**Net Zero Water Building Design**

**Conventional Definition:** "Net zero water building" means a building that is designed, constructed, or renovated and operated to substantially reduce total water consumption. It emphasizes to use non-potable sources as much as possible, and recycle and reuse water to return the equivalent amount of water as was withdrawn from all sources without compromising groundwater and surface water quantity or quality.

**Redefined Definition:** In our project, we will redefine the net zero water building design while considering some obvious obstacles. The geographical location of the area is very harsh regarding temperature and annual precipitation. So, the supply of water directly from the environment like rainwater harvesting is probably not a suitable option for this project. Our project will explore ideas about how can we maximize the water reuse inside the facility and minimize the potable water supply from outside sources.

**Scope of Work:**

* **Goal:** To achieve water sustainability through net zero water system.
* **Objective:** To develop a comprehensive strategic plan that pushes our hostel facility to become self-sufficient in its potable water needs and treating as much wastewater as possible.
* **Strategy:** The project will calculate net water usage and investigate about all the potential water supply sources around the area of interest. By doing so, we can understand the shortcomings of the existing water supply system. Then all the possible improvements will be explored to make sure the total system works as a net zero system. Our team will consider all the establishments including energy efficient water treatment plants, green infrastructure and smart appliances inside the building. At the same time cost and availability of related materials will also be assessed.
* **Tasks and Timeline:**

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| **Members** | **Tasks** | **Submission Timeline** | | |
| Rafique | **Water Budget Calculation Tool** Description: User interfaced based python tool for calculating net water usage of the facility. | 50% 100% | by | 2/16/2017 3/28/2017 |
| Khawar | **Water Optimization Strategies** Description: Introducing new water efficient/smart appliances and developing social awareness | 30% 50% 100% | by | 2/16/2017 3/28/2017 4/18/2017 |
| Rubayat | **Water Reuse Strategies** Description: Exploring feasibility of green water treatment plant for waste water reuse. | 30% 50% 100% | by | 2/16/2017 3/28/2017 4/18/2017 |
| Imran | **Exploring New Water Sources** Description: Exploring new water sources with-in pre-defined boundary condition using GIS. | 30% 50% 100% | by | 2/16/2017 3/28/2017 4/18/2017 |
| Rafique & Khawar | **LEED Certification Process** Description: Explore key areas to achieve required certification level. | 30% 50% 100% | by | 2/16/2017 3/28/2017 4/18/2017 |
| Rubayat & Imran | **Preparing Drawings and Write-up** Description: Narrate the whole process and prepare necessary CAD drawings | 30% 50% 100% | by | 2/16/2017 3/28/2017 4/18/2017 |

* **Tools:** 
  + Python: for Water Budget Calculation Tool
  + ArcGIS: for Exploring New Water Sources
  + AutoCAD: for preparing constructional drawings and layouts
  + Microsoft Project: for generating Project Gant Charts