Daniel Silverman
CEE 577
4/15/20

4/15/20 Workshop Commentary

The article presented is titled “Stormwater harvesting for irrigation purposes: An investigation of chemical quality of water recycled in pervious pavement system”. The authors are Ernest O. Nnadi, Alan P. Newman, Stephen J. Coupe, and Fredrick U. Mbanaso. Alan P. Newman is a professor in the School of Health & Life Sciences at Coventry University in the United Kingdom. The other three researchers are professors in the SUDS (Sustainable Urban Drainage Systems) Applied Research Group at Coventry University. The article is a little old, having been published in 2015 in the *Journal of Environmental Management*, but it is still relevant and has been widely cited.

This article may be of interest to people in this class because it deals with how man-made structures can passively impact surface water quality. The article looks at how water that has been captured in a pervious pavement system may be used for irrigation. Pervious pavement is a concrete mixture that allows water to flow through it and enter either a catchment system or the groundwater table below it. This is a technology increasingly being used to reduce runoff from paved services, replenish groundwater naturally, and reduce erosion. The question of what to do with water that may have been captured from pervious pavement is an interesting one. Allowing it to naturally enter the ground is one answer, but in arid climates there is a need for more water for irrigation.

Using captured water from pervious pavement systems could fill this need for agricultural irrigation. This paper looked at the chemical quality of water that had been run through a simulated pervious pavement system to determine how effective it was at removing pollutants. The samples of collected water were tested for levels of a wide range of metals, nutrients, and other pollutants (including total petroleum hydrocarbons). In the end they determined that pervious pavement does indeed have a high removal efficiency for all of the tested pollutants. They did note however that effluent from the systems should not be released into natural surface water, as the higher levels of nutrients in the water might result in eutrophication problems. This paper outlines an interesting way that humans can address the problems of runoff while also helping to reduce strain on agricultural water supplies.