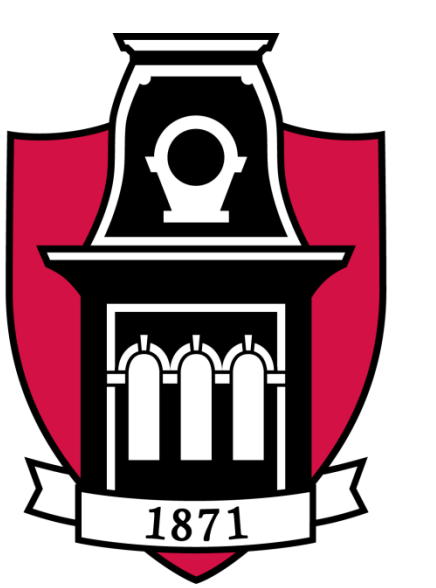


# Affordable Rain Water Harvesting Systems

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Sustainability



UNIVERSITY OF ARKANSAS

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## THE PROBLEM

The concept of Sustainability is often mis-categorized as an standardized goal; which can be achieved and forgotten. However, in truth, Sustainability is all encompassing and never fully completed. To achieve Sustainability, the issues must constantly be readdressed and reevaluated. My work is an attempt to bridge the gap between the everyday efforts of the "average" person, and an economical solution for achieving greater personal sustainability. By focusing on ways to limit an individual households impact on their environment while encouraging natural systems, I strove to inject a piece of Sustainability into every household. Presenting a practical solution for saving money and water.

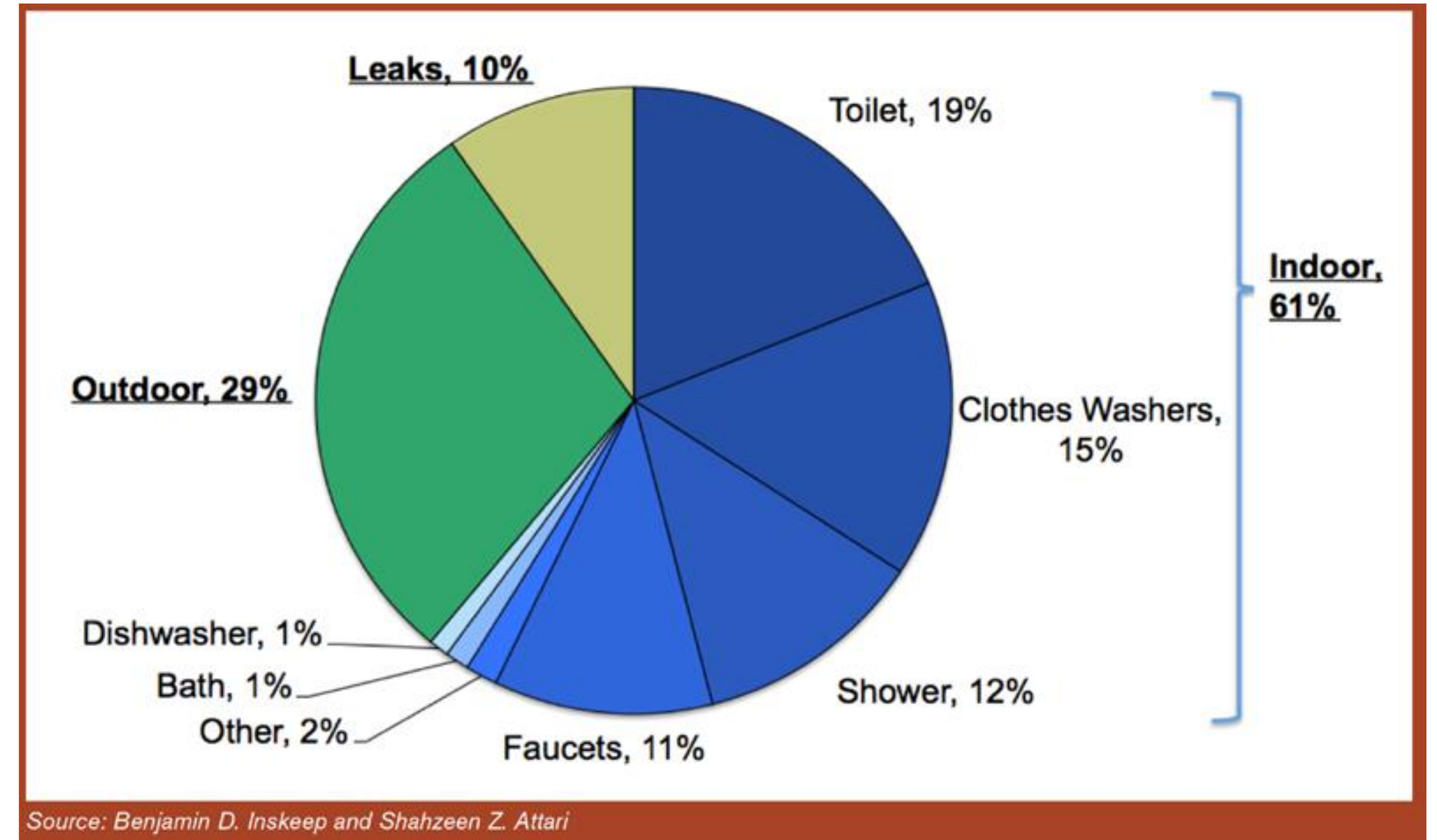
## THE PROJECT

I focused predominantly on the construction of an affordable and simply constructed rain water collector, which is used only for personal lawn irrigation. Personal lawn care is the largest single contributor to water usage (Image 2). Thus, I formulated my project around the practicality and incentivizing qualities that sustainability can offer the everyday layman. I recorded the cost of material and construction, and utilized this in conjunction with average rainfall in Fayetteville to calculate the water needed for effective irrigation. After I finished constructing my collector, I recorded a month of precipitation data, and used qualitative gauges to determine the effectiveness of my system. I found that my system was effective in collecting all forms of precipitation, however, large diurnal temperature swings in March caused my collected water to rapidly freeze and thaw within my collecting drum. Essentially cracking the bottom spout of my crudely constructed system. Thus I determined the most effective model of Rain water needs to utilize industrial material, be placed off the ground and must be equipped with an effective spout. (Image 1.)

Image 1

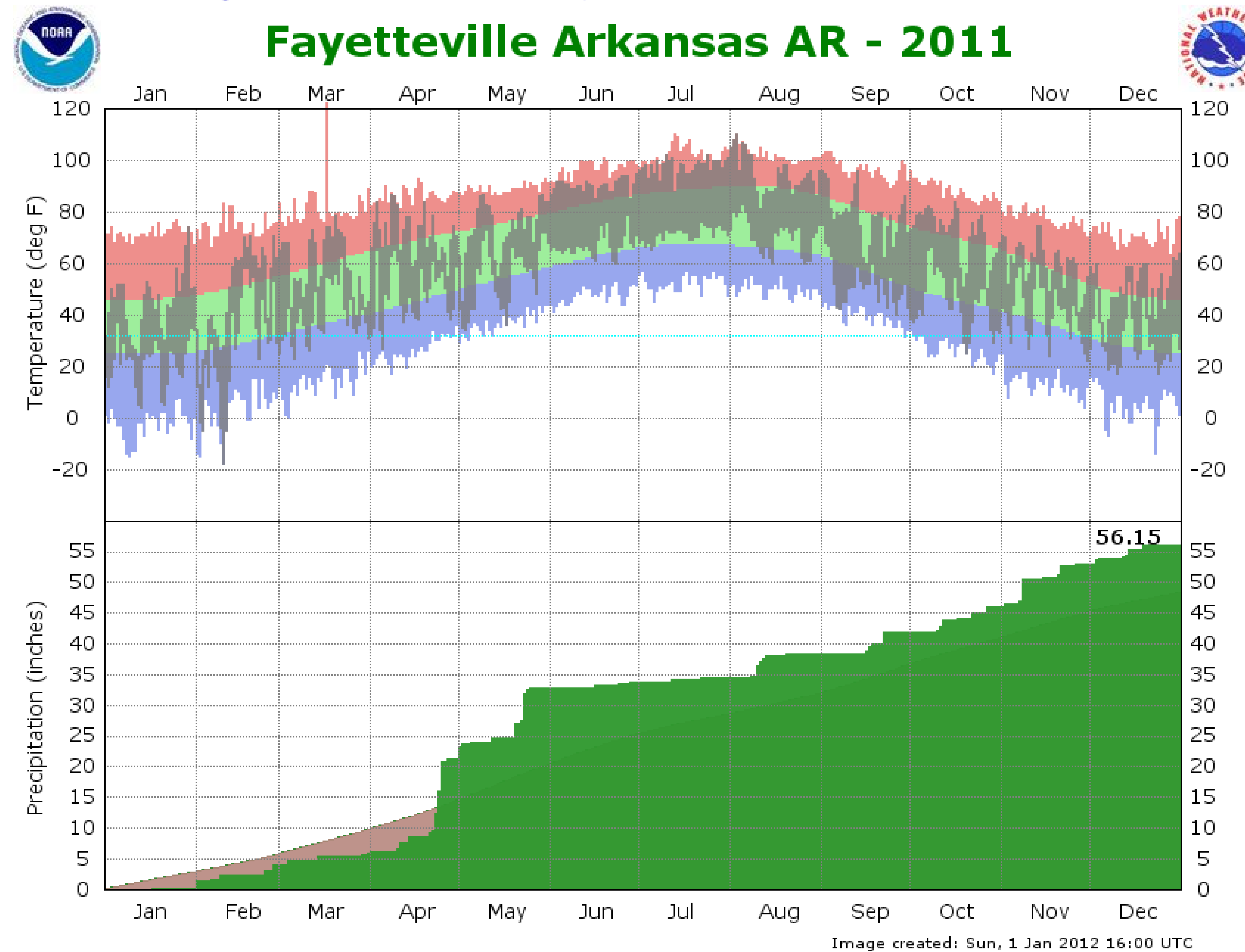


Image 2



## Average Rain Fall in Fayetteville

### Fayetteville Arkansas AR - 2011



## SUSTAINABILITY

My project is an effort to alleviate the cultural pressure on the field of Sustainability. My project attempts to find affordable sustainability techniques to better improve the social awareness, and educating the public on the all-encompassing nature of Sustainability. My project addresses the three major facets of Sustainability equally. By creating an environmentally clean system of reusing rainwater, and protecting natural systems while utilizing them effectively. This harvester also addresses the inescapable necessity of economics. To be a valid solution, sustainable procedures need to maintain a cost-effectiveness to make them economically feasible. By making my project as affordable as possible, I attempted to make rain water harvesting a practical solution for people with any level of income. Thirdly, my project is focused primarily on the social qualities of Sustainability. My desire to create an affordable harvester stems from my belief that the social capital of Sustainability can only grow with the availability of practical, simple means of increasing an individuals PERSONAL sustainability. True, universal Sustainability may be an insurmountable task, but it can only be attempted once society and the Individual decide that it is something worth pursuing. My project is just laying the groundwork.

My hope is that the students at the University of Arkansas will recognize my project as a simple means of saving money and protecting the environment. And I believe that after witnessing the effectiveness of my harvester, Sustainability ceases to be a just a term, and becomes a paradigm of my generation.