

**Researching Youth Disinterest in Agriculture in Peninsular India: Evidences from VDSA
Villages- A Case of Dokur and Aurepalle, Telangana**

Report Submitted to
International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)

By
Kirsten Mikell Forster



International Crops Research Institute for the Semi-Arid Tropics

Patancheru, 502 324

Andhra Pradesh, India

icrisat@cgiar.org

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To Whomsoever It May Concern

This is to certify that this project report on “Researching Youth Disinterest in Agriculture in Peninsular India: Evidences from VDSA Villages- A Case of Dokur and Aurepalle, Telangana” is a bonafide record of work done by **Ms. Kirsten Mikell Forster** under the supervision of Dr. MCS Bantilan and Dr. N. Nagaraj and submitted to the International Crops Research Institute for the Semi-Arid Tropics.

Dr. N. Nagaraj

Principal Scientist

Markets, Institutions and Policies

ICRISAT-Patancheru

Telangana – 502324

India

Dr. MCS Bantilan

Research Programme Director

Markets, Institutions and Policies

ICRISAT, Patancheru

Telangana- 502324

India

Declaration

I do hereby declare that the dissertation entitled “**Researching Youth Disinterest in Agriculture in Peninsular India: Evidences from VDSA Villages- A Case of Dokur and Aurepalle, Telangana**” is an original and independent record of project work undertaken by me under the supervision of **Dr. MCS Bantilan and Dr. N. Nagaraj at the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru, India**, during the period of my study as a World Food Prize Borlaug-Ruan International Intern.

By

Hyderabad

Kirsten Mikell Forster

Date:

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Abstract

Title	: Researching Youth Disinterest in Agriculture in Peninsular India: Evidences from VDSA Villages- A Case of Dokur and Aurepalle, Telangana
Name	: Kirsten Mikell Forster
Institute	: The World Food Prize Organization, Des Moines, IA, USA
Supervisor	: Dr. MCS Bantilan; Dr. N. Nagaraj
Submitted	: August 12, 2014

Abstract

By 2050, the projected global population will be over 9 billion on Earth. Can the Earth sustain itself with current agricultural practices? The answer is no. The world faces issues of extreme poverty becoming more serious and growing to more places globally. People are turning to technologies for answers. However, the answer can be found in this quote: “Cultivators of the earth are the most valuable citizens. They are the most vigorous, independent, virtuous, and they are tied to their country.” –Thomas Jefferson. The world needs to invest in more farmers, especially youth. India is experiencing severe rises in average farmer age. But with the energy of youth, and willingness to accept technologies, 9 billion isn’t such an intimidating number.

The purpose of this study is to research why youth are no longer interested in agriculture in Indian villages in particular. Using quantitative analysis of the Village Dynamic Studies database and qualitative analysis of surveys and group discussions, this study will show reasons of youth migration to cities and lack of employment in agriculture. The results conclude that youth find better opportunities in villages like increased pay and less risky jobs. India’s growing economy and city life is appealing to youth.



Pictures 1 and 2: Students of Agricultural Polytechnic, Regional Agricultural Research Station, Andhra Pradesh
Agricultural University, Palem

1.1 Introduction

It is well known that the Asia-Pacific region is very young, as it is home to more than 60% of the world's youth. An issue that is rapidly emerging is the growing age of the farmer. The average age of the Asia-Pacific farmer is 55 years old, with the average lifespan being 65 years (Paroda *et al.*, 2014). India in particular is no exception to this fact, as 14.7% of its population is between 15-24 years old (YouthInfo India, 2011). With such a large youth population, how could the average age of the farmer be steadily increasing? With research, I concluded that this was due to disinterest of youth in agriculture. My short time here at ICRISAT was dedicated to address the question: what are the contributing factors that affect youth interest in farming?

1.2 ICRISAT

The International Crops Research Institute for the Semi-Arid Tropics was founded in 1972 as a non-profit and non-political organization. The purpose of this organization is to conduct agricultural research in semi-arid tropic Asia and sub-Saharan Africa. The semi-arid tropics are a target of ICRISAT because this land is home to over two billion people, of which 644 million are the poorest of the poor. ICRISAT wants to empower poor people to defeat poverty and hunger.

ICRISAT'S research programs are designed in a technique called inclusive market-oriented development (IMOD). This technique focuses on empowering smallholder farmers to produce more than they need so they can store their extra food in preparation of future hunger, or sell excess product to market to make a larger income margin.



Picture 3: ICRISAT Campus

I was able to work with the Market, Institution, and Policies Department. The Research Program Director of this Department is Dr. MCS Bantilan.

Aspirational Targets of ICRISAT for the next ten years are as follows:

- “Help halve rural poverty by increasing farm incomes through more productive, stable, diverse and profitable crops and crop products,
- Help halve hunger by contributing innovations that increase yields by 30% on a wide scale and through policy advice that stabilizes food prices and availability,
- Help halve childhood malnutrition by enhancing the nutrient content of staple food crops and helping the poor diversify their crops, delivering more nutritious and safer food, and
- Increase resilience of dryland farming through innovations that stabilize, safeguard and enhance natural resource capital, biological and systems diversity, and land health (ICRISAT, n.d).”

ICRISAT is a member of the CGIAR Consortium. CGIAR is a global partnership that has united 15 research centers who engage in research for food security. Along with the 15 research centers who are members of the CGIAR Consortium, they collaborate with hundreds of other partner organizations (CGIAR, n.d.).

ICRISAT has hosted four high school interns since 2010. One of which was the 2013 John Chrystal Award Winner, Rachel Ganson, who study women in Self Help Groups (The World Food Prize, 2013).



Picture 4: School children in the village of Dokur.

2.1 Background

The Asia-Pacific region supports 70% of the world's agricultural population respectively on less than one-fifth of global land (Paroda *et al.*, 2014). Farming communities have become poorer over recent years due to small land holdings, which make up over 80% of farm households. While all of this is taking a place, a new problem emerges. The average age of farmers is increasing at a rapid rate. Due to new technologies and the developing of the Indian economy, India is also experiencing this. India is in the middle of a population boom. Fast growing cities like Hyderabad are attracting youth from villages to come and perform labor work like construction and paintings. Lack of employment in villages is pushing them towards these opportunities of city life. The more youth that migrate to these cities leaves a smaller population of farmers in villages. An epidemic will presents itself within the next 10 years: who will feed India?

3.1 Research Objective

The objective of this study was to analyze the existing status of youth interest and perceptions in agriculture and to research the constraints and opportunities for youth to become involved in agricultural processes.

3.2 Research Question

Based on my research objective, my broad research question was formed. **“Why are youth (15-24 years old) disinterested in agriculture?”** Because this question is so general, more specific questions were developed to provide better information for analysis.

1. Why is agriculture not an appealing area of work to youth?
2. What are the strengths, weaknesses, opportunities and threats of youth in agriculture?
3. Are there effective organizations in place that help empower youth?

3.3 Research Hypothesis

To solve my research questions, my hypothesis was formed. The main hypothesis for this study is: **Youth interest in agriculture has been declining due to better opportunities presented in cities.** To prove this hypothesis, the following hypotheses were developed to help solve the larger hypothesis.

1. Agriculture is not an appealing area of work due to drudgery and observation of already struggling farmers
2. The strengths of youth in agriculture are their energy and interest in technology. The weakness is their inexperience. The opportunity is communication with organizations that empower youth. Threats are the lack of resources available to farmers.
3. Organizations like the Krishi Vigyan Kendras (KVK) and the National Rural Employment Guarantee Act (NREG) help to empower youth.

4.1 Limitations of Study

Due to my internship only being eight weeks, I was pressed for time. I was only able to do research in two villages, Dokur and Aurepalle, and a polytechnic college. In my Village Dynamics Studies data analysis, I only had time to compare two years, 2010 and 2011, and two villages, Aurepalle and Dokur. If more villages and years would have been included in this study, my research would have been more concrete. While giving my surveys, there was an issue of finding respondents. My research targeted youth between the ages of 15-24 years old. This was a challenge to find anyone between this age group at all, because most have migrated to cities. I only received 7 responses from Aurepalle and Dokur combined, and 7 from a polytechnic college that was visited.

The Krishi Vigyan Kendra (KVK) in Dokur was the only KVK I was able to visit. This KVK was also only two years old and did not have many current projects taking place because they were fairly new and still waiting on government funding. The staff was also new and had just begun their work. Visiting other KVK's would have given me an opportunity to see more projects in action, but due to my limited amount of time, this was not an option.

5.1 Methodology

Research was conducted in the form of a survey in two VDSA villages of Telangana (Dokur and Aurepalle) as well as at a polytechnic college. This survey was 24 questions long that asked youth questions about their employment, aspirations, and schooling. The questionnaire was only given to youth (15-24 years old) and 14 responses were received. This age range was decided for youth because of the commonality in other publications from ICRISAT as well as different organizations. Focus group discussions regarding strengths, weaknesses, opportunities, and threats (SWOT) analysis were conducted in three groups; older farmers in Dokur, a girls group from the polytechnic college, and a boys group from the polytechnic college. Information was also availed from the online VDS data base. Because there is no VDS data specific to youth employment, a new excel sheet was made. This excel sheet consisted of names, ages, and genders of the youth which was derived from family composition data and also

consisted of employment data which was derived from employment data. After doing this, the excel sheet had about 135 results. This information was analyzed and graphs were derived from this data.

5.2 Literature Review

The review collected from various sources regarding youth in agriculture have been written below.

MIJARC, IFAD, and the FAO (2012) have recently done studies regarding facilitating access of rural youth to agricultural activities. They put out a survey that was offered to anyone residing in developed. Along with this survey, Regional Consultation Meetings (RCM) were conducted. These were essentially workshops provided to youth active in agriculture where issues were discussed and the youth's solutions were recorded for further research. The paper that I read discussed what was found from these surveys and workshops. Of the youth that responded that were involved in agriculture, 70% of them said agriculture was not their only income. One question asked how youth cope with difficult employment strategies in villages, and the most common answer was migration to cities.

Youth involved in policies are ignored, so policies often do not directly benefit them. This means that people who are inexperienced with the current position of youth are making their important policy decisions. The policies created by these people are unsustainable because they do not understand youth's needs. By helping youth become more active in policy making decisions, it could make the policies more effective in assisting youth with challenges they face. The results of the survey and RCM's were that youth are aspiring to become "agripreneurs." They want to be involved in organic farming and sustainable agriculture to stabilize their income. Youth want to utilize new technologies and ICT's to ease the challenges of farming and making it a more profitable profession.

Paroda (2014) has written conference proceedings regarding the regional workshop on youth and agriculture, specializing in challenges and opportunities. A regional workshop was held in Pakistan where leaders in agricultural research stated opinions and solutions about youth in agriculture. Dr. Iftikhar

Ahmad, the Chairman of the Pakistan Agricultural Research Center (PARC), said that the best developments are knowledge and innovations. Because of the rising population, agriculture needs a new innovation that can be converted into industry. Ahmad believes that youth have the potential to accomplish this. He stated youth need to be provided with more networking to enhance guidance. Many other speakers had ideas of getting youth and women involved in other types of agriculture, like horticulture and floriculture. Another idea was to find ways to make agriculture more economically rewarding and intellectually active. This is found to be the main cause of why youth are not interested in coming into this field. This group at the workshop also created suggestions that they had to fix the issues that had come up during the conference. Financial services such as loans, start-up grants, interest free credits, and scholarships were all brought up to ease the start up cost of farms. Another idea was to take note of the best and most efficient agricultural practices and document them to be shared with youth and women who lack experience and proper technique. From reading the proceedings of this conference, it sounds like a lot of ideas were exchanged and this was very beneficial to everyone who was involved. Issues were better described, but better yet, solutions were brainstormed. Hopefully some of these solutions can be implemented in the near future.

Proctor and Luccesi (2012) have studied small scale farming and youth in an era of rapid and rural change. The demand for food is estimated to increase by 70% by 2050 due to population increase. In order to meet this demand, food production must have a revolution. Youth now have a large amount of pressure on them due to the fact in 10 years; the future of farmers is uncertain. If youth can step up and adapt new technologies and learn techniques from experienced farmers, the future of agriculture in developing countries is bright and the demand for food will be met. Actions need to be initiated to provide youth with a larger knowledge base to encourage efficient and productive food production. Policy making actions also need to take place to empower and protect youth. By giving youth a voice in workshops and policy making decisions is the key to a brighter future for youth, agriculture, and food production.

Sharma (2008) has studied the changing agricultural demography of India through the evidence from a rural youth perception survey. Due to the rapidly developing economy of India, the agricultural sector is declining. Unless agriculture becomes intellectually stimulating and economically rewarding, youth will not be interested. When the city life becomes a pull to people living in rural areas, migration is often a common way people adjust to the transition of agrarian to industrial economy. Usually, migration is associated with higher educated residents. Once these residents leave village life, everyone essentially moves up in social standings. Because able bodied men are leaving villages and moving to cities, the age of the average farmer begins to increase. This is the explanation for the aging farm population in the Asia-Pacific Region. This publication found that 35% of village youth migrate out of the village for work. However, most of this is seasonal. The reason for this migration was to stabilize cash income for the household. This research found that farmers have very low respect, by women as well. It was often reported that men who only farm have a difficult time finding spouses. Suggestions from this researcher are to provide farmers with more benefits that make farming a more desirable occupation (Sharna, 2008).

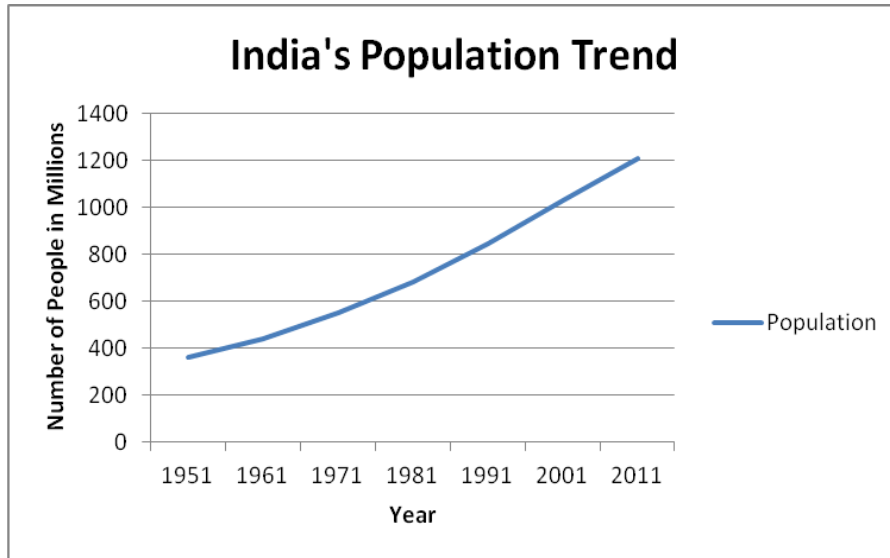
All of these writings were very beneficial to my research, especially the conference proceedings from the publication entitled *Regional Workshop on Youth and Agriculture: Challenges and Opportunities*. This was the most beneficial because it didn't just have one viewpoint. The conference had many speakers and brought about a lot of various ideas. Also, the study done by MIJARC regarding the RCM's was very informational because there were respondents from Latin America, Europe, and Asia. Not only did agricultural organizations reply to this survey, but actual youth farmers and multiple NGO's did as well.

6.1 Results

6.2 Profile of India

India is currently the second most populous country in the world with 1.27 billion people (India's Population, 2014). In fact, the population in this country adds more people annually than any other country consistently. The 2011 census of India shows the sex ratio is currently 940 females/ per 1,000 males. This was good news, as it was an increase from the 2001 census, which was 933 females/ 1000 males (Population Census, 2011). Education in India can be looked at through the literacy rate. The current total literacy rate in India is 64.8%. India has one of the lowest high education enrollment rates at just 11%. This could be due to a number of factors including no funds, no transportation, or the need to join the labor force immediately to support family. Another issue is the quality of institutions. 70% of universities were grades as poor by the National Assessment and Accreditation Council (2011 Census Data, 2012). As mentioned before, India is a very young country. The growing economy as had a very positive affect on the population. People now have more money in their pockets to spend on technologies and their families. 29 babies are born every minute in India, and the average family size is 5.3 people and growing. Agriculture still remains the most common employment in India at 52% followed by services and then industry (India Labor Stats, 2009).

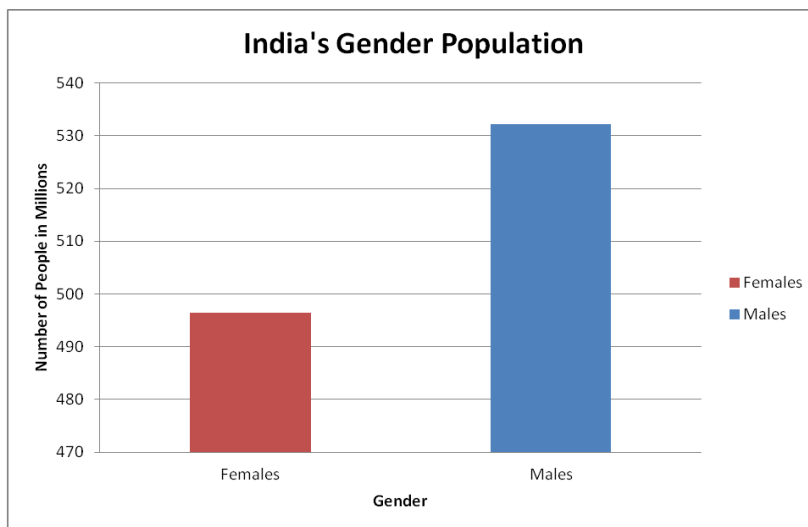
Figure 6.1 Population of India from 1951-2011



Source: (Population in India, 2011).

This figure is showing the population increase from the year of 1951 to 2011. This data was collected from India’s official census. It shows the population boom and that the population has multiplied by more than four times what it used to be 60 years ago.

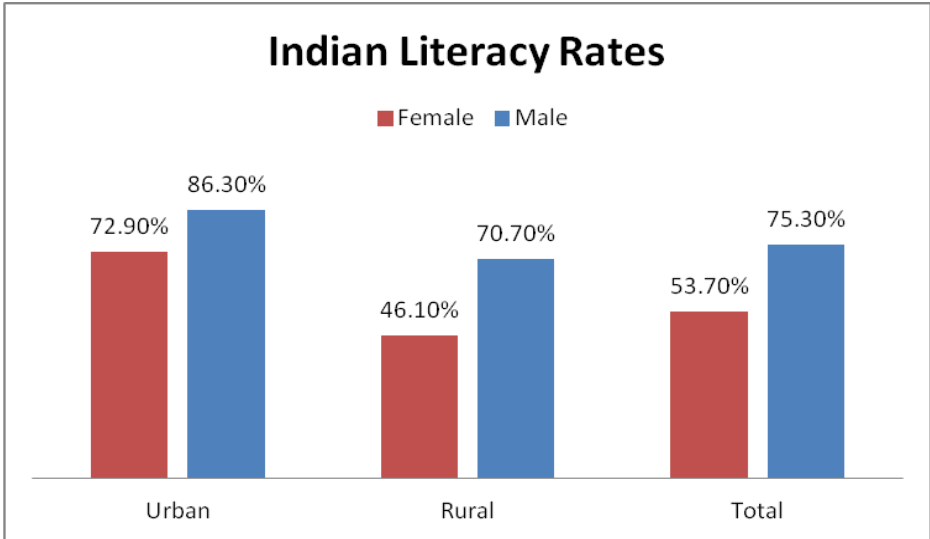
Figure 6.2 Comparison of Genders in India



Source: (Population Census, 2011).

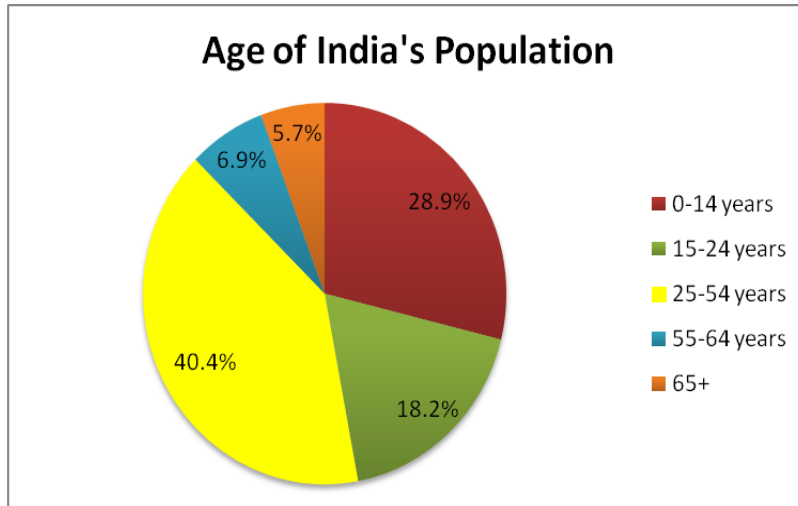
This figure shows the amount of females in India compared to males. Males outnumber the females by far, but the female population has been increasing since 2001.

Figure 6.3 Literacy Rates Among Genders & Varied Areas



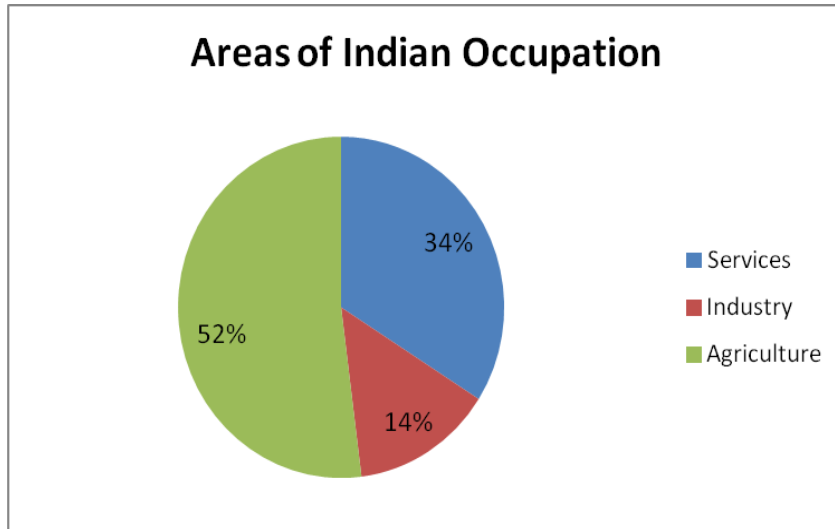
Source: (2011 census data, 2012).

This figure clearly shows that no matter the area, males always have higher literacy rates. These rates are significantly lower in rural areas, most likely due to lack of quality education. Higher literacy rates can be found in urban areas because more institutions are found here and have a higher quality of educators.

Figure 6.4 Comparison of India's Age Cohorts

Source: (India Age Structure, 2013).

This graph shows the divisions of age groups and their populations in India. As you can see, the largest age group is from 25-54 years old. This is logical because this is the age group with the largest range, spreading over 30 years. Next largest is the range of 0-14 years old. This is because India has a very large birth rate, but India also has a very high infant mortality rate. The third largest area within this graph is 15-24 years old. This is the age group that is just entering the labor force and should be targeted to educate about agricultural occupation opportunities.

Figure 6.5 Indian Occupation Sectors

Source: (India Labor Stats, 2009).

The main occupation is still agriculture, at 52%. However, the service and industry sectors are growing.

Over the next ten years, more analysis should be done to compare areas of occupation.

6.3 Andhra Pradesh Profile

Andhra is a state located in the southern region of India and is the fourth largest state. The largest sector is agriculture, as Andhra Pradesh is one of India's main rice producing areas. 70% of the population is involved in agriculture (Population in India, 2011). Main crops grown here are rice, maize, millets, pulses, castor, tobacco, cotton, sugarcane, groundnut and bananas. Since 1991, Andhra Pradesh has experience a downward slope of their population. Andhra Pradesh is known as a great state for education. From 2001 to 2011, literacy levels increase by 6% because of better attention to education. This state has 923 degree colleges and 2,231 junior colleges/pre-degree colleges. On June 2nd, 2014, Telangana and Andhra Pradesh split into two states with Hyderabad being the joint capital for 10 years. This isn't the first time the states have been separate. Originally, they were separate until 1956 when the state of Andhra absorbed the Hyderabad state.



Picture 5: During survey collection in Aurepalle village, Mahabubnagar

6.4 Village Profiles

From collecting data on field visits and doing research with publications from ICRISAT, I was able to gather information on both Dokur and Aurepalle and summarize the facts.

Aurepalle

Aurepalle is a village located about 60 kilometers from Hyderabad in the Mahbubnagar District in the Telangana Region of Andhra Pradesh. Annual rainfall is about 700 millimeters, which is always distributed unevenly. Due to climate and resources, crops grown are cotton, paddy, sorghum, pearl millet, castor, and pigeonpea. Rapid progression is taking place in this village in the aspects of social, political, economic, and religious areas. The building of the Shamshabad airport and other important industries have cause socioeconomic change and land values in Aurepalle have increased by 10 times what they use to be. Medical facilities, improvement in sanitation, and protected drinking water have greatly contributed to improved health conditions.

Caste groups in the villages are the forward caste (FC), backward caste (BC), scheduled caste (SC), scheduled tribe (ST), and minorities. Each caste group contains many castes, and as many as 23 castes exist in the village. Castes also have caste occupations. For example, carpentry, weaving, washing

clothes, and sheep rearing all belong to BC. People in SC are ranked the lowest socially and make up 70% of the labor force working in the fields.

Agriculture is the main occupation of 50% of the households. Each household in Aurepalle has two or more sources of income from the areas of crop production, farm and non-farm labor, business, migration, caste occupation, monthly salary, or livestock production. Due to the adoption of technologies such as chemical fertilizers, plant protection measures, mechanization, seed technologies, and water conservation measures, farm production has increased greatly. Bt cotton was introduced to the village in 2005 and presently all cotton growers are using this hybrid. 98% of cropped area in Aurepalle is growing improved hybrid cultivars.

The literacy rate of Aurepalle is 90% in males and 70% in females from the age of 5-30 years old. There are three pre-primary institutions, three primary institutions, two secondary institutions, and one higher secondary institution (Ramana, Mohan, Kiresur, and Bantilan, 2011).

Dokur

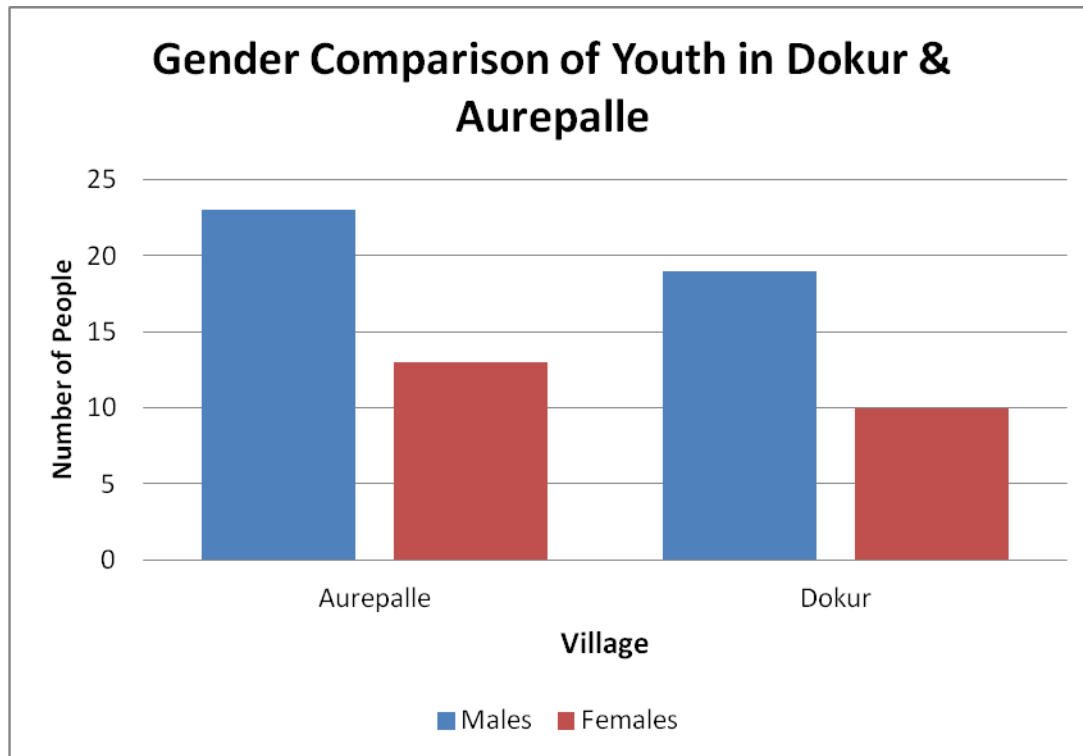
The village of Dokur is also in the Mahbubnagar district of Andhra Pradesh, but is situated in the Devarkadra mandal. It is located about 130 kilometers from Hyderabad. This village is drought prone, and has an average of 3 droughts every 5 years. The normal rainfall in the village is 730 millimeters, but is never dependable. Agriculture has traditionally been the main occupation for many of the villagers, but in recent years, due to drought, lack of irrigation and a decrease in cultivated land, agriculture is no longer a livelihood of villagers. Major crops grown are paddy, groundnut, castor, pigeonpea, and cotton. Migration to cities like Hyderabad for work is now very common and has become a vital source of income to many poor families. Like Aurepalle, Dokur has the caste groups of FC, BC, SC, ST, and minorities.

Three decades ago, Dokur's main occupation was agriculture. Over the years, persistent drought and lack of irrigation has led to low income in crop production. Thus, people were seeking diversification of income from different sources to stabilize their living. Only 130 of the 545 families in Dokur rely on

agriculture. Lack of employment in the village has led to a drastic increase in migration and now the majority of families in Dokur depend on labor earnings.

Despite a decrease in agricultural production, technology is still being adopted. Horticulture crops such as mango and citrus are becoming fairly popular because horticulture is a very profitable compared to agriculture crops. Hybrid and improved seed technologies, chemical fertilizers, plant protection measures, and mechanization are also contributing to help lessen the stress of the undependable climate. Improved cultivars include Sona Masuri and Hamsa paddy, GCH-4 castor, and LRG-11, LRG-41, PRG-158, ICPL-87119, ICPH-2671 and ICP-8863 in pigeonpea.

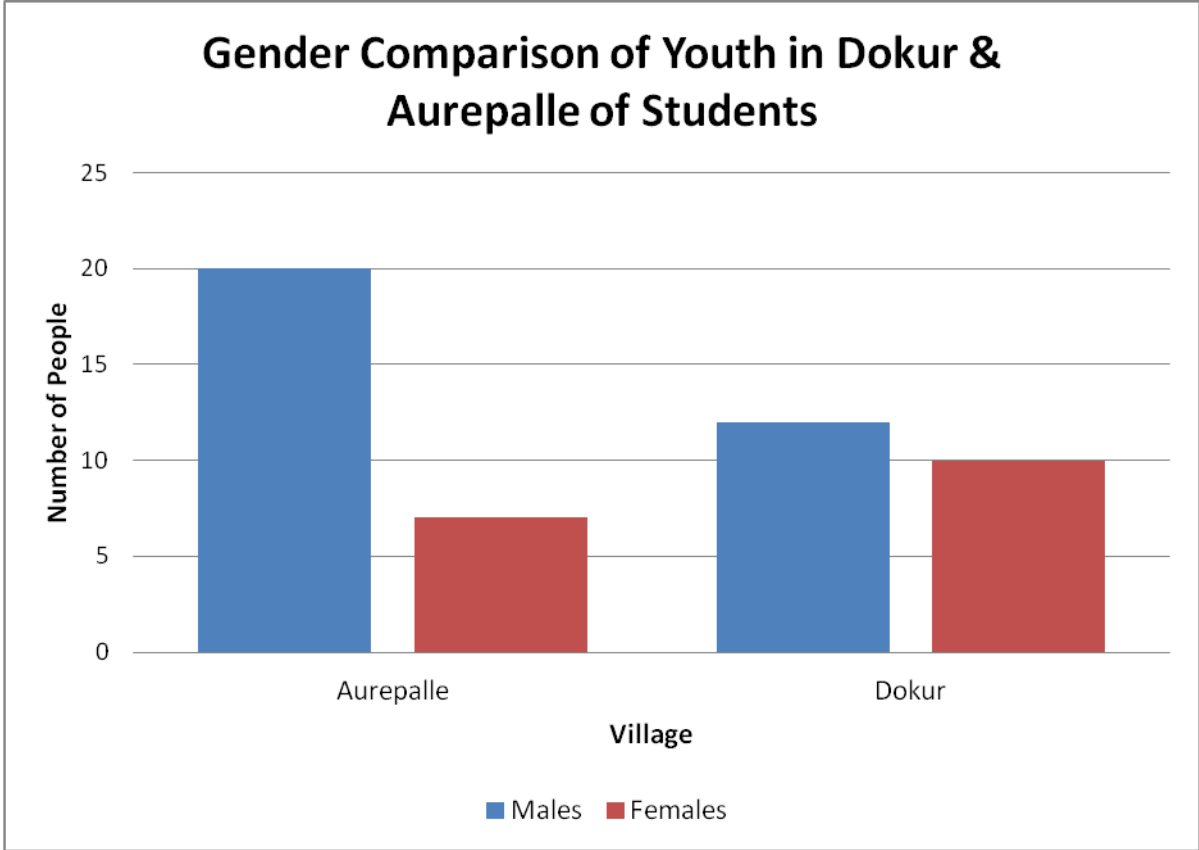
The literacy rate stands at about 49%. The education available in the village is two pre-primary institutions, one primary institution, one secondary institution, and one higher secondary institution (Rama, Mohan, Kiresur, Nageswara, and Bantilan, 2011).

Figure 6.6 Youth Population by Gender

Source: (VDSA, 2013).

Figure 6.7 demonstrates the entire population of both males and females in villages of Aurepalle and Dokur. This shows that there are more boys than girls, which is compatible to VDS data. Figure 6.8 shows the number of youth enrolled in school. Compared to figure 6.7, the data is compatible because there are more boys than girls to start with.

Figure 6.7 Profile of Youth Population Involved in Studies

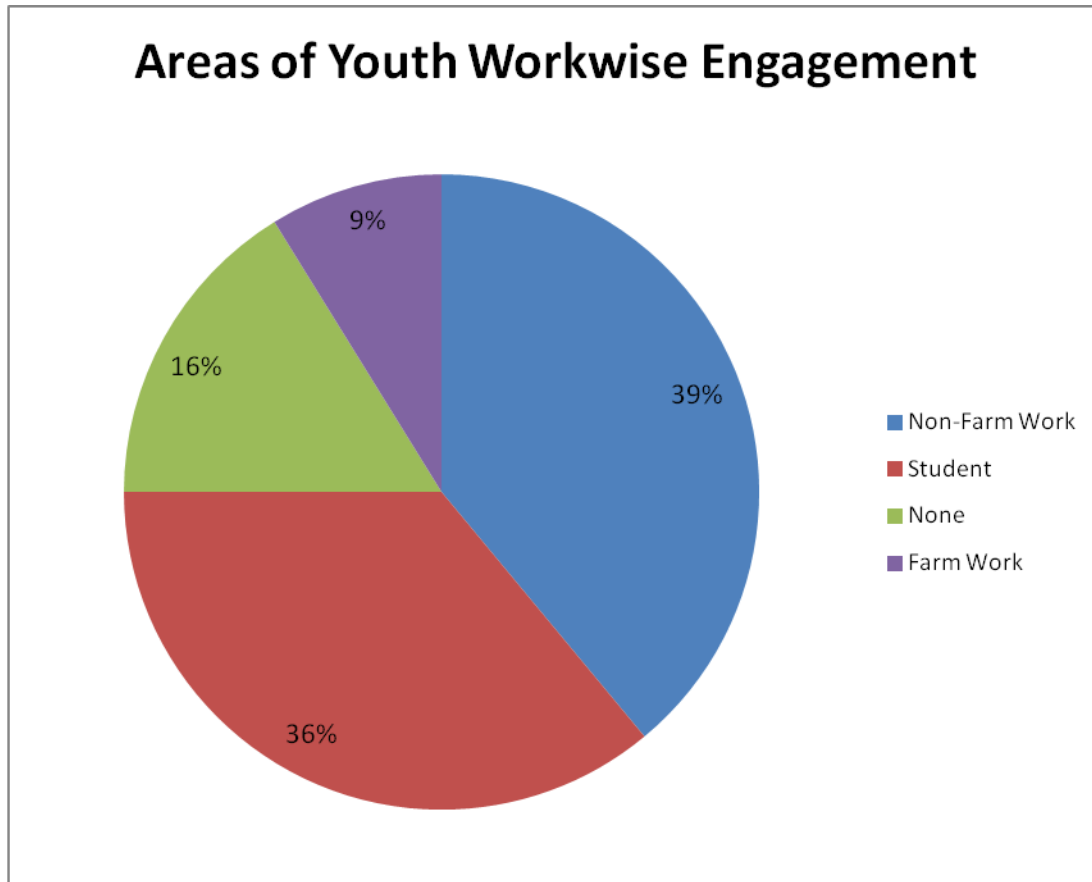


Source: (VDSA, 2013).

6.5 VDS Data Analysis

I studied this data and reached several conclusions.

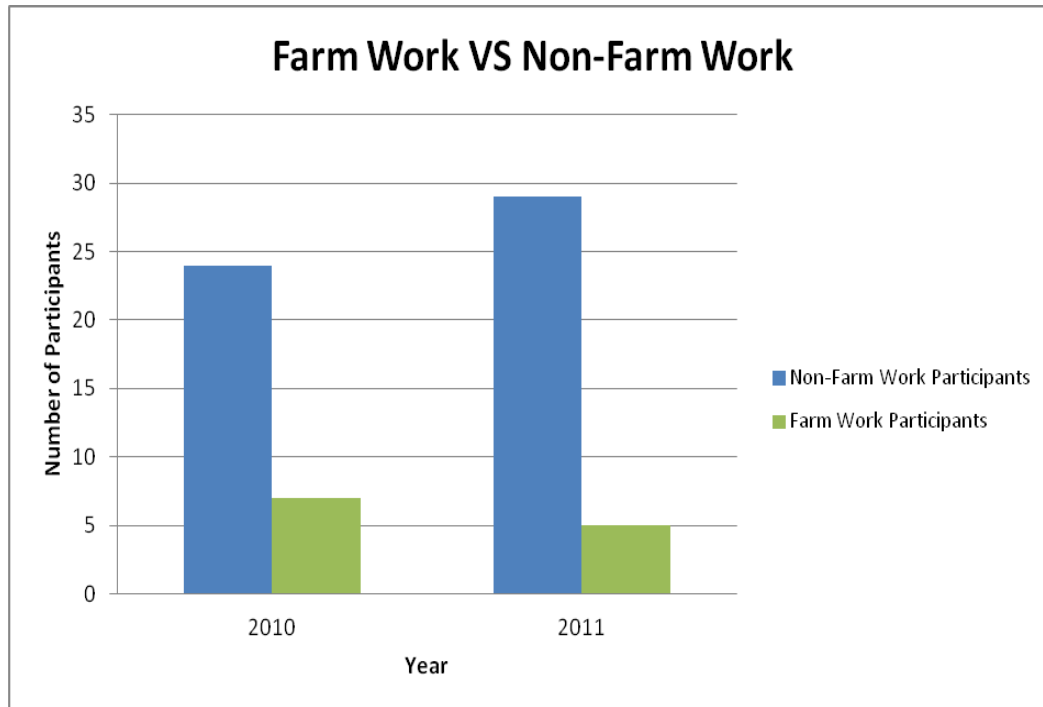
Figure 6.8: Occupational Structure of Youth in Aurepalle and Dokur Village, Mahabubnagar



Source: (VDSA, 2013).

The largest area of employment for youth is non-farm work. This can range from anything to non-skilled labor to a salaried job. The next largest is the student sector. This shows that youth in Aurepalle and Dokur have a priority of education. A shocking result was that there are more unemployed youth than youth employed in agriculture.

Figure 6.9: Proportion of Farmers Working in Farm and Non-Farm Sector



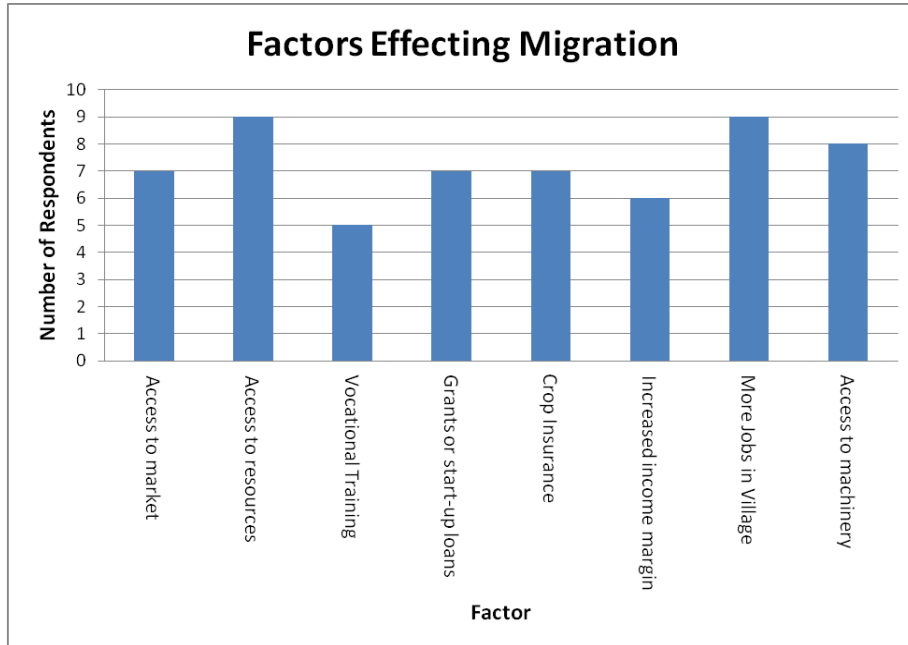
Source: (VDSA, 2013).

I wanted to compare the relation of non-farm work to farm work and the results supported my hypothesis because the non-farm work area is increasing while the farm work area is decreasing. It is decreasing by a minimal amount, but this is still evidence.

6.6 Survey Results

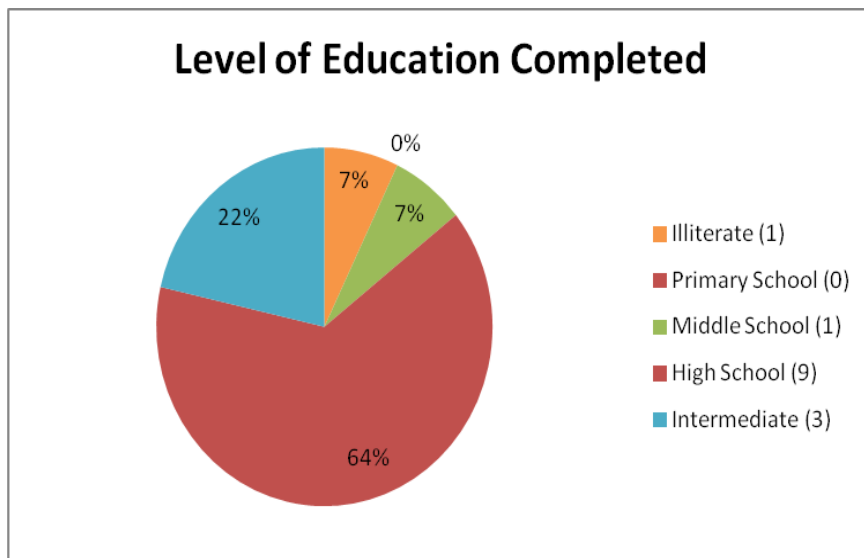
The survey that was conducted in Aureapalle, Dokur, and the polytechnic college was not very successful. There were issues finding participants. However, of the results, there were some interesting findings. 79% of respondents have heard of NREGA, but only 7% had ever used their services. When asking the respondents why they have not used the service, they responded with answers like; it is hard to receive a card or transportation to worksite is difficult. A question on the survey was: What is your ideal profession? Surprisingly, no one answered farmer. The responses were all along the lines of stitching or shop owner. All of the polytechnic student responses were in the field of agriculture but none were farming.

Figure 6.10: Factors Influencing Migration in Mahabubnagar, Andhra Pradesh



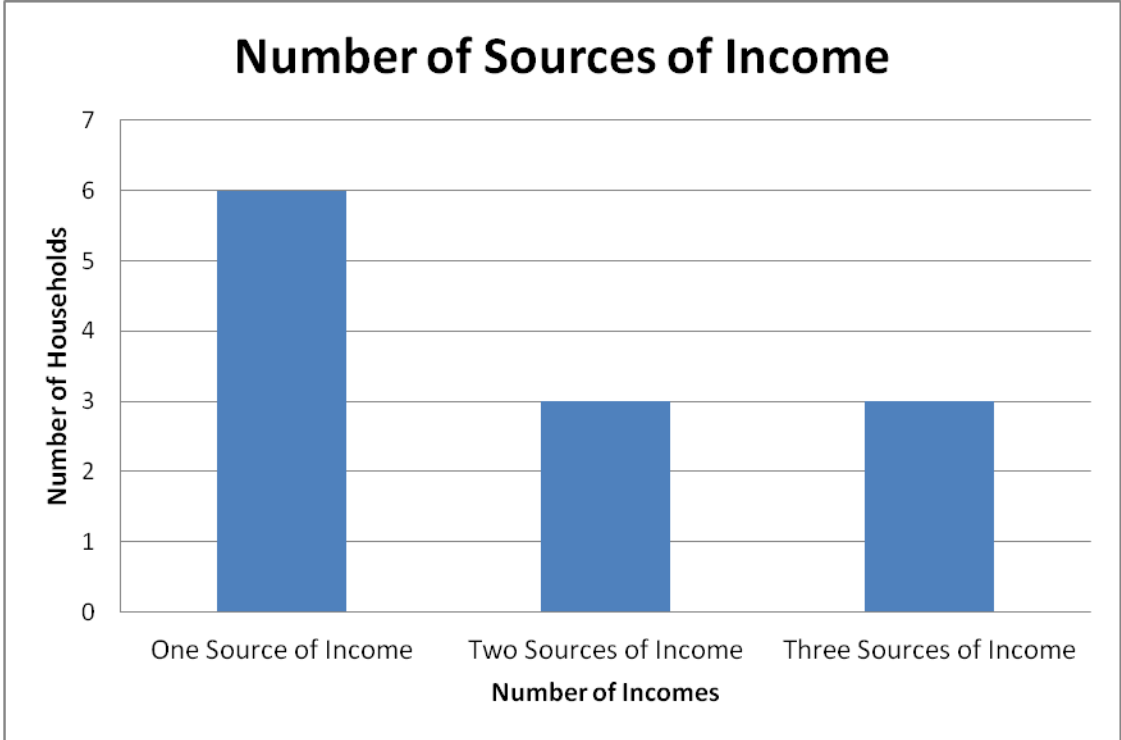
The most common responses for what would stop migration to cities were better access to resources like water and land and more jobs in the village. Unexpectedly, vocation training had the lowest feedback.

Figure 6.11: Education Status of Survey Respondents



This results show that most kids at least completed high school (8th-10th standard). This level of education is rather high, and demonstrates how important education is. However, there was one illiterate interviewee who worked as agricultural labor.

Figure 6.12 Number of Sources of Income to Survey Respondents



From the 12 respondents who provided household income, half of the households rely solely on one type of income. There was no correlation between what occupations belong to houses with a certain number of incomes.

6.7 SWOT Analysis: Focus Group Discussions

SWOT stand for strengths, weaknesses, opportunities, and threats. I asked these questions regarding youth in agriculture and received a lot of diverse feedback. These focus group discussions were by far the most impactful information I received throughout my research. Like previously stated, the focus group discussions were held in three groups: older farmers in Dokur, a girls group of polytechnic students, and a boys group of polytechnic students. The following are the outlines of the SWOT analysis followed by a personal analysis.



Picture 6: Focus group discussion in village Aurepalle, Mahabubnagar

Older Farmers in Dokur

- **S-** Interested in technology, they are not afraid of dirt
- **W-** Do not know techniques, farming offers no benefits, without proper resources the profit is minimal, little interest, lack of parent support
- **O-** They are good at operating machinery, if water is available there is a large chance of profit, if resources are available then parents will not discourage it
- **T-** No irrigation, lack of arable land

Analysis- There is a large opportunity with improvement in technology because youth are interested in technology and they are very good at operating machinery. The key here is connecting the technology and

machinery with the youth. Problems with youth in agriculture seem to be greatly reduced if adequate resources are provided.



Picture 7: Focus group discussion with female students of Polytechnic College, Palem

Female Polytechnic Students

- **S-** Vocational education, parent support, land resource, good climate, investment, market, confidence, security
- **W-** Infrastructure, no encouragement from government, parent support, water problem, power cuts, poor yields, greater chance of loss due to pests, physically demanding, lack of knowledge, soil types, lack of education, limited land
- **O-** Banks, new varieties, KVK, machinery, missions (people get together to complete a task like transplanting rice fields), biofuels, value opportunities, organics, integration
- **T-** Using chemicals too excessively, pollution, climate change, dependency on rains, labor scarcity, globalization, price factor

Analysis- It was interesting that parent support came up as a strength and a weakness. It is apparent that the opportunities that should be utilized are often already existing programs or organizations. Maybe education is a good way of getting more farmers involved with such programs. Also, a lot of factors on the threat list are human caused. For example, excessive chemical use, pollution, and globalization are problems that humans have inflicted on land. They have long lasting effects on the earth and are almost impossible to reverse. But by starting recycling plants, waste management systems, and educating people about these problems, we can prevent them from getting worse.



Picture 8: Focus group discussion with male students of Polytechnic College, Palem

Male Polytechnic Students

- **S-**Vocational education, good land, parent support, technology, variety of soils, marketing opportunities
- **W-** Uncertain climate, scarcity of labor, availability and quality of inputs (seeds and fertilizers), lack of support from family, bad reputation compared to someone with a salaried job (their uneducated)
- **O-** Marketing, new methods, availability of fertilizers, new varieties, adaptation of technology, utilization of communication between farmers and scientists

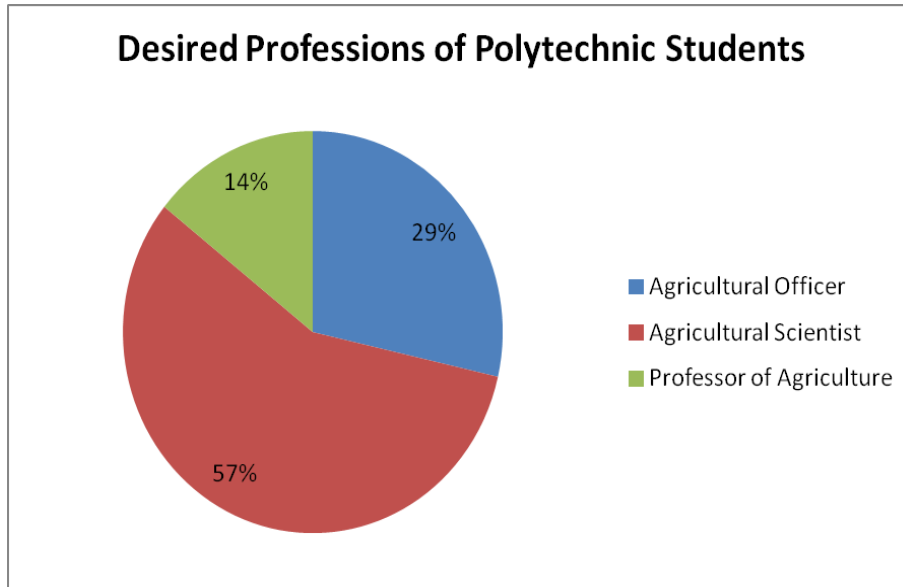
- **T-** Scarcity of water, climatic conditions, good year/bad year, price crashes, unfertile soils, overuse of chemicals

Analysis- Again, parent support came up as a strength and weakness. Also I think the opportunity brought up about communication between scientists and farmers is a very good point. This is something that should be looked at further, because it has potential to be very impactful. A frequent factor that was brought up in opportunities was technologies like new varieties, new methods, and fertilizers. These technologies should be introduced to more people so that these technologies can be used everywhere to ease the challenges of farming. Overall, these kids were very bright and I enjoyed talking with them.

6.8 Case Study

The Agricultural Polytechnic College and Regional Agricultural Research Station in Palembang was created to educate potential farmers in the field of agriculture. It was noticed that this area had a lot of potential with youth to become involved in farming. However, the school is currently experiencing the opposite result. Instead of graduating with their degree in agriculture and going back to their family farm to work, they are seeking jobs such as scientists and agricultural officers.

After visiting the agricultural polytechnic college, I gathered a lot of information. 90% of students came from a farming background. I asked several questions during a conference that was held. When asked who wanted to continue in agricultural practices, only nine out of 60 kids raised their hands. Many students wanted to be agricultural extension officers to encourage and inform farmers and potential farmers about the benefits of farming. I also asked if they respected farmers and everyone said farmers have a lot of respect because they go through a lot of hardships. Many of the students' parents were encouraging of farming as an occupation, and this is why they attend the polytechnic college. During the SWOT analysis discussion with a group of boys and a group of girls, they expressed to me their confidence in themselves due to their polytechnic education. Students said they believe in themselves to be successful in the area of agriculture because of the education they were receiving. It would be potentially beneficial to educate more people about the benefits of polytechnic colleges.

Figure 6.13: Occupational Structure Desired by Polytechnic Students

The survey asked about desired occupations and every respondent wanted to be involved in agriculture. It was interesting that the students were attending a college to train them in agricultural practices, but none of the respondents wanted to be a farmer. The college was designed for students who wanted to go back and work on family farms, and it is evident this goal is not being met.

7.1 Conclusion

In conclusion, youth are disinterested in agriculture because of better opportunities in cities. These opportunities range from employment, better pay, or a more desirable job. Unemployment is common in villages, and jobs are scarce. This combined with India's economic growth is pulling youth towards cities to work in industries. This is not information that I have only heard about, I have seen this myself. Walking through Dokur and Aurepalle and seeing countless houses locked up for the season due to migration was obvious.

Farming is not an appealing field of work for many reasons, but what seems to be the largest is the low income margin and high risk farmers face every day. The income of a farmer is often very low, and because of this, it is hard to find spouses (Sharna, 2008). Instead, youth want a high paying job that offers

benefits. Without proper resources and technologies, agriculture cannot provide this. Farmers are also very dependent on climate and rainfall, which prove time and time again they are very unreliable. For example, Dokur has droughts on an average of three out of every five years. This high amount of risk is unappealing. Youth want a dependable source of income they can rely on to provide for their new marriages and families.

The strengths, weaknesses, opportunities, and threats of youth in agriculture did not have much variety across the three groups I talked to. The overview of these results can be seen in Figure 6.1.

Figure 7.1 SWOT Analysis of Youth in Agriculture

S	Energy, interested in technologies, vocational education, good climate
W	Lack of experience, lack of knowledge, lack of interest, poor access to resources
O	Machinery, high yielding varieties, communication between younger and older farmers
T	Scarcity of water, uncertain climatic conditions, good year/bad year, price crashes, globalization, lack of arable land

While conducting my survey, the questions regarding organizations that empower youth were often left blank. Like I stated previously, 79% of respondents have heard of NREG, but only 7% had ever used their services. This organization does not target youth, but it does provide employment to anyone over 18. Out of curiosity, I asked why they did not use their service. They said because it was often hard to receive the registration card or transportation to worksite was hard to find. The one respondent who had worked with NREG had a really good experience, and said he would use it again. It seems as though NREG is hard to get into, but if you are provided employment, it is a good organization. KVK is another organization I did research with. There are many KVKs all over India; however the one near Dokur is only two years old. They have not started many programs yet because of their lack of funding from the Indian government. However, KVK does provide soil and water testing for free as well as vocational trainings. KVK

advertises these programs with media like TV and radio, which is interesting because they are targeting rural areas, which do not have much access to electricity. This organization has a lot of potential to do great things in Dokur as soon as they start these programs.

Overall, education and awareness is something that should be given more attention. If more people knew about all the technologies that could be used while farming such as mechanization and high yielding varieties, there could be more interest. New farmers lacking the experience can gain education through KVK, but many people do not know about this organization. There is a great amount of potential in the youth of India, and the sooner this age group realizes that they have a job to feed the country, food production will have a better future.

8.1 Policy Improvements

Youth have never played a large role in policy making. They are looked at as young and inexperienced. This leaves policy making decisions to law makers who have never experienced hardships of agriculture. Because of their lack of knowledge on the subject, policies are often useless and unsustainable. Youth should communicate with policy stakeholders as well as mass media and social media. This is important because by expressing their ideas and struggles, more people are more likely to help them. Youth really need to speak out about the ineffectiveness of current policies regarding agriculture.

Personal Remarks

My experience here at ICRISAT has been the most exciting, adventurous, and educational opportunity I have ever had. I was welcomed here with open arms and warm smiles and people genuinely made me feel at home. Indian hospitality is remarkable, and I will be taking that back with me to the US.

My whole life has been spent in the US, and leaving the country by myself at 16 years old was the most daring thing I have ever attempted. I moved around a lot when I was little, and traveling is something I love to do, but this is so different. I was by myself and did not have anyone else to rely on. I did not know much about myself before I got here besides that I love agriculture. This internship has helped me define who I am. It has taught me to be confident with work that I do and not everything comes easy, but hard work and passion pay off. This opportunity has forever changed me and has strengthened my love for agriculture more than I thought possible.

I will never forget when I was in Dokur and we were getting ready to leave, and some school kids started peeking their heads through the gate. I immediately fell so in love with every one of those kids. They came over and started shaking my hand and asking me questions in Telugu, and I wished that I could understand them. We all started playing around and taking pictures, and I have never seen smiles so bright and kids so happy. Two months ago, I was crying over not being able to find my cardigan, and here these kids were walking home from school without shoes, in the hot sun, and most likely without too much food in their stomachs. I was amazed by their spirits and I still smile when I think about my short time with them. Then our driver said we had to go, and I started shaking all of their hands goodbye. They started saying, "Bye ica!" and our driver told me ica means sister in Telugu. I started crying because the amount of kindness I was shown by five year olds was astounding and made me so happy. This epiphany was the best reminder as to why I am so passionate about youth in agriculture. I want to inspire kids to grow up to be farmers to feed the world so other people can have happy, long lives and accomplish their dreams. My sincerest thank you goes to these school children for forever changing my life.

I cannot wait to arrive back in the US and start educating everyone I know about what I learned here. I learned that poverty is everywhere, and just because I am on the other side of the world, it still continues. Life goes on no matter where you are, what you are doing, or who you are with. This is the greatest lesson I learned here and I will not forget ever again how precious time is. Life is so short, and I want to make a difference and leave a legacy. My aspirations are to change lives of high school students like the kids of Dokur changed mine.

Though I am excited to get home to start making changes in my community, a piece of me will always remain here in India. It makes me sad to think of all the relationships I am leaving behind. I have learned so much from everyone at ICRISAT, and I am so thankful for all of these opportunities. It is amazing to think that next April, I will potentially be talking to the 2015 World Food Prize Intern for ICRISAT. I will share with them my amazing memories here and my excitement for them to travel the world and experience what I was so lucky to experience. My summer in India will never be forgotten.



Picture 9: With children in the Aurepalle village, Andhra Pradesh

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Appendix: Youth in Agriculture Survey

Part I

1. VDS ID: _____
2. Name of Respondent: _____
3. At what age did you begin working? _____
4. Education level: _____
 - a. Illiterate
 - b. Primary School(1-4th standard)
 - c. Middle School(5-7th standard)
 - d. High School(8-10th standard)
 - e. Intermediate School(11-12th standard)
 - f. Diploma
 - g. Graduation
 - h. Post-graduation
 - i. Technical Degree
 - j. PhD
 - k. Other: _____
5. Who chose your profession: _____
 - a. Yourself
 - b. Mother or Father
 - c. Grandparents
 - d. Combination or Other: _____
6. Main occupation: _____
 - a. Subsidiary: _____
7. How much land do you live on? (Acres) _____
8. Do you travel for work? **Y or N**

Part II

9. List your annual income for the following activities.

Type of Income	Annual Amount in Rupees	Part Time/ Full Time
Agricultural Income		
Agricultural Labor Income		
Livestock Husbandry Income		
Non-farm Labor Income		

Seasonal Migration Income		
Permanent Employment Income		
Other		

10. What is your **total** annual income? (Rupees) _____

11. What minimal income do you think is needed to provide basic necessities? (Rupees)

12. For what reasons do you migrate for work? _____

- a. Better pay
- b. Less demanding job
- c. More desirable job
- d. More reliable occupation
- e. No employment in village
- f. Other: _____

13. What is your ideal job?

Part III

14. Rank these constraints according to how much they affect you. (1 being hardly affected at all, 10 being affected frequently)

Constraints	Ranking	Comments
Lack of education or training		
Limited jobs available in villages		
Traveling into work		
Poor pay		
Other (i)		
Other (ii)		

15. What kind of resources need to be provided to limit migration to cities for work? (Mark all that apply)

- _____ Better access to market
- _____ Better access to resources like water and fertile land
- _____ Vocational training
- _____ Grants or start-up loans
- _____ Crop insurance
- _____ Increased income margin
- _____ More jobs in the village
- _____ Accessibility to machinery (tractors, plows, threshers, etc.)
- _____ Other: _____

Part IV

16. Are there any organizations/programs that you know of that aim to empower youth in general?

- a. _____
- b. _____

17. How did you hear about these organizations?

- a. Word of mouth
- b. Someone from the organization
- c. Print media
- d. Electronic advertisement (TV or radio)
- e. Other: _____

18. If a youth organization provided you with anything, fill in the information that applies

Organization: _____

- a) Loan (amount): _____
- b) Grant (amount): _____
- c) Employment (location and annual income):

- d) Networking (between who): _____
- e) Supplies (list specific items): _____
- f) Training or education (subject): _____
- g) Other: _____

Organization: _____

- a) Loan (amount): _____

- b) Grant (amount): _____
- c) Employment (location and annual income):

- d) Networking (between who): _____
- e) Supplies (list specific items): _____
- f) Training or education (subject): _____
- g) Other: _____

19. Have you ever heard of the National Rural Employment Guarantee Act (NREG)? Y or N
- a. Have you ever used their services? Y or N
 - b. What kind of occupation were you provided? _____
 - c. Did you have a good experience with this company? Y or N
 - i. Why? _____
 - d. Did you encounter any problems while working with this organization?

Part V FARMERS ONLY

20. What is the purpose of your farm? _____
- a. Food supply
 - b. Income oriented
 - c. Combination
 - d. Other: _____
21. Do you enjoy your profession? Why or why not?

22. If given the opportunity to leave the farming industry, would you? Why?

- a. If so, how badly on a scale of 1-10 do you want to leave farming? _____
23. What is the biggest challenge you are faced with?

24. Do you have interest in leaving agriculture to pursue a career in another area? Why?
