Project Number: SCS15002

Client: Dr. Christine Kirchhoff

Affiliation: Civil and Environmental Engineering

Consultant: Dooti Roy

Attendees: Dr. Christine Kirchhoff, Dr. Ming Hui Chen and Dooti Roy

Location: CLAS 326

Time and Date: 5:00-6:00 p.m., 01/29/2015

Meeting Summary:

In the initial meeting Christine explained her project plan to us. The origin of the data was explained and most of the variables were explained. Project goals and a rough future plan was laid down.

Main Points Discussed:

The data has been provided by Department of Energy and Environmental Protection (DEEP), State of Connecticut. DEEP (authority for state regulation is devolved from Federal Clean Water Act statute) is responsible for controlling storm water discharges from industrial facilities and municipalities. For each industry, mandatory monitoring happens at regular intervals (per permit requirements) within the first few days of the storm. The permittees report the water quality test results from the monitoring to the DEEP as required to meet the SW permit. Several water quality parameters are recorded during this monitoring (as specified by permit) including amount of oil and grease in the sample discharge, total amount of Phosphorus, total nitrate content, sample pH balance to ensure the acidity of the discharge is within allowed limits, etc. The quality of SW runoff is important to society as the discharges drain into ponds, creeks, rivers nearby to the location of the industry and have the potential to diminish water quality of those receiving streams.

The data records all industries in each of the 169 towns of the state of Connecticut starting from 1996 up to 2013. Including in the data are results of periodic stormwater quality monitoring (parameters described above) that are required to be reported (as specified in the permits). The permit requirements state benchmark values for each parameter (see parameter\_limits\_requirements\_timeline\_SIC\_codes.xlsx) and it appears some reported values were within the limits where as others are in excess. According to the permit requirements, individual industries who exceed benchmark limits are mandated to improve the quality of discharge. Whether or not this actually happens is unknown at this time. The data records all the relevant metrics along with geo-specific information such as size of the municipality, receiving water, etc.

Christine is primarily interested to find:

* Evaluate if the permit program is successful.
* Correlate discharge quality with location (town) and facility type (industry sector) or with receiving water quality either for certain streams (e.g., Connecticut River?) or with Impaired vs Not Impaired (only available for new data).
* Identify acute water problems in some areas (e.g., by town or receiving water).
* Is a particular class of industry fairing worse than other?
* Storms of higher magnitude causes higher contaminant loading?
* Potentially look at classes of contaminants (metals, nutrients, sediment) over time to identify trends.

Action:

1. Christine will try to get a full understanding of the data from DEEP
2. Christine will provide SIC codes so that the old data can be reformatted so as to match the format/class divisions of the new data
3. Ask DEEP about a couple of industry classes where they expect to see changes in discharge quality.
4. Once the data is well understood, Dooti will provide a basic analysis for the above mentioned industry classes.