

Proposal
For
Greenhouse Water Conservation Station

Prepared for
Student Sustainability Committee

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Student Sustainability Committee

Subject: Proposal of a Greenhouse Water Conservation Station at Johnson County
Community College

We are pleased to write this petition regarding the Student Idea Contest to propose further sustainability on campus. We are proposing a contraption that would benefit the recycling and reusing of water in the Hiersteiner Child Development Center (HCDC) Children’s Garden greenhouse.

Our report includes an analysis of the project and the ability to meet the requirements for sustainability on campus:

- Product Specifications6
- Technical Description6
- Cost8
- Benefits to Campus8
- Implementing Future Benefits to Campus9

Thank you for allowing some time to review our proposal. We look forward to hear more from you.

Sincerely,

Mai Vue
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Enclosure: Proposal

TABLE OF CONTENTS

ABSTRACT	4
1.0 INTRODUCTION	5
1.1 Purpose	5
1.2 Problems	5
1.2.1 Water Wastage	5
1.2.2 No Greenhouse Water Conservation Station	5
1.2.3 Not Recycling and Reusing Water.....	5
2.0 DISCUSSION	6
2.1 Analysis of Solution	6
2.2 Technical Description.....	6
2.2.1 Mechanics	6
2.2.2 Materials	7
2.3 Cost.....	8
2.4 Benefits to Campus	8
2.5 Implementing Future Benefits to Campus.....	9
3.0 CONCLUSION.....	10
3.1 Major Concern.....	10
3.2 Recommendation.....	10

LIST OF ILLUSTRATIONS

Figure 1: Importance of Water Wastage on Campus.....	5
Figure 2: Diagram of Greenhouse Water Conservation Station	6
Figure 3: Materials	7
Figure 4: Location of Greenhouse Water Conservation Station.....	8
Table 1: Future Benefits to Campus	9

ABSTRACT

The clean water from the city is used for cleaning and is wasted by allowing it to spill on the ground. Presently the Children's Garden greenhouse does not have a water conservation station to replenish used water.

A contraption can be implemented within the greenhouse that will benefit the water conservation effort.

This contraption would avoid wasting used water. The Children's Garden facility can also teach children the stewardship of water conservation.

1.0 INTRODUCTION

1.1 Purpose

This is a proposal to implement a greenhouse water conservation station that will recycle and reuse water in Johnson County Community College.

1.2 Problems

1.2.1 Water wastage

The clean water from the city is being used to wash vegetables and the used water is simply wasted by allowing it to spill on the ground.

1.2.2 No greenhouse water conservation station

Currently the Children's Garden greenhouse does not have a water conservation station to replenish used water.

1.2.3 No recycling or reusing of water

This contraption would reduce water wastage. The greenhouse can benefit from using the water conservation station to use the water to irrigate the plants in the greenhouse.

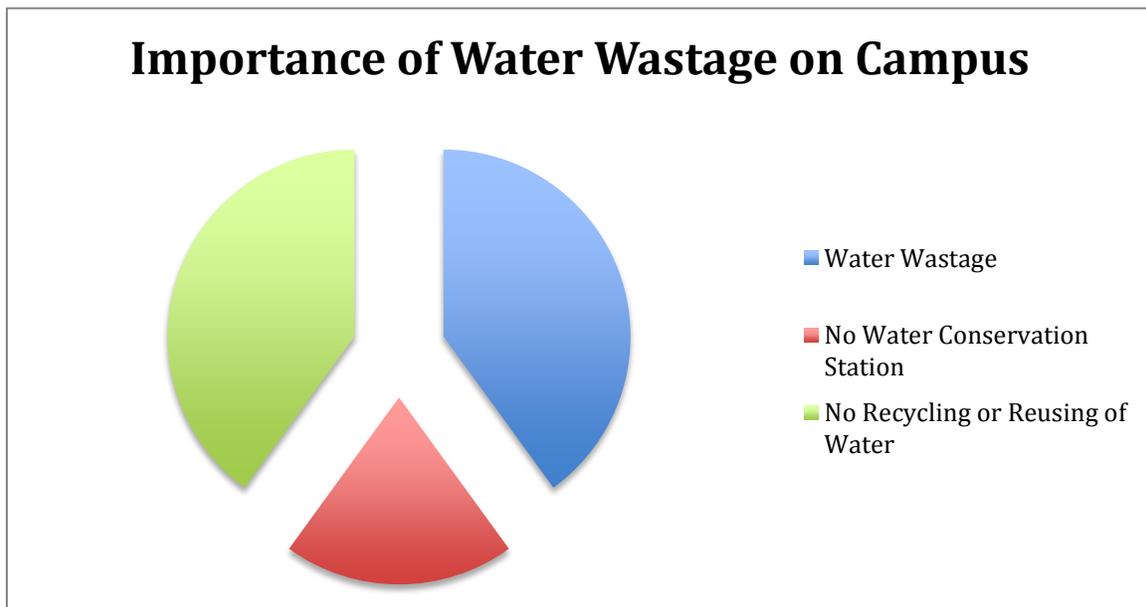


Figure 1: Importance of Water Wastage on Campus

Figure 1 shows the how much the significance of each problem is to students. 40% stated that water waste management is important for a sustainable environment. 20% stated that the campus needs a water conservation station and 40% stated that recycling and reusing water is a great way to keep up with sustainability on campus.

2.0 DISCUSSION

2.1 Analysis of Solution

The water saved after washing the vegetables can be used for a variety of purposes besides watering plants within the greenhouse, the applications are endless. However, using the saved water for plants immediately around the water conservation station would be the most practical.

2.2 Technical Description

2.2.1 Mechanics (*Figure 2*)

1. The basic structure of the station relies on the stability of the collection barrel, and wood may be used as needed for strength and support. A wooden base may be built in order for the water outlet to be somewhat above ground.
2. A laundry tub (or equivalent) with a drain can be fitted with a simple, flat, removable filter for sediment collection, and placed upon the barrel, allowing water to be filtered and subsequently collected for later use.
3. Incoming hose water may be attached to a faucet or spigot to control water, or left plain and mounted to the tub for simplicity and cost.
4. An appropriate opening at the bottom of the barrel may be fitted with a ball valve of spigot in order to control water outlet.

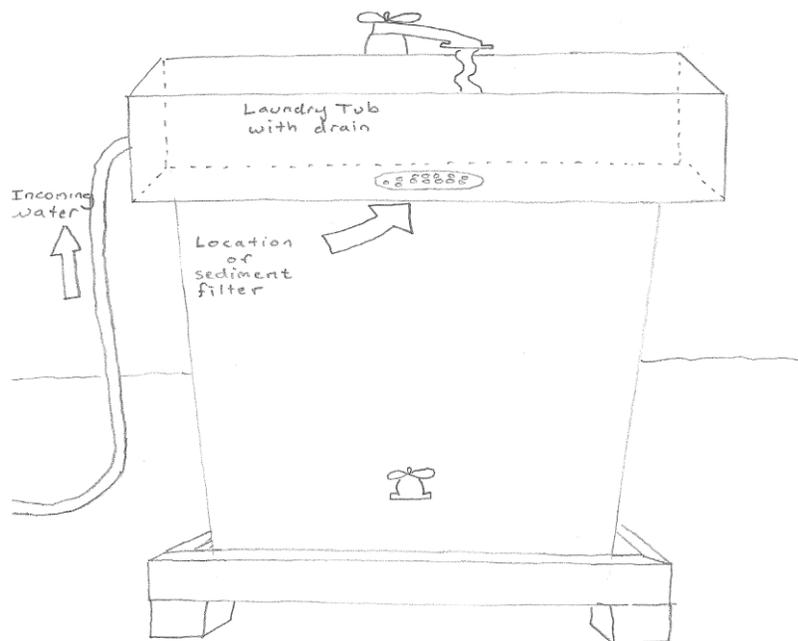


Figure 2: Diagram of Greenhouse Water Conservation Station

2.2.2 Materials Needed

Figure 3, below, shows the materials needed for the greenhouse water conservation station.



Barrel

- A substitute may be a trash barrel etc.



Filter

- An aquarium filter, cloth or a strainer for sediment



Laundry Tub

- A variety of substitutes may be used for cost effectiveness



Spigot/Valve

- Ball valve (brass/plastic) or outdoor spigot



Lid

- A lid of appropriate nature with the ability to be bored to the proper size



Garden Hose

- Hose or equivalent (for delivering water to the station)



Saw/Proper Tools

- Any tools necessary for manipulating materials (saw, hammer, screwdrivers etc.)



Scrap Wood

- Designed according to availability

2.3 Cost

The cost of this contraption is fairly little. After some discussion with coordinators of the greenhouse facility, they informed us that the school already has a few materials, such as barrels that can be used towards the project.

2.4 Benefits to Campus

Figure 4, below, shows the location of the greenhouse water station in the Children's Garden near the Hiersteiner Child Development Center on the west side of campus. This water station will provide children and students with water to rinse vegetables grown in the greenhouse. In addition to the ability to rinse vegetables, the water used will be stored in the container below the sink and reused for other purposes such as watering other plants and vegetables.



Figure 4: Location of Greenhouse Water Conservation Station

2.5 Implementing Future Benefits to Campus (*Figure 2*)

Although the initial water-station proposal is relatively small scale, it is feasible to implement relatively similar ideas throughout campus.

2.5.1 Water Fountains

For example, how much water goes back into the sewers when someone takes a drink from a water fountain? It may seem like a small amount, but consider the amount of students and staff as well as the number of water fountains. There may be ways to make simple diversions to the vessels carrying water away that goes down the drain. That water, although not fit for drinking, could supply a portion of the water used to keep our many campus lawns green and healthy.

2.5.2 Restroom Sinks

There is undoubtedly a lot of water used for hand washing that is wasted and sent to the sewers. It may be possible to reuse this water for purposes similar to the water fountain idea listed above. Perhaps there is a way to rid this water of used soap and significantly reduce lawn watering costs.

2.5.3 Showers in the Gym

There is no doubt that the showers in the gym use a substantial amount of water daily. That used water can be put to a more environmentally friendly use as well!

2.5.4 Additional Benefit

If the above ideas were put to use, another possibility arises. Old copper and brass plumbing could be recycled to help fund new sustainability projects.

Below in *Table 1*, organizes the benefits in order of 1 to 5, 5 representing what we think the most beneficial addition to campus is.

Various Benefits	Importance to Campus	Ability to Implement	Sustainability to Campus	Total
Water Fountains	5	4	2	11
Restroom Sinks	5	3	4	12
Gym Showers	2	2	5	9
Recycling Old Materials	3	4	3	10

3.0 CONCLUSION

3.1 Major Concern

In the HCDC Children's Garden, vegetable-washing water is wasted as spills onto the ground. This water has the potential to be used for further plant or vegetable irrigation in the same greenhouse if it is well stored.

3.2 Recommendation

To save water in the greenhouse and perhaps introduce an easy way to save water throughout campus, we recommend the construction and use of the Greenhouse Water Conservation Station.