

## **CT 5510 Urban water management**

### **List of possible subject for the assignment.**

**Your task:** Retrieve relevant information from literature (library) en web and summarize your findings in an overview report (max 5 pages). Add the literature that you used in an annex. Total workload 16 hours (not much more, no less)

### **Water quality standards for various purposes**

Compile a list of quality standards for the use of surface water and groundwater for various purposes e.g. for drinking, drinking water production, swimming, fishing, irrigation, horticulture, drenching, toilet flushing, cleaning and so on. Dutch, foreign and international standards.

### **(in Dutch) Grondwateronderlast**

Beschrijf de aantastingsmechanismen van houten funderingspalen en hun snelheid van aantasting afhankelijk van het grondwater. Geef aan waar grenzen liggen t.a.v. droogstand van houten paalfunderingen. Welke invloed heeft de kwaliteit van het grondwater op het aantastingsproces

### **Rainfall-runoff modeling in Infoworks (UK) / in SWMM (US) / in Mouse/Mike11(DK) or in Sobek Urban(NL) ( 4 students)**

Make a description of the way the RR modeling is done in Infoworks / Stormwater management Model / Mouse/Mike11 or Sobek Urban. Give an overview of design storms one can use, loss processes and the way they are modeled, paved surface runoff process models, pipe flow models, unpaved area surface runoff, infiltration in pavement, groundwater – surface water – sewer flow interactions, groundwater drainage inflow into urban surface waters, modeling discharge via SUDS

### **Land subsidence, the damage it does and its relation to groundwater management**

Give an overview of the residual subsidence that is considered acceptable by municipalities and organizations, its relation to groundwater management and quantify the damage that is done to public infrastructure and private properties.

### **Climate-robust cities in Germany / France (2 students).**

How do German cities prepare for more heavy rainfall, more severe droughts and control of extreme temperatures – and the role of water in this control system.

### **Quality of the shallow groundwater and of subsurface drainage runoff**

Collect data on the shallow groundwater quality and the quality of subsurface drainage water, in particular from runoff from SUDS and see for what purposes this water is fit.

### **Urban water planning**

Take a post 2005 water plan of a major Dutch city and evaluate this plan with the 3Dglasses methodology. List the issues addressed in the plan and evaluate its consequences for spatial planning.

**Guiding models for urban design**

Give an overview of the guiding models for designing urban water systems, including new ones. Explain the backgrounds of these models.

**Evaluate the urban water policy of Delfland / Rijnland / Schieland / Hollands Noorderkwartier / Amster, Gooi en Vecht (max. 2 students)**

Evaluate the policy of this waterboard regarding urban water, the way they actively participate in urban water projects and the way they implement the water assessment (Watertoets)

**Analyze the water management problems of a specific megacity (max. 2 students)**

Analyze the water management problems of a specific megacity and the way they are trying to improve the situation.

**Evaluate the clogging risk of stormwater infiltration facilities**

How clogged do they get, how soon and how to recover these infiltration facilities? Quantify the clogging in terms of loss of performance.

**Compare the vision documents on the water sensitive city (Monash University) and the Water City (Deltares)**

Evaluate similarities and differences. What can both learn from other, similar visions.

**Groundwater monitoring networks.**

Analysis of requirements and network design strategies.

**Real time control of urban groundwater levels.**

Maximize the use of ground for storing stormwater, while avoiding extremely high and extremely low groundwater levels. Kick off for an MSc project.