conservative, but not western. I went to a local market and bought four chudidars for when I was working in the villages. The city is more modern, so I stuck with my western style skirts most of the time. My first month was spent doing most of my exploring in Chennai, which is the fourth largest city in India with plenty to see. I went to church on Sundays with one of the staff members. The church we attended housed the tomb of the apostle Thomas. To see such a historic site made me wish America had that kind of rich background. The most difficult part however, was leaving the church. Hundreds of beggars waited outside to collect a few rupees. They would say, "amma, amma," which means mother in Tamil. Many were missing a hand, foot, or arm. Others had crippling diseases that would never be seen in the U.S., thanks to vaccinations and health facilities.

I read in a book that India is the "land of controversies". I soon learned nothing could be more true. Passing the beggars on the street were well-dressed businessmen wearing western style suits and ties, rather than the traditional vaesti and sattai. Along side them walked wives in full blown saris, consisting of a blouse with sleeves to the elbow, a six meter piece of cloth wrapped around the waist, and the remainder thrown over the shoulder. Some of the young women who have studied in the west are coming back wearing jeans and ponytails, but the chudidar is much more common and acceptable. While riding in an auto, a small, very loud, three-wheeled vehicle, I saw a mud house with a roof weaved out of banana leaves leaning against a major computer company building. We then passed a water fountain running at full power, with the shadow of a drought relief water truck in the background. The newspapers speak of

environmental protection, but the stench of garbage and human waste can be smelled in every ditch and waterway. India is proud of being the largest democratic country, yet the

media has not stopped talking about the arrest of a corrupt government official by an even more corrupt government leader. The party in power in the neighboring state of Kerala is the Communist party. The list of confusing oxymorons goes on and on.

A five-day convention was being hosted by MSSRF a week after I arrived. It was the perfect atmosphere to absorb all kinds of information on world food security. I was invited to attend the sessions by Professor Swaminathan himself, and I was honored and a little nervous when he asked me to state my name and my position along with the other dignitaries. The conference took a day trip to the nearby city of Pondicherry, where we observed one of MSSRF's outreach centers. Using information from conference speakers, the Internet, and MSSRF's impressive library, I wrote a detailed paper about world food security issues as the first part of my project.

Here are my findings:

World Food Security: Availability, Accessibility, and Absorbability of Food

I saw the advertisements imploring Americans to donate just ten dollars a month. I looked at the pictures of small children with big, round bellies from malnutrition. In school, I studied women with no shoes, surrounded by children playing in dirty water. I have been educated. I have been taught of the haves and the have-nots. My brain was fully prepared for what I was told I would see here in India. However, my heart could never be prepared; could never understand this world so full of contrasts. My summer in India has just begun to give me a grasp on understanding these paradoxes. True poverty and suffering coexists alongside the purest forms of optimism and hope. Perhaps these responses are human nature, necessary to survive in the face of so many challenges. Or perhaps the soul of a poverty-stricken man was created stronger than most.

"Every man, woman and child has the inalienable right to be free from hunger and malnutrition in order to develop their physical and mental faculties."(4) In 1974, governments from around the world made this statement at the World Food Conference, determining to put an end to world hunger. But ending world hunger isn't quite so easy. Today there are still 826 million malnourished men, women, and children in the world. Three hundred million of them live in India. (2) Before action can take place, the world must truly understand what being food secure means. It is more than just having enough milk for today, or enough rice to last the week. According to Thiru A.P. Muthuswami, Chief Secretary of the government of Tamil Nadu, "food security connotes long term and reliable access to food of adequate quantity and quality at the individual level for an active and healthy life". The key to world food security is the availability, accessibility, and absorbability of the food supply. There are many factors making up each of these categories, but without addressing all three completely there will never be a hunger free world.

Availability is perhaps the most obvious need. Food must be produced in order for it to be eaten. Such factors as natural disasters, climate conditions, environment management, and yields come into play. These first two factors are acts of Mother Nature that can disable communities and agricultural production. Evidence of this has been seen in Orissa, just one of the many ravaged coastal states where cyclones and floods continuously destroy homes, businesses, and entire crops. Unfortunately, this is not a unique experience. In many developing countries, natural disasters can bring entire communities to a grounding halt. Building shelter belts to block the wind, warning signals in rural areas, and education on disaster management in schools may help alleviate the depth of destruction in such areas. (4)

The earthquake of January 2001 measured 7.2 on the Rector scale. It cut production in Gujarat drastically, leaving many farmers busy trying to rebuild homes and give care to injured family members. Gujarat is slowly trying to rebuild, but it will be a long time before productivity returns to previous levels. Droughts plague some regions of India half the year, while floods from the monsoons can wipe out entire crops during the other half. Teaching wise water conservation methods is just one of the activities MSSRF and other organizations are sponsoring. Understanding these unpredictable conditions can at least help farmers and scientists work together to try to prepare and sustain production.

It may only be possible to react to Mother Nature. However, the availability of food through wise environment management, biodiversity, and higher yields is in the hands of the farmer. Here at MSSRF, extensive work is being done relating to environmental protection and awareness. In Kolli Hills, a MSSRF outreach village, conventional green leaf manuring with the *Dodonaea* species of minor millets was studied by the tribals. Laboratory tests showed that this could help in controlling the population growth of pests like *Helicoverpa armeigera*. (6)

Biodiversity has proven a crucial component in the availability of food. Forty years ago, the green revolution of India relied on a short form of wheat, genetically different than the tall wheat traditionally grown. The availability of this different variety was the first step to soaring yields. Today, biodiversity is on the decline due to increased mono cropping. The threat to the availability of food should be seriously considered. If an unplanned event, such as a new pest or climate change should occur, genetically different plants could hold the gene necessary for the solution. Another outreach village of MSSRF, Keelamanakudi, focuses on the integrated intensive farming system. In a region dominated by mono cropping and chemicals, Keelamanakudi is proving that conservation of biodiversity and biological intensification can also be profitable. In one growing season, the average consumption of chemical fertilizer in kg/acre was reduced from 175.5 to 155.9, with no major decline in productivity. (6) Organic fertilizers, reduced use of pesticides, conservation of biodiversity, and integrated intensive farming systems have all proved to keep production costs low and help to insure sustainability for the marginal farmer.

“We can no longer depend on bringing significant new areas of virgin lands into the food production chain, and further expansion of food production must come from increased yields on the lands already farmed by the poorest of small farmers and the large farmers alike”, stated Jacques Diouf of the FAO. Many believe this is the precise reason, as far as increased yields are concerned, that biotechnology should be taken advantage of. Biotechnology has proven to be a remarkable tool in increasing production yields, for many reasons. Some of the genes that can be introduced include: pest resistance, herbicide tolerance, disease resistance, cold tolerance, drought tolerance, and salinity tolerance. All of these qualities make production in previously harsh environments not only possible, but at times appealing. The increased yield and profit biotechnology has made obtainable is one of the most significant ways science is contributing to the availability of food.

Professor M.S. Swaminathan, the father of the Green Revolution. It is a name known by the educated in every train station, bus stop, and airport terminal of India. Because of the contributions of this man, along with many others, India is now producing enough wheat and rice to feed its entire population. India has begun to export wheat and rice, and is second to none in its milk production. So why does India still have 300 million people undernourished? The answer is a complex one. It deals directly with the accessibility of the food. For reasons such as unstable employment, caste discrimination, gender discrimination, and poor infrastructure, the food is not accessible to the people who need it most. Access to a nutritionally adequate food supply is now seen as the leading obstacle in world food security.

Landless laborers are considered the most at risk group of people, primarily because of the instability of their employment. They must live on a day-by-day bases, relying on an ever-changing income. Livelihood security has been recognized as a key in access to food. Livelihood projects in programs such as the Biovillages of MSSRF look at this issue directly. The goal of such programs is to increase income through micro-enterprises, therefore raising the standard of living. Enterprises such as: dairy production, fodder production, poultry production, goat rearing, aquaculture, horticulture, floriculture, mushroom cultivation, and vermicompost have been taught to over one hundred self-help groups, along with programs on sanitation and sustainable development. The financial security that such enterprises offer changes lives. Kuppan is an example of such change. His work as a coolie was insufficient to maintain his family. He has only a fifth standard education, but through horticulture production he has been able to purchase a cow and five chickens. The sale of milk and eggs also fetches him a good income. He can now send his children to school. (5) Through these enterprises, poor villagers can feed their families. The projects are self-sustainable, and the self-help groups offer local advice and aid when the need arises.

Discrimination by caste is too often overlooked as a serious threat to food security. The Dalits, formally known as “untouchables”, have suffered silently for centuries. They have one of the highest levels of illiteracy, and they suffer violence in many villages. Over twenty-six thousand crimes against Dalits were reported in 1998. (3) In drought areas, they are forced to wait in the back of the water lines,

sometimes for hours at a time. They are the last to receive good jobs, and these are only available by reservation of the government. The majority must rely on heavy agricultural labor. This unstable income only makes it more difficult to feed their families.

Another important determinant of food insecurity is gender discrimination. Subordination of women in society, their overburdening, and the greater difficulties faced by female-headed households all contribute to food insecurity. Gender discrimination is even more common in villages. While educated, wealthy, urban women are seen as equals, poor women are still the last to eat at mealtime, and the first to give up to their husband and children the vital nutrients contained in vegetables and fruits. Thirty-six percent of Indian women are underweight. During pregnancy, the average South Asian woman gains five kilograms, rather than the ten considered healthy. Many women never have the chance to know anything different, with fifty-seven percent married under eighteen, according to the United Nation's World Food Programme. (4)

However, progress in empowering women through micro-enterprises is being made in places such as Thailand, with a system of one trained village woman per ten households. The biovillages of MSSRF often work with dalits also. Empowerment through enterprises seems to be one of the most affective tools in gaining economic access to the world food supply, but when these fail, there must also be food based security nets. For example, the Public Distribution System (PDS) of Tamil Nadu "contributes effectively to food availability, and the price control enables those with lower incomes to have better purchasing power and access to food at the household level," stated Muthuswami. It is believed these programs are not enough, and even more drastic aid programs must be implemented.

In a country with a population soon to reach one billion, the difficulties in implementing programs geared towards access to food are not hard to imagine. This problem in infrastructure reigns throughout developing countries. A recent statement by Shri K.C. Pant, Deputy Chairman, Planning Commission, outlines why experiences in the past are not the most encouraging. "This may be due primarily to the fact that the intellectual input that goes into the design of government programmes draws upon technical, economic, and administrative expertise. None of these disciplines are naturally geared towards gender related issues and the cultural barriers that need to be overcome. Solutions need to be found through the application of social anthropology and social psychology. We need to be able to identify the crucial pressure points which would induce desirable behavior and changes eventually relating to social relations."(7)

It is a fact that the educated community must work together with the poor and food insecure. Only through direct interaction and education of the targeted groups will programs be successful. The incredible importance of sustainability has been seen over the years. The major reason for the lack of success in implementation of programs has been the inability of communities to continue the program after the organization leaves. The JRD Ecotechnology Centre of MSSRF has been focusing on studying the relevance of various options in sustainable development. These options attempt to blend integrated natural resource management with livelihood security. Participatory research, capacity building, and grassroot institution building are its three major dimensions. (6)

The concept of the Biovillage addresses these issues. In 1998, three areas were chosen for implementing the Biovillage model. Chidambaram, Kollu Hills, and Kannivadi all have different characteristics and goals, but each has been successful in facilitating the rural community to define its own path of development. Many successful programs have the following characteristics: identifying leaders and rewarding them with public recognition, establishing self-help groups, providing technical support, establishing market linkages, and providing education on micro-finance and entrepreneurship. Food policy should make marketing as logical, simple and well-organized as possible, with a minimum involvement of intermediaries, to help ensure that the producer gets a fair return for his or her produce and that the consumer pays the lowest reasonable prices. For a program to be successful after evacuation, there must be evidence of local leadership, increased standard of living, and economic benefit. But of course, the biggest challenge still facing programs is funding.

"More than two billion people, mostly women and children, are deficient in one or more micronutrients; babies continue to be born mentally retarded as a result of iodine deficiency; children go blind and die of vitamin A deficiency; and enormous numbers of women and children are adversely affected by iron deficiency. Hundreds of millions of people also suffer from communicable and non-

communicable diseases caused by contaminated food and water. At the same time, chronic non-communicable diseases related to excessive or unbalanced dietary intakes often lead to premature deaths in both developed and developing countries.”(4) These are the opening sentences of the World Declaration on Nutrition produced by the FAO and World Health Organization (WHO) International Conference on Nutrition (ICN) relating to food absorbability, held in Rome in December 1992. In the past decade, hidden hunger has become an international concern. For a diet to be adequate it must contain a variety of foods, be of good quality and quantity, have high nutrient density, and be served and digested in sanitary conditions. Nutrition and food safety have been recognized as very important aspects of food security. Food quality and safety are also affected by food hygiene, food handlers, people involved in food processing, those retailing the food, and finally practices in the home. Certain codes and government inspections may help ensure some degree of safety, and education and knowledge of food hygiene by all people will reduce the likelihood of contamination in the home. However, available facilities also influence food hygiene. Households that have poor facilities, no refrigeration, contaminated or inadequate water supplies, or fuel shortages will find it more difficult to ensure food safety. The consequences of the resulting micronutrient deficiencies and ill health will affect one’s overall quality of life and the possibility to develop one’s full potential. Programs must be implemented that reach out to the appropriate groups. Those malnourished have been identified as the chronically food insecure, uneducated, socially disadvantaged (such as women and minorities), sick, people living in unsanitary conditions, and victims of civil unrest, war, and natural disasters. Indicators of malnutrition also include infant mortality rates, maternal mortality rates, and premature death.

Many do not have access and cannot afford such nutrient rich foods as legumes, vegetables, fruits, meat, fish, and organ meats. For them, scientists like Dr. Surinder Vasal, winner of the millennium World Food Prize for his work with Quality Protein Maize, may have the answer. Dr. Vasal, along with other leading scientists from around the world, developed maize with two genetic strands. This maize has been genetically altered to contain higher levels of protein, lysine, tryptophan, and carotenoids (vitamin A), than normal maize. With its high biological value and digestibility, it improves birth weights, growth rates, and reduces mortality. It also provides lower cost protein than milk. Even animal feed costs can be reduced, without the necessity of expensive supplements. With twenty percent of the world’s cultivated land under cereals, a crop such as this could save millions of lives. (1)

The Ramakrishna Bajaj Fellowship instituted at MSSRF and the Tamil Nadu Council for Sustainable Livelihoods have worked together to address food absorbability. The benefits of different organizations working together to reach this common goal has been excellently demonstrated in their combined efforts of the Hunger Free Area Programme. According to MSSRF’s Tenth Annual Report, the overall aim of the project is to “improve the nutritional status of the ultra poor population with special focus on elimination and prevention of micronutrient deficiency”. The program first identified the rural poor, using participatory methods. The next goal was information empowerment. This is the most effective tool in creating awareness relating to food absorbability. The program educated the people on schemes of the government, banks and NGOs, health, sanitation, the environment, income generation programs, and AIDS awareness. Libraries provided previously unavailable information at the locals’ convenience. Gardens were planted at four schools, providing a variety of vegetables for the noon meal. Studies reveal that iron deficiency in the school children lowered 13.11 percent. Distribution of seeds to local households allowed women to plant gardens and provide adequate nutrition to their families. Safe water has been supplied to almost all the villages, and medical check-ups have been completed in ten primary schools. (6) Programs such as this send a message stressing the need to fight hidden hunger.

“We have the possibility to do it. We have the knowledge. We have the resources...and we’ve shown that we have the will,” stated Jacques Diouf, director general of the FAO. These are the action points of the World Food Programme that need to be addressed: identifying the vulnerable, empowerment, malnutrition, hidden hunger, environmental hygiene, sustainable livelihoods, women and children, food based security nets, and market access. With technology, awareness, and the green revolution, our objectives have shifted. We no longer desire only food security, but nutrition security. We do not just aim for child survival, but child health and nutrition. We do not only wish for literacy, but education. We have the capabilities through empowerment, advocacy, policy, and political support to obtain a hunger free world. It is an uphill battle, but not an impossible one. The world must act with the same optimism and hope of the poverty stricken man, never giving in to the challenges ahead.

After completing this first part of my project, I was excited to begin my field study. It was decided that I would spend ten days with a farming family in the village of Kannivadi. Two of the family members were young women named Geetha and Vigiya who participated in a local SHG. They would be watching over me during my stay and helping coordinate my interviews. At the end of the stay, they also would be handing in an evaluation of what they learned about me. This dual learning is an approach one of my supervisors, Dr. Balasubramanin, strongly recommends. He is convinced it builds self-confidence and communication skills for the SHG members, while opening a door of easy communication for the outsider, in this case, me. To prepare, I researched for a day or so about Self-Help Groups (SHGs), micro-finance, and micro-enterprises.

Here is a brief summary of what I researched:

Self-Help Groups, Micro-Finance, and Micro-Enterprises

The self-help group (SHG) is a fairly new concept in the developmental field. Originally, the focus of NGOs and state institutions has been to provide immediate relief to the poor through various forms of welfare. This focus has now evolved into empowering poverty stricken families, namely the women in households. It has been realized that the only way to create sustainable development is to give the responsibility of raising the quality of life to those affected. SHGs do exactly that. They provide an opportunity for women to make their needs and priorities heard in a secure environment. SHGs are voluntarily formed mostly from women of homogeneous backgrounds, with no political affiliation. They make their own rules and set their own rates of interest, below the rate of the moneylender. Each group has various objectives, but the general idea is to create power through numbers. It was once said that it is difficult for one woman to bring lasting change, but “if whole groups of women begin to demand change, it is much more difficult for society to reject them altogether.”(8)

It has been noted that strong SHGs have clear goals and objectives, a criteria for selecting leaders and members, a good match between the promoting agency and the demands of the group members, staff commitment, and the ability to establish linkages with other agencies and networks. It is the job of the facilitator to install a sense of self-help by providing information, skills, and linkages. A mix of activities has proven to keep interest within the group alive, as well as building trust and commitment. Community activities such as water sanitation, health services, and environmental protection have been taken up by different SHGs. However, the primary goal of the SHGs is to encourage thrift and credit management. Members save according to the amount established by the group. The money is pooled together and used to “provide timely credit to members, support to cope with sudden crises, thereby reducing vulnerability and insecurity.”(10) Most landless women cannot obtain credit without collateral. In this way, SHGs offer security, protection from moneylenders, and bankability.

Micro-finance allows new opportunities for money generating activities and an increased standard of living. Through their numbers, SHGs provide members access to regular banking facilities. According to NABARD, during the year 1999-2000 alone, 81,780 SHGs received micro-credit from banks. SHGs have regular meetings where they study credit management, book keeping, awareness and training. They build up a common fund, and in time have enough money to open a savings account. After a minimum of six months, they may be considered for a loan by the bank. (9) Loans may be used to begin such enterprises as mushroom cultivation, floriculture, horticulture, brass work, rope making, or almost any other income-generating activity decided upon. For small amounts of money, the SHG can loan at any time, however the rate of interest is higher than the bank because the loan must be repaid within three months.

The goal of the SHG is not just to save money, but also to generate more money. After learning the importance of saving, the money can be invested into activities called micro-enterprises, as mentioned above. The income generated through this work is intended to raise social status, bring economic returns, build self-confidence, and create a secure and sustainable livelihood. With economic gains from micro-enterprises, SHGs can become powerful voices in the community. As the saying goes, “nothing succeeds

like success". When others see women of SHGs making money and raising their quality of life, they will respect and listen to their ideas for making changes in the community. SHGs impact the economic, social, cultural, and political environments of their communities. However, the establishment of effective SHGs takes time, for "the process of organization is a social process, changing existing caste, class, and social hierarchies."(10)

So, after much anticipation, I was finally headed into the field. Two staff members, R. Rengalakshmi and P. Thamizoli, accompanied me on the train journey to the village. It was my first time traveling by train, and they thought my excitement was pretty amusing. After convincing myself that every huge banging noise did not mean we were going to crash, I eventually fell asleep for a few hours. We spent an hour resting before hailing an auto to take us to the village. A local farmer met us at a tea stall and we followed him on his bicycle to his home. He had a disease problem in one of his fields, so Renga and Thami, the two staff members accompanying me, studied the area and took a few photos to use in a training session. The farmer offered me tender coconut, the liquid which one sips with a straw from a large, green, football shape just off the palm tree.

The women in the home were very hospitable, they insisted on serving us jackfruit and showing us around. There were two huts made of stone and mud, both with weaved banana leaves for roofs. Each was about ten by twelve square feet. A wood and rope bed, seed sack, and cooking area filled the space. I was told I would be staying with a village family, so I assumed this was the type of house I would be living in. As I was wondering where we all would sleep, Thami asked me how I would like to live in this "environmental" home. I did not miss the hint of humor in his voice when I answered. I said that I thought it would be a good challenge for me. I could learn a lot about not being wasteful and appreciating what I have in the U.S. I think my answer surprised him, because he quickly responded that they had placed me in more comfortable conditions. I don't think they ever considered an American might want to experience the mud hut way of life.

I have to admit that when I saw Geetha and Vijaya's home, I was more than a little relieved. I was ready for a challenge, but the more sanitary conditions in Kannivadi village were very appealing. The home was cement, with two rooms, a kitchen area, and a living room with one steel bed. During my ten-day visit, I made some of the most wonderful friends I am sure I will ever have. Geetha and Vijaya's family became my own Indian family. All of the villagers on our street were soon some of my closest friends. I spent many afternoons listening to various people explain their way of life and culture.

One of the most enlightening conversations was with Geetha, Vijaya, and Gowri, one of my neighbors. We were speaking of wedding dresses, and the conversation soon turned to arranged marriages. Until coming to India, I thought a parent choosing whom one would spend the rest of their life with was something that happened in the Middle Ages. Coming from a culture that puts so much emphasis on self-gratification and happiness, I couldn't understand how anyone could agree to a marriage without love. Likewise, the village girls couldn't understand why I wouldn't want my parents' approval and wisdom. Only after living in an Indian home could I see that the women were in fact happy. Their happiness came from different sources than where I look for happiness, which is why I couldn't understand. They enjoy the security of knowing their husband would never leave them and their family would always be supported. Geetha, Vijaya, and Gowri feel confident that they will learn to love their husbands with time. I saw a completely different way of thinking about love. Instead of the fairytale of the western world, a love that grows out of respect and trust can be just as fulfilling, especially when it is what one's culture dictates.

I spent the first part of my visit studying the way local villages function. To help me understand this different way of life, I gave interviews in the nearby village of Maniyakavanpatty with the translating help of the MSSRF field staff. All my interviews were done in a group setting, with a very relaxed atmosphere. I learned that interviews in the form of a conversation tend to yield more accurate and honest results. With my first interview, I compiled a Village Profile. This is necessary in establishing the situation of the village.

Here are my findings:

Village Profile

Date of Interview: 07/22/01
District: Dindigal
Panchayat: Kannivadi
Block: Reddiavchatirum
Village: Maniyakavanpatty
Population: 1200 people
Male/Female: 650/550
Number of Households: 260
Average Number of People/Household: 5
Average Number of Children/Household: 2
Landholders/Landless Households: 250/10
Households with Livestock: 235
Dalit Households: 50
Households Below Poverty Line (Less than Rs. 2,000/Month): 30%
Average Acres/Household: 2; max. being 15, min. being below one acre
Total Cultivable Land: 500 acres under cultivation, (150 acres no irrigation, cultivated one season; 350 irrigated, cultivated two seasons)
Seasons: July/August, rainy season; January/February, dry season
Harvest: cash crops, 3-5 times/year; vegetables, daily
Market Prices: known by newspapers or calls to commissioner
Percent earned by Middleman: 10%
Transportation to Market: cart, truck, or bicycle
Education: 54% illiterate, 20% 8th standard, 10% 12th standard, 10% 10th standard, 5% primary, 1% Bachelors Degree
Literacy: 46%, 312 male, 240 female
School Facilities: Primary located in village, one room schoolhouse; 6th-12th standard located in Kannivadi village
Electricity: 95%
Health Facilities: doctor in Kannivadi village; 1 vet in Maniyakavanpatty
Life Expectancy: 65 years, 10 years higher than city
Water Sources: protected well for drinking water, unprotected well for agricultural purposes, unprotected
Average Marrying Age for Male/Female: 21/18
Major Income: agricultural laborers outside village
Salary: male, Rs. 50/day; female, Rs. 25/day for 8 hours
Employment as Laborers: 120 days/year, 10 days/month
Self Help Groups: 3; all male
SHG Projects: sheep and seed production

Women are responsible for both the household and agricultural labor. On average, they work two to three hours in the morning maintaining the household before working eight hours in the field. In the evening, they prepare the meal and do other chores for at least two hours. Children below five years of age go to the field with their mothers. Children between the ages of six to seventeen either attend school, maintain livestock, or work as laborers.

The villagers were very responsive to any questions I had. Documentation was kept by one of the SHG members with statistics of the village. However, I noticed only one woman was present, and she did not speak or participate much when a large number of men were present. The interview made clear that this particular village is better off than others, considering their reasonably high rate of electricity, literacy, and health facilities, but it was also clear that the women still have a harder life than that of the men. The men themselves admitted that the women have a much more difficult workload. The women do the lighter jobs such as weeding and planting, but the strain and drudgery is very high. The pay is only half that of a

man's. It was established that a girl is more likely to be pulled from school when the family needs money. After this interview, my biggest question went unanswered. If the women are the primary caretakers of the children, including the boys, shouldn't they have an equal level of education, so as to adequately teach the children and raise them in a healthful manner? I believe this is the primary argument in gender issues that many NGOs and governmental organizations are trying to address.

Lack of awareness of SHGs was identified as a problem. The one woman present said that because the women are illiterate, they are not capable of starting a SHG. I was quick to inform her that many of the women in the SHG's of MSSRF have no education. Literacy is not a requirement. She then responded that about ten women are interested in starting a SHG. Hopefully after identifying this misunderstanding, more women groups will form in the village.

To understand the position of a landholding farmer, including their increased level of security, I interviewed two farmers from this village.

Here are their responses:

Landholding Farmer 1

Date of Interview: 07/23/01

District: Dindigal

Block: Reddiavchatirum

Panchayat: Kannivadi

Village: Maniyakavanpatty

Person Interviewed: P. Muthusamy

Family Statistics:

- 1) C. Periasamy, male, 55, no education, agricultural income of Rs. 5,000
- 2) P. Sendrammal, female, 47, 2nd standard, agricultural income of Rs. 3,000
- 3) P. Muthusamy, male, 28, 10th standard, agricultural income of Rs. 5,000
- 4) P. Vadivel, male, 19, studying for B.sc

Farming Practices:

- 1) Onion, 1 acre, Rs. 10,000
- 2) Tomato, 1 acre
- 3) 1 acre not under cultivation due to drought
- 4) 2 Bullock cattle, used for plowing, worth Rs. 10,000
- 5) 1 male goat, to sell for Rs. 2,000, 1 kg. for home consumption
- 6) 2 male chickens, home consumption

Land Statistics: 3 acres, black soil, 1 acre currently irrigated, fertilizer applied according to soil tests

Major Income Source: Farming own land

Total Family Income: Rs. 20,000

Debt Statistics: Loan taken from SHG about once every six months, paid in lump sum after harvest

Purpose of Loan: Agricultural and household use

Training:

- 1) MSSRF, 20 days, dal production using precision farming
- 2) MSSRF, 20 days, hybrid vegetable seed production
- 3) MSSRF, 5 days, goat farming
- 4) MSSRF, 2 days, trip (pipeline) irrigation

SHG Name: Bharathy

Number of Members: 15

SHG Project: Sheep cooperative, Rs. 40,000 loan from MSSRF, Rs. 40,000 loan from bank

Muthusamy is particularly vulnerable to changes in weather since his sole source of income relies on agriculture. During difficult times his family has been forced to sell livestock, jewels, or other items to survive. Before becoming a SHG member, Muthusamy had to borrow from moneylenders at a rate of thirty to forty percent interest. The SHG is slowly offering Muthusamy a more secure future.

Landholding Farmer 2

Date of Interview: 07/23/01

District: Dindigal

Block: Reddiavchatirum

Panchayat: Kannivadi

Village: Maniyakavanpatty

Person Interviewed: S. Mariyappan

Family Statistics:

- 1) K. Sokalingam, male, 65, 5th standard, agricultural income of Rs. 10,000/year
- 2) S. Karupayammal, female, 48, no education, agricultural income of Rs. 3,000/year
- 3) S. Mariyappan, male, 28, 10th standard, other income of Rs. 32,000/year
- 4) M. Moniyammal, female, 24, 8th standard, agricultural income of Rs. 3,000/year
- 5) M. Anbarusu, male, 2

Farming Practices:

- 1) Maize, 1 acre, 2,000 kg. produced, 100% sold, Rs. 8,000 cost of production, Rs. 3,000 net profit
- 2) Onion, 1 acre, 3,500 kg. produced, 100 kg. eaten, 200 kg. kept for seed, 3,200 kg. sold, Rs. 7,000 cost of production, Rs. 3,000 net loss
- 3) 5 Cattle, 2 used for milking, 3 female babies, total worth Rs. 35,000
- 4) Milk Production, total 15 liters/day, 13 liters sold, Rs. 8/litre, 2 liters for home consumption

Land Statistics: 2 acres, black soil, irrigation by well, no dry land

No soil testing, crop rotation, or integrated farming is done

Major Income Source: Milk collection

Total Family Income: Rs. 45,000/year

Debt Statistics: Currently no debt, loan usually taken every 3 months at 30-40% interest from moneylenders, always paid on time

Purpose of Loan: To lend to smaller milk producers

Training:

- 1) District Industry Center, 1 week, milk production

SHG Name: Bharathy

Number of Members: 15

Position in SHG: Member for 2 and a half years, current secretary

Future SHG Project: Curd production within 6 months

The low rainfall has created a crisis where farming has become unprofitable. Mariyappan has responded by developing his milk collection business. He collects milk from many local producers and takes it by bus to the nearest market. Because he has a larger amount to sell, he can cover his transportation costs and still make Rs.150 each day. He is also considering planting cotton in September as a more drought resistant crop. Fodder for his cattle had to be bought at a higher price from a different location due to the drought. Mariyappan has proved to be very adapt at adjusting to difficult situations. He has very good entrepreneurial skills, which he is using to teach others in his SHG.

When comparing these two landholding farmers, it is difficult not to notice the vast difference in income. The farmer with less land is actually making more than twice as much on a yearly bases. This is due solely to Mariyappan's ability to respond to the crisis. The farmers whom tend to be more progressive seem to be doing better. SHGs are providing an atmosphere to share entrepreneurial skills and precision farming. The security that a small enterprise on the side offers farmers has greatly increased their standard of living. I saw proof of this when I took an in depth look at three micro-enterprises currently undertaken in Kannivadi. They were trichogramma production, biomanure and hybrid seed production, and paper production from banana waste materials.

The processes involved in these enterprises are as follows:

Trichogramma Production

Trichogramma is a parasite that invades and hatches inside the eggs of harmful insects. It acts as an insecticide for various crops affected by epidopteran insects, such as sugar cane, maize, soybeans, and vegetables. It is five times less expensive than chemical applications, and it is bio-friendly. It does not leave the harmful residue that chemicals can leave, and insects do not become resistant. For these reasons, SHGs have taken up trichogramma production in response to a high demand from local farmers. MSSRF trains women SHGs how to produce and sell trichogramma.

These are the steps of production:

- 1) First, the corcyra moth must be mass-produced to collect the eggs. These eggs are easy to produce, and work well as a breeding ground for the trichogramma.
- 2) Mix: 2.5 kg. of pure millet food, 100 g. peanut powder, 5 g. yeast, 5 g. sulfur, 1% disinfectant (formalin solution), put in tray
- 3) Put .5 ml of corcyra eggs on paper, place in tray
- 4) In three days, the eggs will hatch
- 5) After 35 days, they will become full-developed larvae
- 6) After 7 days, the larvae becomes pupated
- 7) Adult moths hatch out and are collected using a mosquito net
- 8) Adult moths are put in a cage, where they will live 4-5 days and produce eggs one day after collection
- 9) Corcyra eggs are collected, cleaned, and sterilized
- 10) 5 ml of eggs are placed on 35 cm by 20 cm paper cards
- 11) 1ml of trichogramma is added to each card
- 12) After six days, the cards change to a dark color. This indicates the full development of the trichogramma inside the eggs
- 13) Cards are placed inside a refrigerator to stop the emergence of the trichogramma until it is needed by the farmer
- 14) Whenever needed, the trichogramma can be sold to the farmer and released in the field

The trichogramma can be sold for Rs. 15/ml. One ml contains 20,000 trichogramma wasps. Two to four ml are needed per acre, depending on the extent of the infestation. Two thousand ml is currently being used per year, with five hundred acres under production. Four hundred farmers have begun to use trichogramma, in forty different villages. The program has been active for three years, and now has thirty people producing trichogramma. Each SHG takes a loan of about Rs. 10,000-15,000 to begin.

Biomanure and Hybrid Seed Production

MSSRF selected two SHGs, Vidimalar and Yamuna, in Kannivadi to begin biomanure and hybrid seed production. They specifically chose the most vulnerable women, landless agricultural laborers. MSSRF gave a loan of Rs. 60,000 interest free to each group to lease one acre of land. Twenty-five cents was to be used for biomanure production, while the remaining seventy-five cents was put under hybrid seed production. Bhenidi is grown for six months of the year and sold to INDO-American Seeds. Cotton is produced during the dry season and sold to SIMA. The goal of biomanure production is to make use of sources abundantly available, such as banana waste. Two thousand acres are currently under banana production in Kannivadi. The fruit is the only part of the plant sold. The women of the SHG can collect for free the remaining pieces of trunk and leaf.

Here are the steps of production:

- 1) Cut the banana waste into small pieces and let 40% of the moisture evaporate
- 2) The biomanure heap consists of ten layers, and is 10 by 5 feet
- 3) The first layer is 100 kg. of banana waste, 2.5 kg. of cow dung, and 10 liters of water mixed together
- 4) A biocomposter is sprayed on, consisting of Azospirillum, Phosphobacteria, and Trichoderma (a fungus). It costs Rs. 36/kg.
- 5) 1 kg. of rock phosphate and 1 kg. of soil is added
- 6) Then the second layer begins. It has nitrogen, cow dung, water, rock phosphate, and soil mixed together. No biocomposter is added
- 7) The third layer is the same as the first, with the biocomposter
- 8) The next layer is the same as the second, with nitrogen
- 9) The pattern continues until there are ten layers
- 10) The heap is covered with a black tarp to collect sun, but maintain moisture
- 11) After 15 days, all the layers are mixed together. This is done every 15 days for 3 months

The final product yields 1,000 kg per heap. Each kg. can be sold for Rs. 3-4. Two to three thousand kg are used per acre. Two applications per year are necessary. The biomanure acts as an inexpensive way to make more nitrogen available to the plant.

The women of the SHGs have used the money they have earned on vaccinations. They now do not need to approach moneylenders. They will repay the Rs. 60,000 loan to MSSRF within two years. Their main objective is to become the owners of the land they lease, thus gaining more security.

Banana Waste Paper Production

One SHG has begun paper and board production using banana waste. There are ten members in the group, all poor, landless women. They have a very strong interest in the project, and have already invested Rs. 700,000. MSSRF loaned them Rs. 400,000, and they obtained the remaining Rs. 300,000 from a bank and rural development agency. Eight SHG women and two male workers attended a one-month training session paid for by MSSRF.

Here are the steps of banana waste paper production:

- 1) Banana waste is collected for free from local farmers. It is cut into small pieces to dry
- 2) It is soaked in a water and chemical mixture. If allowed only one day to soak in water, 5% sodium hydroxide is used, whereas only 2% is necessary if allowed two days to soak
- 3) It is then placed in a 50-kg beater machine and crushed into pulp for 6 hours
- 4) Next it is placed in a pulp storage tank and mixed with chemicals. The chemicals, rosin soap or aluminum sulfide, are to resist water absorption. This is especially important for the waste intended for board production
- 5) It is placed in a paper lifting mold, or press, with a cloth placed on top of the paper
- 6) The paper is left to dry in the sun 3-4 hours. The cloth is then easily removed
- 7) The paper is placed in a hydraulic press to make it uniform in thickness
- 8) Next, it is cut to shape. The extra scraps are used for small envelopes or letters, or placed back in the crushing machine.
- 9) The paper is dyed, and the conversion work into various files and covers is done

The women's biggest market is universities and banks. Because of the high demand for file and cover production, this year more paper than board will be produced. Paper uses only 20% banana waste with the additional materials consisting of 80% cotton or paper waste, whereas board production uses 100% banana waste. The SHG advertises using local mass media, and they are now looking to the Internet for an international connection. When I visited the SHG, they were in the process of laying the cement floor of their new building. It will be used to house their machines. This group is very serious about their business, and the development of their strong entrepreneurial skills is evident.

The time I spent in Kannivadi allowed me to see a completely different culture. The people I meant shared their lives with me, allowing me to study the most personal of details. It was these details that showed me a new way of thinking and seeing that a book could never teach you. Although gender discrimination is an issue in rural life, a developmental worker must have a clear understanding of cultural practices before barging in and parading women's rights. I say this because one of the biggest lessons I learned is that I cannot judge another society's problems using my own society's standards. If a woman has been raised her whole life to serve the meal first and eat an hour later, she may not feel as if she is being treated unfairly. When I spoke of this with Geetha, she responded that it is just a form of Indian hospitality. Since hospitality originates from denying oneself something to show another kindness, it is difficult to say something is wrong when it is such an act.

When I first noticed the seclusion of women from men in everyday life, I made the same mistake of judging this by my own society's standards. I immediately wanted to know why the women were not seen as worthy enough to speak to. It was in fact for the opposite reason that the women are not to take part in conversations with men. A high respect is held for women, and conversations with men are deemed below them. To maintain a pure mind, a woman is to speak only to her husband of personal feelings. The need for companionship is to be fulfilled by female friendships, which are more adept at understanding a woman's feelings. When confronting such issues as gender and caste discrimination in relation to household food security, a balance between empowerment and the traditional cultural practices must be reached. In my short time in the rural village I have been able to see this, however, an understanding of local traditions and customs can only be gained after a prolonged study. The trickiest part will be finding this balance for each village. I have now experienced the goal of a developmental worker.

"Removal of historical disadvantages in terms of assets or skills may only be a matter of adequate resources, but cultural and sociological handicaps pose much greater challenges." Deputy Chairman K.C. Pant recognized this basic fact in a workshop of MSSRF. The mission of Professor M.S. Swaminathan works directly towards meeting this challenge. The mission of the foundation states as follows. "First, to foster sustained human well being by promoting the conservation and enhancement of natural resources and by mobilizing frontier technologies and traditional wisdom. Second, to promote job-led economic growth in rural and tribal areas through a pro-nature, pro-poor and pro-women orientation to knowledge and skill empowerment." It is a challenge that is still trying to be met, and in all likelihood it will be a long time before we even become close to a food secure world. I am confident that my short time here has played the most miniscule of roles in working toward this goal. However, because of the lessons I have learned during my studies at MSSRF, and from the remarkable examples I have been surrounded by, I have made the decision to place an agricultural emphasis on my future International Business major. I would like to continue studying these perplexing issues facing our world. Perhaps someday this will lead to a future career as a developmental worker. If so, I would count myself very honored to be placed in the same company as my colleagues here at M.S. Swaminathan Research Foundation. Perhaps one day I can lend a more significant hand towards combating the enormous challenge of feeding a world soon to reach over eleven billion people.

Works Cited

- 1) Department of Agriculture and Co-Operation. Statistics at a Glance. <http://www.nic.in/agricoop/stats.htm>.
- 2) Department of Applied Research Gandhigram Rural Institute. Elimination of Micronutrient Malnutrition in Tamil Nadu. Tamil Nadu, India. 11-2000. P.2.
- 3) The Economist, June 16-22 2001. Still Untouchable. The Economist Newspaper Limited, Singapore. 2001. P.11.
- 4) FAO. The Special Programme for Food Security. <http://www.fao.org/spfs>.
- 5) M.S. Swaminathan Research Foundation. Sustaining the Biovillage Programme: The Prime Movers and Doers. Chennai. P.31-32.
- 6) M.S. Swaminathan Research Foundation. 1999-2000 Tenth Annual Report. Chennai. P.84-121.
- 7) Pant, Shri K.C. Valedictory Address. Targeting Women: Implications for Food Security. 2-12-2000.
- 8) Batliwala, S. Empowerment of women in South Asia: Concepts and Practices. Bangalore, India. 1993. P.15.
- 9) NABARD. NABARD & Micro-Finance. Mumbai, India. 1999-2000. P. 2-11.
- 10) UNICEF. Self Help Groups in Madhya Pradesh. Bhopal, India. 1998. P. 1-24



Hindu Shrine on the Sidewalk



The Village Children were my Biggest Group of Admirers!



M.S. Swaminathan Research Foundation



Salt Worker on the Bay of Bengal



Meeting with a Group of Villagers



Irrigation Canal at a Farmer's Home



Sheep Herd of a Self-Help Group



An Orphaned Monkey in Madurai