1.) **Title :** Household water insecurities: Tradeoffs, compromises, and dynamics between domestic use and small scale farmer-led production

2.) Student Contact info:

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Degree Start Date: August 2018
Expected graduation: August 2023

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4.) Program applying for:

Mills Scholarship Program

5.) Would these funds be used to initiate new research or ongoing research?

New Research

6.) Abstract: Please provide 200 words or less about your proposed research problem, methods, and objectives, and describe how your research will address the research priorities.

It is estimated that by 2030, 75 million to 250 million people in Africa will be living in areas of high water stress, displacing anywhere between 24 million and 700 million people as conditions become increasingly unlivable. Because the majority of Africa remains dependent on an agricultural lifestyle and 80% to 90% of all families in rural Africa produce their own food, therein water scarcity translates to a loss of food security. Research that works to understand the dynamics between water use at the household level and water use for ag production and the tradeoffs that exist farmers in Africa will provide a better understanding of what that food security loss looks likes. This research will examine aspects of household water security among small farmers. Using field sites from the United States Agency for International Development (USAID) Project Feed the Future Innovation Lab for Small Scale Irrigation (ILSSI), this Research will take place in farmers' fields in the countries of Ethiopia and Ghana. The study will draw on qualitative data collected in the irrigated sites of ILSSI in both Ethiopia and Ghana, through a mix of gendered separated focus group discussions as well as surveys of irrigating farmers.

7.) Description of the student's proposed research, emphasizing how it will address water resources-related concerns (particularly how, if possible, it will benefit Texas), including:

a. ***Statement of critical regional or state water problem.*** **Describe how your research will address RFP research priorities and explain the need for the project, who wants it, and why.**

It is estimated that by 2030, 75 million to 250 million people in Africa will be living in areas of high water stress, displacing anywhere between 24 million and 700 million people as conditions become increasingly unlivable. Because the majority of Africa remains dependent on an agricultural lifestyle and 80% to 90% of all families in rural Africa rely upon producing their own food, water scarcity translates to a loss of food security. Research that assists in understanding the dynamic between water use at the household level and water use for ag production and the tradeoffs that exist among smallholder farmers in Africa will provide a better understanding of what that food security loss looks likes. Further, while this dissertation is not explicitly on Texas water policy, understanding the drivers of household water insecurity among smallholder farmers in Africa will allow researchers to draw parallels that exist among irrigators on the Texas Mexico Border, deepening the understanding of what food security looks like for that population. Further, this research will enable Texas A&M to fortify existing relationships in the international development and agriculture sectors by contributing to cutting edge research that provides an opportunity for the university to be the leader on water insecurity issues not only in Texas and Mexico but globally.

Nature, scope, and objectives of the research, including a timeline of activities. **This is the major emphasis of your proposal**

The nature of the will examine aspects of water security among African Smallholder farmers specifically looking at the tradeoffs and dynamics that exist between water use at the household and farm level. Using field sites from the United States Agency for International Development (USAID) sponsored project Feed the Future Innovation Lab for Small Scale Irrigations, this research will take place in farmers' fields in the countries of Ethiopia and Ghana. Further, the proposed timeline for this field research would be spring and summer of 2021 with a research completion date of spring of 2022.

b. ***Methods, procedures, and facilities.*** **Provide sufficient information to permit evaluation of the technical adequacy of the approach to satisfy the objectives.**

The study will draw on qualitative data collected in the irrigated sites of ILSSI in both Ethiopia and Ghana, through a mix of gendered separated focus group discussions as well as surveys of irrigating farmers. The research sites will be chosen based on access to an adequate source of water for dry season irrigation, as well as proximity to households. The discussion questions for focus groups will examine gender preferences for water technologies, technology choices as aligned to existing community and household needs, roles and responsibilities of both men and women, household use and management of water with different irrigation technologies, and perceived tradeoffs related to water use at home vs water use for agricultural activities.

c. ***Statement of expected results or benefits.*** **Specify the type of information that is to be gained and how it will be used.**

Through this research, it is expected that a better understanding of the gap that exists between household water security and water use for ag production will be better understood, leading to a clear picture of what food insecurity looks like for smallholder farmers in Africa. This, in turn, will allow development workers, stakeholders, and policymakers to better target their interventions when working within the smallholder farming communities.

8.) Intended Career Path

I intend to leverage the skills and experience gained through my doctoral program to seek a position within the United Nations Food and Agricultural Organization (FAO) or The United Nations Children Fund (UNICEF)

9.) References

Conference on Water Scarcity in Africa: Issues and Challenges. Retrieved 11 November 2019